LEE COUNTY BOARD OF COUNTY COMMISSIONERS

ZONING
and
COMPREHENSIVE PLAN AMENDMENT HEARING AGENDA

Wednesday, March 6, 2024
9:30AM

DCI2023-00022 Z-24-002	Extra Space Storage – Ft. Myers
DCI2023-00009 Z-23-040	Blackstone Corporate Park MPD
DCI2023-00007 Z-24-003	Bayshore 75
CPA2023-00008	Water Supply Plan Update - Transmittal

NOTICE OF PUBLIC HEARING

The Lee County Board of County Commissioners will hold a public hearing at 9:30 am on Wednesday, March 6, 2024 in the Board Chambers at 2120 Main St., Ft. Myers, FL, to review the written recommendations made by the Hearing Examiner and make a final decision on the case(s) below. (Lee County **L**and **D**evelopment **C**ode is abbreviated below as **LDC.**)

DCI2023-00022 / Extra Space Storage – Ft. Myers

Request to amend Resolution Z-99-046 to eliminate three single story public storage buildings that were approved but never constructed and replace with a two-story 41,600 square foot public storage building with a maximum height of 25 feet.

Located At 9321 Cypress Lake Drive, South Fort Myers Planning Community, Lee County, FL.

DCI2023-00009 / Blackstone Corporate Park MPD

Request to rezone 98.03± acres from Commercial (C-1A) and Mixed Use Planned Development (MPD) to Mixed Use Planned Development (MPD) to allow for 500,000 square feet of commercial floor area and 350,000 of industrial floor area with a maximum building height of 65 feet.

Located At Along SR 82 and Blackstone Drive, Lehigh Acres Planning Community, Lee County, FL.

DCI2023-00007 / Bayshore 75

Request to rezone 74.11± acres from Agricultural (AG-2) and Mobile Home (MH-2) to Residential Planned Development (RPD) to allow for up to 250 single family dwelling units.

Located At 1711 Williams Rd. and 6601 Bayshore Rd., North Fort Myers Planning Community, Lee County, FL.

Copies of the Hearing Examiner's recommendation may be obtained or the file reviewed at the Zoning Section, 1500 Monroe St., Ft. Myers, FL. Telephone 239-533-8585 for additional information.

If you did not appear before the Hearing Examiner or otherwise become a participant for that case in which you wish to testify, the law does not permit you to address the Board of County Commissioners.

Statements before the Board of County Commissioners regarding the zoning case will be strictly limited to testimony presented to the Hearing Examiner, testimony concerning the correctness of the findings of fact or conclusions of law contained in the record, or to allege the discovery of new, relevant information which was not available at the time of the hearing before the Hearing Examiner.

Any document that a participant of record intends to submit must have been submitted as part of the record in the hearing before the Hearing Examiner or the document is relevant new evidence that was not known or could not have been reasonably discovered by the participant at the time of

the hearing before the Hearing Examiner. All other documents will not be accepted by the Board. To ensure compliance with these regulations, copies of documents not submitted as part of the record before the Hearing Examiner must be provided to the Applicant and County Staff (JPrincing@leegov.com) not less than 2 days before the date of the zoning hearing.

If a participant decides to appeal a decision made by the Board of County Commissioners with respect to any matter considered at this hearing, a verbatim record of the proceeding will be necessary to appeal a decision made at this hearing.

In accordance with the Americans with Disabilities Act, Lee County will not discriminate against qualified individuals with disabilities in its services, programs, or activities. To request an auxiliary aid or service for effective communication or a reasonable modification to participate, contact Joan LaGuardia, (239) 533-2314, ADArequests@leegov.com or Florida Relay Service 711. Accommodation will be provided at no cost to the requestor. Requests should be made at least five business days in advance.

NOTICE OF PROPOSED AMENDMENT TO THE
LEE COUNTY COMPREHENSIVE LAND USE PLAN
(TRANSMITTAL HEARING)

The Lee County Board of County Commissioners will hold a public hearing to consider proposed amendments to the Lee County Comprehensive Land Use Plan (Lee Plan) on Wednesday, March 6, 2024. The hearing will commence at 9:30 a.m., or as soon thereafter as can be heard, in the Board Chambers, 2120 Main Street in Downtown Fort Myers. At the hearing, the Board will consider the proposed amendments for transmittal to the Florida Department of Economic Opportunity:

> CPA2023-00008 Water Supply Plan Update: Amend the Lee Plan to coordinate with the South Florida Water Management District's 2022 Lower West Coast Water Supply Plan as required by Section 163.3177 of the Florida Statutes. Portions of the Lee Plan to be amended include the Future Land Use Element, the Community Facilities and Services Element, the Capital Improvements Element, and Table 5 – Ten Year Water Supply Development Projects.

This transmittal hearing is the first step in a two-step public hearing process to amend the Lee Plan. A second hearing will follow the Department of Economic Opportunity's review of the application.

Documentation for the Proposed Comprehensive Plan Amendment is available at https://www.leegov.com/dcd/planning/cpa or at the Department of Community Development located at 1500 Monroe Street, Fort Myers, Florida. This meeting is open to the public. Interested parties may appear at the meeting and be heard with respect to the proposed plan amendment. A verbatim record of the proceeding will be necessary to appeal a decision made at this hearing.

It is the intent of the Board of County Commissioners that the provisions of this Comprehensive Plan Amendment may be modified as a result of consideration that may arise during Public Hearing(s). Such modifications shall be incorporated into the final version.

Lee County will not discriminate against individuals on the basis of race, color, national origin, sex, age, disability, religion, income or family status. To request language interpretation, document translation or an ADA-qualified reasonable modification at no charge to the requestor, contact Joan LaGuardia, (239) 839-6038, Florida Relay Service 711, at least five business days in advance. El Condado de Lee brindará servicios de traducción sin cargo a personas con el idioma limitado del inglés.

DCI2023-00022
Extra Space Storage – Ft. Myers

Staff Summary

CASE NUMBER & NAME:	DCI2023-00022 / Extra Space Storage – Ft Myers
REQUEST:	Request to amend Resolution Z-99-046 to eliminate three single story public storage buildings that were approved but never constructed and replace with a two-story 41,600 square foot public storage building with a maximum height of 25 feet.
RESOLUTION NUMBER:	Z-24-002
LOCATION:	9321 Cypress Lake Drive, South Fort Myers Planning Community, Lee County, FL.
OWNER:	Extra Space Properties Two LLC – Gwyn McNeal (Manager)
APPLICANT:	Extra Space Properties Two LLC – Gwyn McNeal (Manager)
AGENT:	Stuart M. Rogers, P.E. Colliers Engineering & Design 5471 W Waters Avenue, Suite 100 Tampa, FL 33634
HEARING EXAMINER RECOMMENDATION:	Approve, subject to conditions and deviations set forth in Exhibit B.
PARTICIPANTS (0):	None

DCI2023-00022

Aerial

Subject Property

N
W E
S

0 300 600 900
Feet

Lee County
Southwest Florida

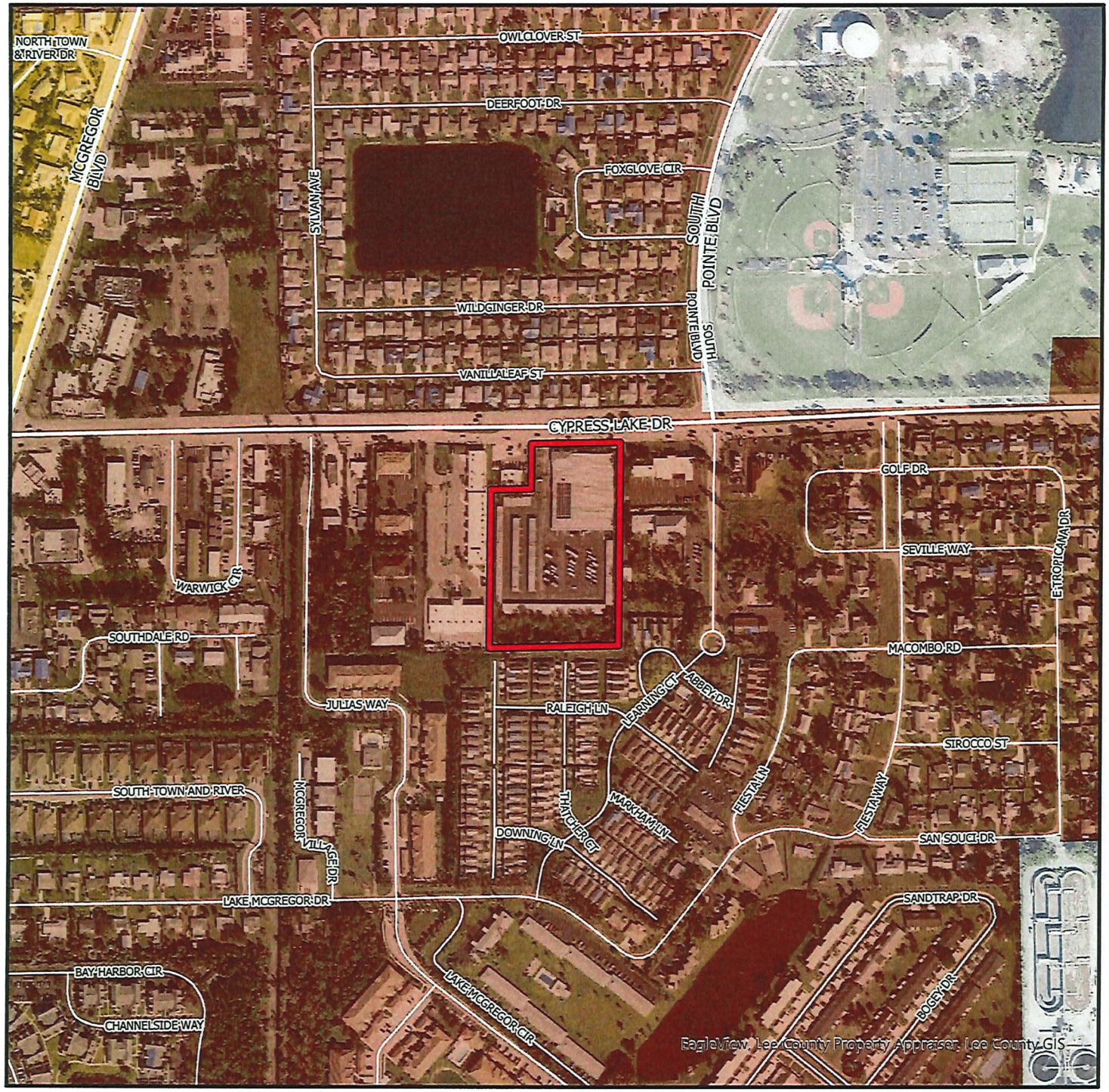
Summary of Hearing Examiner Recommendation

EXTRA SPACE STORAGE-FORT MYERS

The request redesigns an existing mini warehouse facility to replace three planned, but unconstructed buildings with a single two story structure internal to the site.

Existing preserves, buffers, and water management features at the south end of the property remain unchanged, ensuring compatibility with residential land uses to the south.

Detailed recommendation follows



DCI2023-00022

Future Land Use

- Subject Property
- Central Urban
- Urban Community
- Public Facilities

N
W E
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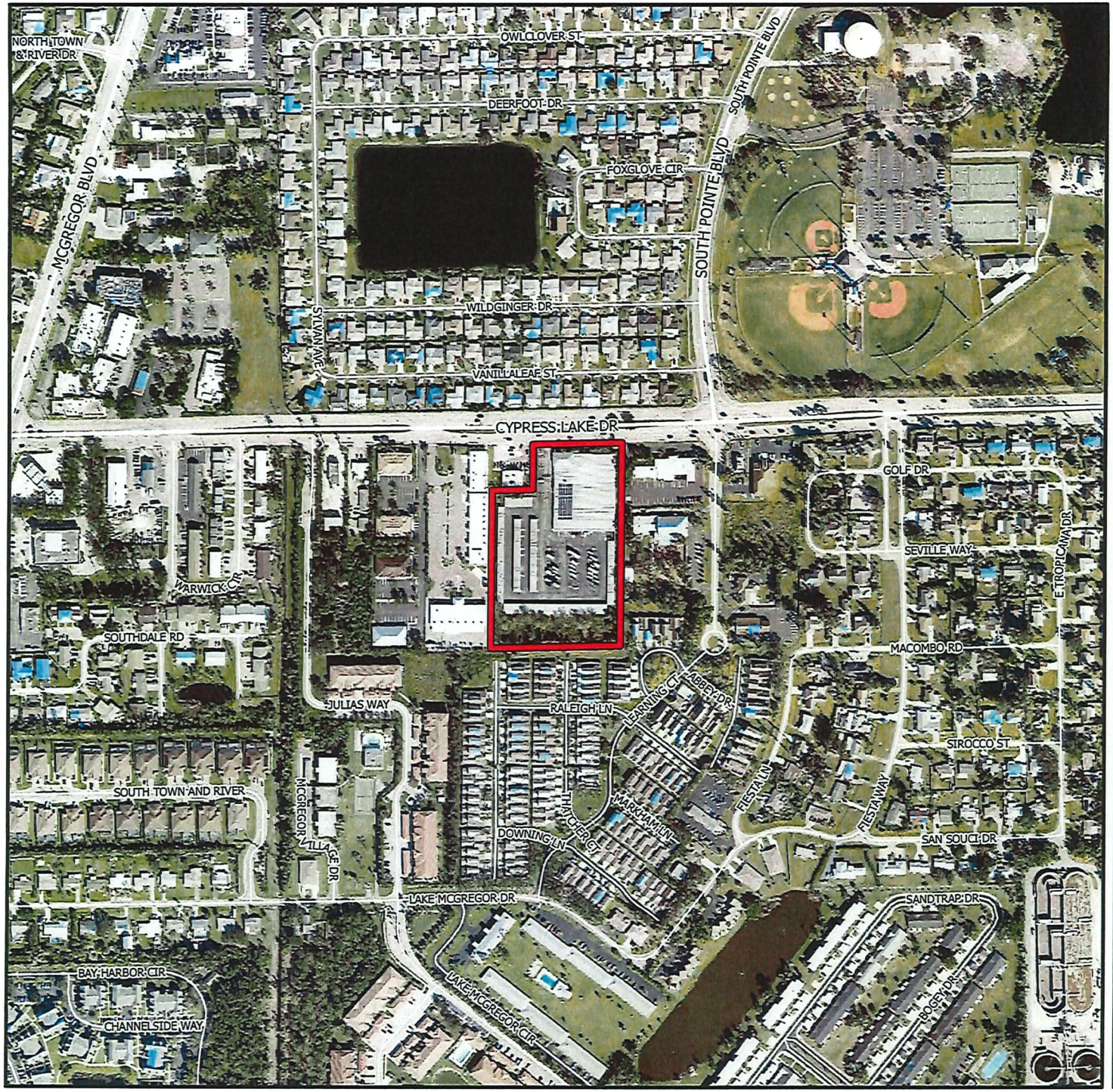
0 300 600 900
Feet

Lee County
Southwest Florida



DCI2023-00022

Aerial

Subject Property

N
W E
S

0 300 600 900
Feet

Lee County
Southwest Florida

OFFICE OF THE HEARING EXAMINER, LEE COUNTY, FLORIDA

HEARING EXAMINER RECOMMENDATION

REZONING: DCI2023-00022

Regarding: **EXTRA SPACE STORAGE-FORT MYERS**

Location: 9321 Cypress Lake Drive
South Fort Myers Planning Community
(District 2)

Hearing Date: January 25, 2023

I. Request

Amend Resolution Z-99-046 to eliminate three single story public storage buildings approved but never constructed and propose a two-story, 41,600 square foot public storage building with a maximum height of 25 feet. The request also seeks to increase storage area by 19,590 square feet.

Property legal description is set forth in Exhibit A.

II. Hearing Examiner Recommendation

Approve, subject to conditions and deviations set forth in Exhibit B.

III. Discussion

The Hearing Examiner serves in an advisory capacity to the Board of County Commissioners (Board) on applications to rezone property to the planned development zoning district.[1] In furtherance of this duty, the Hearing Examiner accepted testimony and evidence on an application to amend the Extra Space Storage Commercial Planned Development (CPD). Staff recommended approval with conditions.

The Hearing Examiner must apply the Lee County Comprehensive Plan (Lee Plan), Land Development Code (LDC), and other County regulations to facts adduced at hearing. The record must contain substantial competent evidence to support the recommendation to the Board.

[1] LDC §34-145(d)(4) a.

Discussion supporting the Hearing Examiner's recommendation of approval with conditions follows below.[2]

Request

The request seeks to amend the Extra Space Storage CPD to increase the square footage by 19,590 square feet and replace three planned, but unconstructed, storage buildings with a single two-story structure. The site consists of approximately 5.39 acres.

If approved, resulting development parameters will include 118,108 square feet of storage and a caretaker's residence. Maximum building heights remain at 25 feet. The CPD had two previously approved deviations. Applicant seeks four additional deviations.

The Master Concept Plan (MCP) depicts existing and proposed structures. Existing structures line the perimeter of the site with a vegetative buffer and storm water retention area on the south.

Character of Area

The Cypress Lake Drive corridor is developed with a variety of commercial and residential land uses. Cypress Lake Drive is a four lane divided arterial with sidewalks on both sides of the road. A residential subdivision is across Cypress Lake Drive to the north. Commercial land uses border the property to the east and west. A 180 unit residential subdivision lies to the south.[3]

History

The Board rezoned the property to CPD in 1999 authorizing development of up to 98,518 square feet of mini-warehouse facilities and a caretaker's residence.[4] Maximum approved building height was 25 feet with no more than two habitable floors. The original MCP depicted one large mini warehouse building abutting Cypress Lake Drive and nine smaller buildings to the south. The CPD was amended administratively to correct a scrivener's error in the legal description and revise percentage of impervious lot coverage accordingly.

The site developed seven of the ten approved buildings. The subject request seeks to: (1) replace three approved but unbuilt buildings with a single two story storage facility and (2) increase storage by 19,590 square feet. The proposed building will be constructed interior to the site and will be surrounded by existing mini

[2] Hearing Examiner codified conditions and deviations from prior approvals.
[3] The neighborhood to the south is zoned RM-2 and was approved to develop 180 units with a maximum building height of 28 feet.
[4] Storage World CPD, Z-99-046 approved on August 16, 1999.

warehouse buildings. There will be no change to existing buffers, open space, or storm water management features along the south property line.

Lee Plan

Planned developments must be consistent with the Lee Plan.[5]

The property is within the Central Urban future land use category.[6] Central Urban areas comprise the County's urban core, with access to a wide array of public services and infrastructure. Residential, commercial, public, quasi-public, and limited light industrial land uses may be found in these areas. Permissible residential densities typically range from 4 to 10 units per acre but may be higher under certain circumstances.[7]

The proposed redesign and expansion of the approved storage facility is consistent with the property's Central Urban designation. Additional storage will serve surrounding residential communities, providing convenient access to mini warehouse space.

Compatibility

Compatibility between land uses exists when land uses exist in proximity and no one use unduly negatively impacts another use. Planned development zoning is a useful tool when integrating development with surrounding land uses.[8] The site's planned development zoning designation allows flexibility in site design and opportunities to address potential incompatibilities with neighboring development.

The Lee Plan encourages compact and contiguous development in areas with services and infrastructure.[9] The plan of development retains the approved use of mini warehouse while modifying the MCP to replace three planned buildings with one two-story structure. The project constitutes infill development consistent with surrounding development patterns.[10]

The Board previously found mini warehouse uses consistent with the Lee Plan and surrounding land uses in prior zoning approvals.[11] The proposed replacement of three buildings interior to the site with a single two story structure and increase in square footage is also consistent with the Lee Plan.

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[5] LDC §34-411(a).
[6] Lee Plan Objective 1.5, Policies 1.1.3, 1.5.1, Lee Plan Map 1-A.
[7] Maximum total density is 5 dwellings per acre but may go as high as 20 utilizing Greater Pine Island Transfer of Development Units. Lee Plan Policy 1.1.3.
[8] LDC §34-612(2).
[9] Lee Plan Objectives 2.1, 2.2, Policies 1.1.3, 2.2.1, 2.2.2, 5.1.3, 6.1.1, 6.1.4.
[10] Lee Plan Policy 6.1.7. The zoning request is consistent with emerging development patterns in the area. *See* Lee Plan Glossary definition - infill. See also LDC §34-413.
[11] Z-99-046 approved a maximum of 98,518 square feet of mini warehouse with a caretaker's residence. Maximum approved building heights were 25 feet above grade, with no more than two habitable floors.

A multifamily subdivision abuts the property to the south. The MCP depicts open space, a stormwater management lake, and 30 foot wide landscaped buffer along the shared boundary.[12] The proposed 25 foot high two story building will be surrounded by single story structures, distanced from the property line. The design adequately addresses potential incompatibilities with the abutting subdivision.[13]

LDC

Development must comply with the LDC or seek deviations. A "deviation" is a departure from a land development regulation.[14] Applicants must demonstrate deviations enhance the planned development and will not cause a detriment to the public.[15] The CPD includes two previously approved deviations pertaining to waterbody setbacks and intersection separation along Cypress Lake Drive. Four new deviations seek relief from perimeter planting requirements, parking lot interconnections with adjacent development, and square footage assigned to garbage and recyclable storage areas.

Staff recommended approval of all deviations. The Hearing Examiner agrees with this recommendation.[16]

Environmental/Natural Resources

Rezoning requests must not adversely affect environmentally critical/sensitive areas or natural resources.

The site has been cleared and improved with buildings, parking areas, and stormwater management features. The property is within the Coastal High Hazard Area and does not contain wetlands or natural features of note.[17] The MCP depicts 31% open space.[18]

The Hearing Examiner finds the proposed amendments will not harm environmentally critical/sensitive areas or natural resources.[19]

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[12] Lee Plan Policy 5.1.5.
[13] Lee Plan Policies 5.1.5, 6.1.4, 135.9.6; LDC §34-413.
[14] LDC §34-2.
[15] LDC §34-373(a)(9).
[16] The Hearing Examiner may recommend approval, approval with modifications or denial of deviations based on findings that a deviation (1) enhances the planned development and, (2) preserves/promotes public health, safety, and welfare. LDC §34-377(a)(4).
[17] Lee Plan Policy 101.3.2.
[18] LDC §10-415.
[19] Lee Plan 125.1.2.

Transportation:

The MCP depicts a single access to Cypress Lake Drive, a four lane divided arterial roadway. Area roadways will continue to operate within adopted levels of service with the proposed expansion in square footage.

Further analysis of transportation impacts will occur during development order permitting.

Public Services

Public services include facilities, capital improvements, and infrastructure necessary to support development.[20] The Lee Plan requires an evaluation of public services during the rezoning process.[21]

A broad spectrum of public services and infrastructure are available to serve the site.[22] The property has access to the County Road network via Cypress Lake Drive, a County maintained arterial roadway with sidewalks on both sides of the roadway.[23] Cypress Lake Drive offers connections to McGregor Boulevard, Summerlin Road, and US 41.

Lee County Utilities provides potable water and sanitary sewer service to the site. The Iona McGregor Fire District provides fire protection and emergency medical services. Lee County Sheriff provides law enforcement services from the Central Station on Six Mile Cypress Parkway.

Development will be subject to road, fire, and emergency medical services impact fees.[24]

Conditions

The County must administer the zoning process so proposed land uses minimize adverse impacts on adjacent property and protect County resources.[25] Conditions must be plausibly related to the project's anticipated impacts, and pertinent to mitigating impacts to the public.[26] The CPD is subject to conditions addressing impacts reasonably anticipated from development.[27]

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[20] Public services and infrastructure available to serve the project will include public water and sewer (Lee County Utilities), paved streets, parks and recreation facilities, libraries, police, fire and emergency services, urban surface water management, and schools.
[21] Lee Plan Goal 95 and Policy 2.2.1.
[22] Staff Report. Lee Plan Policies 2.2.1, 6.1.1, 6.1.4.
[23] Lee Plan Map 3-D.
[24] LDC Chapter 2, Article VI.
[25] Lee Plan Policies 5.1.5, 135.9.6; LDC §§34-145(d)(4) a.2.(b), 34-377(a)(3), 34-411, and 34-932(c).
[26] LDC §34-932(b).
[27] LDC §§34-83(b)(4) a.3, 34-377(a)(2)c; Lee Plan Objective 77.3, Policies 5.1.5, 6.1.4.

Hearing Examiner revised conditions/deviations for clarity, compliance with state law and to remove LDC references applicable to development by Condition 1.

Public

No members of the public attended the hearing.

Conclusion

The Hearing Examiner finds the amendments to the Extra Space Storage CPD meets LDC zoning criteria and, as conditioned, is compatible with surrounding development.[28] The Hearing Examiner recommends approval of the request subject to conditions in Exhibit B.

IV. Findings and Conclusions

Based on the testimony and exhibits presented in the record, the Hearing Examiner finds:

A. The requested amendments to the CPD are consistent with the Lee Plan. Lee Plan Goals 2, 4, 6, 77, 95; Objectives 2.1, 4.1, 6.1, 77.3, and Policies 1.1.3, 2.2.1, 5.1.5, 6.1.1, 6.1.3, 6.1.4, 6.1.5, 6.1.6, 6.1.7, 101.3.2,135.9.5, 135.9.6, Lee Plan Maps 1-A, 3-D, 4-A, 4-B.

B. As conditioned, Extra Space Storage CPD:

1. Is consistent with the LDC or qualifies for deviations. LDC Chapters 2, 10, and 34.

2. Is compatible with existing or planned uses in the surrounding area. Lee Plan Objectives 2.1, 2.2, and Policies 1.1.3, 5.1.5, 6.1.4, 135.9.5, 135.9.6; LDC §§34-411, 34-413.

3. Provides sufficient road access to support proposed development intensity. Lee Plan Policy 6.1.5.

4. Expected impacts on transportation facilities will be addressed by County regulations and conditions of approval. Lee Plan Objective 39.1, Policy 39.2.1; LDC §§2-261 *et seq*

5. Will not adversely affect environmentally sensitive areas or natural resources. Lee Plan Goal 77, Objective 77.3, Policies 6.1.6, 101.3.2, 125.1.2; and

[28] Lee Plan Policy 6.1.4.

6. Public services and infrastructure will be available to serve the development. Goals 2, 4, 6, 95, Objectives 2.1, 2.2, 4.1, Policies 2.2.1, 6.1.4, 39.2.1, Standards 4.1.1, 4.1.2.

C. The proposed uses are appropriate at the location. Lee Plan Goals 2, 6, Objectives 2.1, 2.2, Policies 2.1.1, 2.1.2, 6.1.7, 6.1.8, 135.9.6.

D. The County regulations and recommended conditions provide sufficient safeguards to protect the public interest and relate to impacts expected from the proposed development. Lee Plan Objectives 77.3, Policies 5.1.5, 6.1.4, 135.9.6: LDC §§34-377(a)(3), 34-411 and 34-932(c).

E. Deviations recommended for approval enhance the planned development and preserve public health, safety, and welfare. LDC §§34-373(a)(9), 34-377(a)(4).

Date of Recommendation: January 29, 2024.

Donna Marie Collins
Chief Hearing Examiner

Lee County Hearing Examiner
1500 Monroe Street, Suite 218
Post Office Box 398
Fort Myers, FL 33902-0398

Exhibits to Hearing Examiner's Recommendation

Exhibit A Legal Description and Vicinity Map
Exhibit B Recommended Conditions and Deviations
Exhibit C Exhibits Presented at Hearing
Exhibit D Hearing Participants
Exhibit E Information

Exhibit A

LEGAL DESCRIPTION AND VICINITY MAP

SECTION 21, TOWNSHIP 45 SOUTH, RANGE 24 EAST
LEE COUNTY, FLORIDA

LEGAL DESCRIPTION

FROM THE NORTHWEST CORNER OF THE SOUTHEAST 1/4 OF SECTION 21, TOWNSHIP 45 SOUTH, RANGE 24 EAST, RUN SOUTH 30 FEET OF THE SOUTHERLY SIDE OF THE FORMER ROAD RIGHT-OF-WAY; THENCE EAST ALONG SUCH ROAD RIGHT-OF-WAY, A DISTANCE OF 650 FEET TO THE POINT OF BEGINNING OF THE LANDS HEREIN DESCRIBED; THENCE CONTINUE EASTERLY ALONG THE SOUTHERLY EDGE OF SUCH ROAD RIGHT-OF WAY, A DISTANCE OF 400 FEET; THENCE SOUTH AND PARALLEL WITH THE SECTION LINE A DISTANCE OF 600 FEET; THENCE WEST 400 FEET; THENCE NORTH TO THE POINT OF BEGINNING.

LESS THE WEST 125 FEET OF THE NORTH 170 FEET THEREOF, ALL LYING AND BEING IN LEE COUNTY, FLORIDA.

LESS A ROAD RIGHT OF WAY FOR CYPRESS LAKE DRIVE OVER AND ACROSS THE NORTHERLY 28.5 FEET.

SAID PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF THE SOUTHEAST 1/4 OF SECTION 21, TOWNSHIP 45 SOUTH, RANGE 24 EAST, LEE COUNTY, FLORIDA; THENCE SOUTH 00°00'00" WEST, A DISTANCE OF 58.50 FEET TO A POINT ON THE SOUTHERLY RIGHT OF WAY LINE OF CYPRESS LAKE DRIVE, AS MONUMENTED; THENCE NORTH 88°58"23" EAST, ALONG SAID SOUTHERLY RIGHT OF WAY LINE, A DISTANCE OF 774.74 FEET TO A FOUND 5/8" CAPPED IRON ROD, STAMPED "LB 1772", AND THE POINT OF BEGINNING; THENCE CONTINUE NORTH 88°58'23" EAST, A DISTANCE OF 275.02 FEET TO A FOUND 5/8" CAPPED IRON ROD, STAMPED "LB 1722"; THENCE SOUTH 00°17'46" WEST, DEPARTING SAID SOUTHERLY RIGHT OF WAY LINE, A DISTANCE OF 490.91 FEET TO THE NORTHWEST CORNER OF CYPRESS KEEP CONDOMINIUM, PHASE I, AS RECORDED IN OFFICIAL RECORDS BOOK 1883, PAGE 4062 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA; THENCE CONTINUE SOUTH 00°17'46" WEST, ALONG THE WESTERLY LINE OF SAID CYPRESS KEEP CONDOMINIUM, PHASE I, A DISTANCE OF 140.20' TO A FOUND 5/8" CAPPED IRON ROD WITH THE STAMPING ILLEGIBLE; THENCE SOUTH 88°53'28" WEST, DEPARTING THE WESTERLY LINE OF SAID CYPRESS KEEP CONDOMINIUM, PHASE I AND ALONG THE NORTHERLY LINE OF SAID CYPRESS KEEP CONDOMINIUM, PHASE I AND THE NORTHERLY LINE OF CYPRESS KEEP CONDOMINIUM, PHASE II, AS RECORDED IN OFFICIAL RECORDS BOOK 1883, PAGE 4062 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA, A DISTANCE OF 399.94 FEET TO A FOUND THREE INCH SQUARE CONCRETE MONUMENT; THENCE NORTH 00°17'08" EAST, DEPARTING THE NORTHERLY LINE OF SAID CYPRESS KEEP CONDOMINIUM, PHASE I AND PHASE II, A DISTANCE OF 489.99 FEET TO A FOUND NAIL AND DISK, STAMPED "LB 6921"; THENCE NORTH 88°56'54" EAST, A DISTANCE OF 125.10 FEET TO A FOUND THREE INCH SQUARE CONCRETE MONUMENT; THENCE NORTH 00°15'34" EAST, A DISTANCE OF 141.63 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS 234,768.80 SQUARE FEET OR 5.390 ACRES, MORE OR LESS.

REVIEWED
DCI2023-00022
Rick Burris, Principal Planner
Lee County DCD/Planning
11/3/2023

NOTES

1. THE USE OF THE WORD "CERTIFY" OR "CERTIFICATION" CONSTITUTES AN EXPRESSION OF PROFESSIONAL OPINION REGARDING THOSE FACTS OR FINDINGS WHICH ARE THE SUBJECT OF THE UNDERSIGNED PROFESSIONAL'S KNOWLEDGE, INFORMATION, AND BELIEF, AND IN ACCORDANCE WITH THE COMMONLY ACCEPTED PROCEDURE CONSISTENT WITH THE APPLICABLE STANDARDS OF PRACTICE, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE EITHER EXPRESSED OR IMPLIED.
2. IF THIS DOCUMENT DOES NOT CONTAIN A RAISED IMPRESSION OR INK SEAL OF THE UNDERSIGNED PROFESSIONAL, IT IS NOT AN AUTHORIZED ORIGINAL DOCUMENT AND MAY HAVE BEEN ALTERED.
3. BEARINGS SHOWN HEREON ARE BASED ON THE SOUTHERLY LINE OF CYPRESS LAKE DRIVE, AS MONUMENTED HAVING A BEARING OF NORTH 88°58'23" EAST. NO FIELD SURVEY WAS PERFORMED TO VERIFY DATA SHOWN.
4. LANDS SHOWN HEREON WERE NOT ABSTRACTED FOR RIGHT-OF-WAY, EASEMENTS, OWNERSHIP, ADJOINERS OR OTHER INSTRUMENTS OF RECORD.

(SEE SHEET 2 FOR SKETCH OF DESCRIPTION)

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

SURVEYOR'S CERTIFICATE

THIS CERTIFIES THAT THE SKETCH REPRESENTED HEREON WAS PERFORMED UNDER MY DIRECT SUPERVISION AND MEETS THE STANDARDS OF PRACTICE SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL LAND SURVEYORS CHAPTER 5J-17, FLORIDA ADMINISTRATIVE CODE, PURSUANT TO SECTION 472.027, FLORIDA STATUES, AND THAT THE SKETCH HEREON IS A TRUE AND ACCURATE REPRESENTATION THEREOF TO THE BEST OF MY KNOWLEDGE AND BELIEF, SUBJECT TO NOTES AND NOTATIONS SHOWN HEREON.

11/12/23

CHARLES DAVID FERRARO - REGISTERED LAND SURVEYOR
FLORIDA CERTIFICATION NO. 6744

SKETCH OF DESCRIPTION ONLY. THIS IS NOT A SURVEY

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PARCEL # 21-45-24-00-00018.0000
SKETCH & DESCRIPTION
FOR
EXTRA SPACE PROPERTIES TWO, LLC

9321 CYPRESS LAKE DRIVE
CITY OF FORT MYERS
LEE COUNTY
FLORIDA

811 Know what's below. Call before you dig.

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
STATE REQUIRED FILE NUMBER
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

Colliers Engineering & Design

TAMPA
5471 West Waters Avenue, Suite 100
Tampa, FL 33634
Phone: 813.207.1061
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING
SURVEY FIRM: LB7268

PARCEL # 21-45-24-00-00018.0000

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	05/12/23	RPK	CDF

PROJECT NUMBER:	DRAWING NAME:
21001158A	V-EXBT-A

SHEET TITLE: EXHIBIT "A"

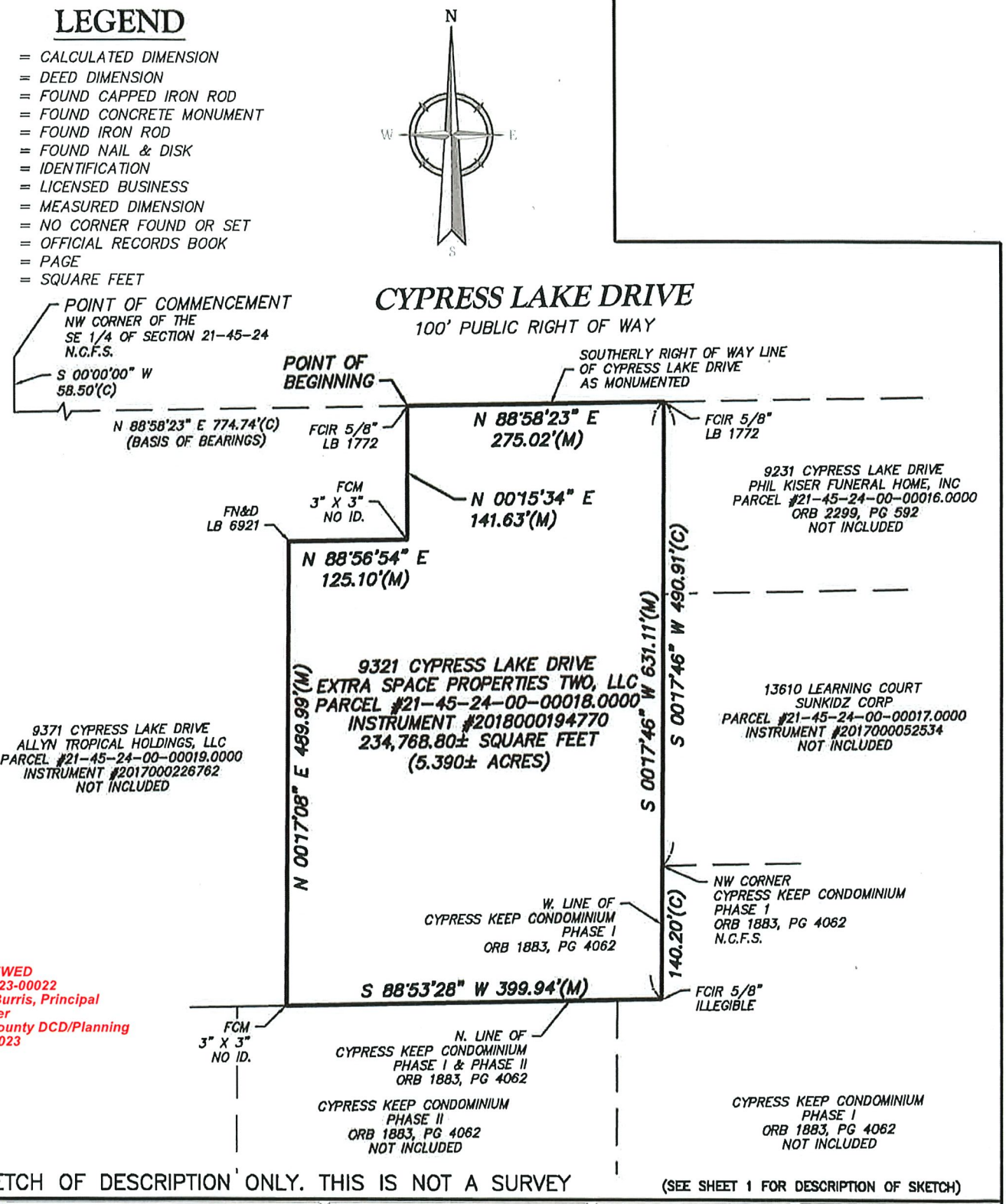
SHEET NUMBER: 1 of 2

202121001158A\Survey\Exhibits\V-EXBT-A.dwg\SHT-1 By: RKIRCHNER

SECTION 21, TOWNSHIP 45 SOUTH, RANGE 24 EAST
LEE COUNTY, FLORIDA

LEGEND

(C)	=	CALCULATED DIMENSION
(D)	=	DEED DIMENSION
FCIR	=	FOUND CAPPED IRON ROD
FCM	=	FOUND CONCRETE MONUMENT
FIR	=	FOUND IRON ROD
FN&D	=	FOUND NAIL & DISK
ID.	=	IDENTIFICATION
LB	=	LICENSED BUSINESS
(M)	=	MEASURED DIMENSION
N.C.F.S.	=	NO CORNER FOUND OR SET
ORB	=	OFFICIAL RECORDS BOOK
PG	=	PAGE
S.F.	=	SQUARE FEET



REVIEWED
DCI2023-00022
Rick Burris, Principal Planner
Lee County DCD/Planning
11/3/2023

SKETCH OF DESCRIPTION ONLY. THIS IS NOT A SURVEY

(SEE SHEET 1 FOR DESCRIPTION OF SKETCH)

By: RKIRCHNER

2021\21001158A\Survey\Exhibits\V-EXBT-A.dwg\SHT-2

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PARCEL # 21-45-24-00-00018.0000
SKETCH & DESCRIPTION
FOR
EXTRA SPACE
PROPERTIES TWO, LLC

9321 CYPRESS LAKE DRIVE
CITY OF FORT MYERS
LEE COUNTY
FLORIDA

811 Know what's below. Call before you dig.

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
STATE REQUIRED FILE NUMBER
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Colliers Engineering & Design

TAMPA
5471 West Waters Avenue, Suite 100
Tampa, FL 33634
Phone: 813.207.1061
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING
SURVEY FIRM: LB7368

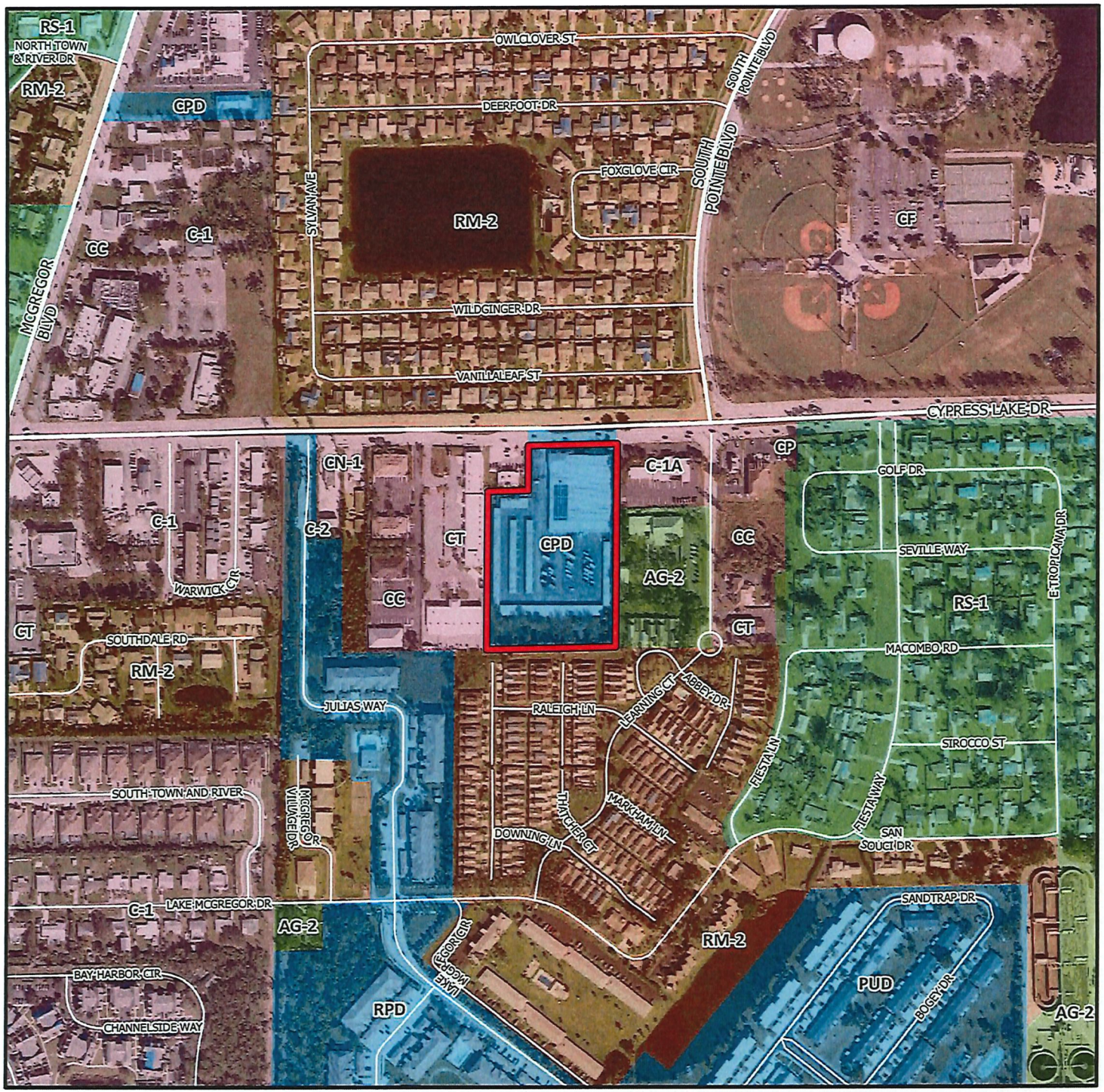
PARCEL # 21-45-24-00-00018.0000

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
1" = 150'	05/12/23	RPK	CDF

PROJECT NUMBER: 21001158A
DRAWING NAME: V-EXBT-A

SHEET TITLE:
EXHIBIT "A"

SHEET NUMBER:
2 of 2



DCI2023-00022

Zoning

Subject Property

N
W E
S

0 300 600 900
Feet

Lee County
Southwest Florida

Exhibit B

RECOMMENDED CONDITIONS AND DEVIATIONS
As revised by the Hearing Examiner

CONDITIONS

1. Master Concept Plan (MCP) Development must be consistent with the MCP entitled "Extra Space Properties Two LLC," prepared by Colliers Engineering and Design, dated August 31, 2023 (Exhibit B1), except where modified by conditions below.

   Lee Plan and Land Development Code (LDC). Development must comply with the Lee Plan and LDC where deviations have been approved in this resolution. Changes to the MCP may require further development approvals.

   Approved Development Parameters. The property may develop up to 118,108 square feet of storage use (mini-warehouse and warehouse, public) with a maximum height of 25 feet.

   Resolution Supersedes Prior Approvals. This resolution supersedes prior zoning approvals Z-99-046 and ADD2023-00080.

2. Approved Uses and Property Development Regulations.

   a. Schedule of Uses
      Accessory Uses & Structures
      Administrative Offices
      Caretaker's Residence
      Entrance Gates and Gatehouse
      Essential Services
      Excavation: Water Retention
      Fences, Walls, gate, gatehouses
      Parking Lot: Accessory
      Signs
      Storage: Indoor and Open (Accessory only)
      Warehouse, Public
      Warehouse, Mini

   b. Site Development Regulations
      Minimum Open Space: 30 percent

      Minimum Setbacks:
      Street: 25 feet
      Side: 15 feet

Rear: 25 feet
Waterbody: 6 feet (Deviation 1)

Maximum building height: 25 feet
Maximum lot coverage: 41.4 percent

3. Open Space
Development order plans must depict 30 percent (72,590.92 square feet) of open space in substantial compliance with the MCP.

4. Hours of Operation
Hours of operation for the administrative office use are limited to 9:00 a.m. to 6:00 p.m. seven days per week. Hours of operation for the warehouse and storage use are limited to 7:00 a.m. to 9:00 p.m., seven days per week.

5. South and East Property Line Buffers
The buffer along the south property line must be a Type "F" buffer with twice the number of trees and shrubs required by LDC §10-416(d). Developer must provide a continuous hedge, at least five feet high, and five canopy trees per 100 linear feet along the east property line adjacent to the daycare center located at 13610 Learning Court. The buffer on the balance of the east property line must comply with the LDC.

6. Open Storage
The open storage area must be depicted on the development order landscape plans and comply with LDC buffer requirements for storage facilities.

7. Waterbody Setback
The development order must depict adequate access to maintain the surface water management area, no structures may encroach into easements required by the South Florida Management District. The application of Deviation 1 is subject to additional review and conditioning by the Director during the development order review.

8. Building Perimeter Planting Areas
Development order plans must depict 9,000 square feet of building perimeter planting area abutting three sides of the existing building abutting Cypress Lake Drive and three sides of the existing mini-warehouse building abutting the existing retention area in substantial compliance with Development Order 99-10-125.00D.

9. Development Orders
Development order plans must demonstrate compliance with the required landscaping previously approved in Development Order 99-10-125.00D.

10. State and Federal Permits
County development permits do not create rights to obtain permits from state or federal agencies and do not create liability on the part of the County if applicant fails to obtain requisite approvals or fulfill obligations imposed by state/federal agencies or if applicant undertakes actions resulting in a violation of state or federal law. Applicant must obtain applicable state/federal permits prior to commencing development.

DEVIATIONS

1. Waterbody Setback. Deviation 1 seeks relief from LDC §34-2194(b) requirement to provide a 25-foot setback from buildings and structures to water bodies, to allow a six-foot setback.

   Deviation 1 is **APPROVED**, subject to Condition 7.

2. Intersection Separation. Deviation 2 seeks relief from LDC §10-285(a), which requires a 660-foot intersection separation for arterial roads to allow a 65-foot (from the driveway to the west) and a 273-foot intersection separation (to Learning Court / South Point Boulevard to the east).

   Deviation 2 is **APPROVED**.

3. Building Perimeter Plantings. Deviation 3 seeks relief from LDC §10-416(b), which requires all new developments in commercial zoning districts and commercial components of planned development districts to provide building perimeter plantings equal to ten percent of the proposed building gross ground level floor area. These planting areas must abut three sides of the building with emphasis on sides most visible to the public, not including loading areas.

   Deviation 3 is **APPROVED** limited to the proposed two-story mini warehouse building and subject to Condition 8.

4. Parking Lot Interconnections. Deviation 4 seeks relief from LDC §10-610(e), which requires adjacent commercial uses to provide parking lot interconnections for automobile, bicycle, and pedestrian traffic, to allow no interconnection.

   Deviation 4 is **APPROVED**.

5. Parking Lot Interconnections. Deviation 5 seeks relief from LDC §34-2015(2)(f), which requires adjacent commercial uses to provide parking lot interconnections for automobile traffic, to allow no interconnections.

   Deviation 5 is **APPROVED**.

6. Refuse and Solid Waste Disposal Facilities. Deviation 6 seeks relief from LDC §10-261(a), which requires 961 square feet of garbage and recyclable storage area to allow the existing 126-square-foot area for garbage and recycling to remain.

   Deviation 6 is **APPROVED**.

Exhibits to Conditions:

B1 Master Concept Plan "Extra Space Properties Two LLC," dated August 31, 2023

PARCEL NUMBER:	21-45-24-00-00018.0000
SITE LOCATION:	TOWNSHIP 45 SOUTH RANGE 24 EAST-SECTION 21
PROPERTY AREA:	±5.39 ACRES
SITE ADDRESS:	9331 CYPRESS LAKE DRIVE, FT MYERS, FL
CURRENT ZONING:	CPD- COMMERCIAL PLANNED DEVELOPMENT
FLU:	CENTRAL URBAN
EXISTING USE:	MINI-WAREHOUSE COMMERCIAL
PROPOSED USE:	MINI-WAREHOUSE COMMERCIAL/ SELF STORAGE
FEMA FLOOD ZONE:	12071C0416G EFF.: 11/17/2021
100 YEAR FLOODPLAIN:	ZONE "AE" (BFE=8) LEE COUNTY 125124

SITE DEVELOPMENT REGULATIONS

		PERMITTED	EXISTING	PROPOSED
SETBACKS:	STREET, ARTERIAL/LOCAL	25' MIN.	38.80' AND GREATER	NO CHANGE
	SIDE	15' MIN.	19.50' AND GREATER	NO CHANGE
	REAR	25' MIN.	99.51' AND GREATER	NO CHANGE
	WATERBODY	6'	6'	NO CHANGE
MAX. HEIGHT (ROOF LINE ONLY)		24'	10'	25'
MAX. STORIES		2	1	2

SCHEDULE OF USES EXISTING	PROPOSED
• ACCESSORY USES AND STRUCTURES	NO CHANGE
• ADMINISTRATIVE OFFICES	NO CHANGE
• CARETAKER'S RESIDENCE	NO CHANGE
• ENTRANCE GATES AND GATEHOUSE	NO CHANGE
• EXCAVATION, WATER RETENTION	NO CHANGE
• FENCES, WALLS	NO CHANGE
• PARKING LOT, ACCESSORY	NO CHANGE
• SIGNS, IN ACCORDANCE WITH LDC CHAPTER 30	NO CHANGE
• STORAGE, INDOOR ONLY (ACCESSORY)	NO CHANGE
• STORAGE, OPEN (ACCESSORY)	NO CHANGE
• PUBLIC WAREHOUSE, MINI-WAREHOUSE	NO CHANGE

FOOTPRINT BUILDING AREA		LOT COVERAGE
MAX PERMITTED	98,518 S.F.	40.0% (41.9%*)
EXISTING	76,508 S.F.	31.0%*
PROPOSED	76,508+20,800=97,308 S.F.	41.4%*

* BASED ON CURRENT LOT SIZE OF 5.39 ACRES

PREVIOUS TOTAL SITE AREA: 5.53 ACRES
CURRENT TOTAL SITE AREA: 5.39 ACRES

TOTAL SQUARE FOOTAGE

EXISTING	76,508 S.F.
PROPOSED	76,508+20,800+20,800=118,108 S.F.

CPD ZONING SUMMARY

DESCRIPTION:	COMMERCIAL PLANNED DEVELOPMENT (CPD)
TOTAL SITE AREA:	5.39 (AC) 234,774.59 (S.F.)

HOURS OF OPERATION EXISTING			PROPOSED
ADMINISTRATIVE OFFICE	9:00 A.M. - 6:00 P.M.	(7 DAYS PER WEEK)	NO CHANGE
WAREHOUSE/STORAGE	7:00 A.M. - 9:00 P.M.	(7 DAYS PER WEEK)	NO CHANGE

SITE BUFFERS EXISTING		PROPOSED
BUFFERS TO BE PROVIDED PURSUANT TO LDC SECTION 10-416(D)		NO CHANGE
NORTH:	NO BUFFER REQUIRED	NO CHANGE
SOUTH:	TYPE "F" BUFFER REQUIRED, DOUBLE TREES AND SHRUBS	
WEST:	NO BUFFER REQUIRED	NO CHANGE
EAST:	CONTINUOUS HEDGE, AT LEAST 5 FT HIGH, AND FIVE CANOPY TREES PER 100 LINEAR FEET IS REQUIRED	NO CHANGE

OPEN SPACE	REQUIRED	PROPOSED
OPEN SPACE TO BE PROVIDED PURSUANT TO LDC SECTION 10-415	30% OF (5.39 AC)=70,433 SF	72,592.92 SF (31%)

PARKING REQUIREMENTS

REQUIRED	EXISTING	PROPOSED	TOTAL PROVIDED
MINI-WAREHOUSE 1 SPACE PER 25 UNITS (619 EXIST UNITS+165 NEW UNITS)/25=41 SPACES 51 AVAILABLE PARALLEL SPACES	23 REG SPACES INC 4 ADA +27RV (TO BE REMOVED) IN FRONT OF UNITS	NONE	23 REG SPACES INC 4 ADA + 50 AVAILABLE PARALLEL SPACES IN FRONT OF UNITS (SEE NOTE 1)
OFFICE 1 SPACE PER 300 SF 1,500 SF/300=5 SPACES CARETAKER'S APT 1 SPACE PER APT 2 APT =2 SPACES			
TOTAL REQUIRED= 48 SPACES INC 2 ADA	TOTAL EXIST=101 SPACES	0 SPACES	TOTAL PROVIDED=73 SPACES INC 4 ADA

NOTE 1: PARALLEL PARKING SPACES AVAILABLE WITHIN THE DRIVE AISLE ARE ONLY DEPICTED FOR ZONING REQUIREMENTS ONLY, NO STRIPPING REQUIRED.

SCHEDULE OF DEVIATIONS:

PREVIOUS APPROVED:

1. 1. A REQUEST TO DEVIATE FROM LDC SECTION 34-2194(b) WHICH REQUIRES A 25' SETBACK FROM BUILDINGS AND STRUCTURES TO WATER BODIES TO ALLOW A 6' SETBACK.

JUSTIFICATION: SECTION 34-2194(C)(1)(c) ALLOWS FOR REDUCED SETBACKS FOR ARTIFICIAL WATER BODIES SUCH AS RETENTION PONDS. THE RETENTION POND IS EXISTING AND THE SITE WILL REMAIN UNDER UNIFIED CONTROL. THUS, IT WILL NOT CAUSE ANY DELETERIOUS EFFECTS UPON THE PUBLIC AT LARGE. THE NATURE OF THIS REQUEST IS SUCH THAT NO GRAPHIC ILLUSTRATION IS REQUIRED.

2. 2. A REQUEST TO DEVIATE FROM LDC SECTION 10-285(a) WHICH REQUIRES 660' INTERSECTION SEPARATION FROM ARTERIAL ROADS TO 457± AND 273'± INTERSECTION SEPARATION.

JUSTIFICATION: THE ACCESS POINT WAS APPROVED UNDER A PREVIOUS DEVELOPMENT ORDER. A SUBSEQUENT LETTER FROM DEVELOPMENT SERVICES DATED APRIL 5, 1999 REAFFIRMS THE LOCATION AS SHOWN. THUS, IT WILL NOT CAUSE ANY DELETERIOUS EFFECTS UPON THE PUBLIC AT LARGE. THE NATURE OF THIS REQUEST IS SUCH THAT NO GRAPHIC ILLUSTRATION IS REQUIRED.

NEW REQUEST:

3. 3. A REQUEST TO DEVIATE FROM LDC SECTION 10-414(8) WHICH REQUIRES A 10% OF GROUND GROSS FLOOR AREA TO BE PROVIDED AS BUILDING PERIMETER LANDSCAPING WHICH IS REQUIRED TO BE FIVE FEET WIDE AND LOCATED ON 3 SIDES OF EACH BUILDING.

JUSTIFICATION: THE PROPOSED BUILDING USE IS MINI STORAGE HAVING ROLLING DOORS 4 SIDES OF THE BUILDING. IN ADDITION, THE SITE IS DEVELOPED. SEVEN STORAGE BUILDINGS COVER THE SITE INCLUDING THE PARKING LOT. NONE OF THE EXISTING BUILDINGS HAVE PLANTING ON THE PERIMETER. HOWEVER, THERE IS A SUBSTANTIAL EXISTING BUFFERS AND LANDSCAPE AREA ON THE PERIMETER OF THE PARCEL PROVIDING AN OPEN SPACE GREATER THAN THE 30 % REQUIRED . PROVIDED BUFFERING AREA ALONG THE ENTIRE PERIMETER OF THE PROPERTY EXCEED THE REQUIRED AREA. SEE OPEN SPACE DATA ABOVE.

4. 4. REQUESTS TO DEVIATE FROM THE LDC SECTION 10-416(c) REQUIREMENT TO PROVIDE ADJACENT COMMERCIAL USES PARKING LOT INTERCONNECTIONS FOR AUTOMOBILE, BICYCLE, AND PEDESTRIAN TRAFFIC.

JUSTIFICATION: THE SITE IS DEVELOPED. THE PROPOSED PROJECT IS THE ADDITION OF BUILDING AREA. THE USE OF THIS FACILITY IS FOR MINI STORAGE UNITS. PER SECURITY REASON THE SITE WAS DEVELOPED WITHOUT ANY CONNECTIONS TO THE ADJACENT PROPERTIES. ALSO, PER LDC SECTION 10-403(B) (APPLICABILITY) PROVIDES THAT IN THE CASE OF ADDITIONS OR RENOVATIONS TO, OR REDEVELOPMENT OF, AN EXISTING BUILDING, WHERE THE CUMULATIVE INCREASE IN TOTAL FLOOR BUILDING AREA EXCEEDS 50 PERCENT OF THE SQUARE FOOTAGE OF THE EXISTING BUILDING BEING ENLARGED OR RENOVATED, THE PROVISIONS OF THIS ARTICLE WILL APPLY. SINCE THE SITE IS CURRENTLY DEVELOPED AND THE PROPOSED CUMULATIVE INCREASE IN TOTAL FLOOR BUILDING AREA IS 20,310 SF (26%) AND DOES NOT EXCEED 50 % OF THE SQUARE FOOTAGE OF THE EXISTING BUILDINGS (78,254 = 50% OF 76,508). WE ARE OF THE OPINION THAT THIS EXCEPTION JUSTIFIES A DEVIATION FROM THE INTERCONNECTION REQUIREMENT OF LDC SECTION 10-410(1).

5. 5. REQUESTS TO DEVIATE FROM THE LDC SECTION 34-2015(j)(7) REQUIREMENT TO PROVIDE ADJACENT COMMERCIAL USES MUST PROVIDE PARKING LOT INTERCONNECTIONS FOR AUTOMOBILE TRAFFIC.

JUSTIFICATION: FOR THE SAME JUSTIFICATION IN SECTION 4 ABOVE. THE SITE IS DEVELOPED. THE PROPOSED PROJECT IS THE ADDITION OF BUILDING AREA. THE USE OF THIS FACILITY IS FOR MINI STORAGE UNITS. PER SECURITY REASON THE SITE WAS DEVELOPED WITHOUT ANY CONNECTIONS TO THE ADJACENT PROPERTIES. ALSO, PER LDC SECTION 33-1548. - INTERCONNECTIONS AND SHARED ACCESS FOR NEW DEVELOPMENT AND REDEVELOPMENT. COMMERCIAL AND MIXED-USE DEVELOPMENT ADJACENT TO ONE ANOTHER MUST PROVIDE INTERCONNECTIONS FOR AUTOMOBILE, BICYCLE AND PEDESTRIAN TRAFFIC. THESE REGULATIONS APPLY TO NEW DEVELOPMENT OR REDEVELOPMENT INVOLVING ALTERATION OF, OR THE ADDITION OF BUILDING SQUARE FOOTAGE, EQUAL TO 30 PERCENT OR MORE OF EXISTING SQUARE FOOTAGE. THE ADDITIONAL SQUARE FOOTAGE IS 26%.

6. 6. REQUESTS RELIEF FROM THE LDC SECTION 10-261, - REFUSE AND SOLID WASTE DISPOSAL FACILITIES. PURSUANT TO LDC SECTION 10-261(A) 216 SF FOR 25,000 SF + 8 SF / 1,000 SF = 961 SF REQUIRED FOR (118,108 SF).

JUSTIFICATION: THE SITE IS DEVELOPED. THE SELF-STORAGE FACILITY DOES NOT ALLOW THE USE OF ITS FACILITIES FOR TRASH OR RECYCLABLE DISPOSAL BY CUSTOMERS. THE RECYCLABLE AND NON RECYCLABLE SOLID WASTE WILL BE GENERATED BY THE TWO (2) EMPLOYEES OF THE SELF-STORAGE FACILITY. ALL WASTE WILL BE HELD WITHIN THE DESIGNED AREA UNTIL THE SCHEDULED PICK-UP TIME. THE EXISTING GARBAGE/RECYCLABLE AREA IS 176 SF. THE SIZE OF THIS AREA SEEMS TO BE SUITABLE FOR HISTORICAL DATA AND THE NATURE OF THE USE OF THE AMOUNT OF GARBAGE AND RECYCLABLE MATERIAL THIS FACILITY PRODUCE IS SIGNIFICANTLY SMALL IN COMPARISON TO THE REQUIRED SIZE FOR LDC 10-261.

THIS PLAN IS INTENDED FOR THE USE OF ZONING APPROVAL ONLY. ACTUAL ENGINEERING AND ARCHITECTURAL CONSTRUCTION DOCUMENTS WILL BE PREPARED ONCE ZONING IS APPROVED AND COMPLETE.

SURFACE WATER MANAGEMENT PLAN DESCRIPTION:

THE PROPOSED BUILDING WILL BE AT THE LOCATION OF THESE THREE (3) BUILDINGS AND PART OF THE EXISTING PARKING LOT. NO CHANGE IN IMPERVIOUS AREA AFTER IMPROVEMENTS. THE EXISTING DRAINAGE OF THE SITE CONSISTS OF A STORMWATER PIPE NETWORK CONVEYANCE SYSTEM DISCHARGING INTO AN ONSITE DRY POND. NO CHANGED OR DISTURBANCE OF THESE SYSTEM IS PROPOSED IN THIS PROJECT.

THE PROPOSED BUILDING'S FINISHED FLOOR ELEVATION IS 8.0 NAVD 88.

FSA PRE-APPROVED SFWMD PERMIT NO. 36-03493-P THE EXISTING DRY POND IS LOCATED SOUTH OF THE PROPERTY WITH A CONVEYANCE SWALE ON THE SITE PERIMETER TO DISCHARGING THROUGH A CONTROL STRUCTURE AT ELEVATION 4.85 NGVD 29 (5.96 NAVD 88), MAX STAGE FOR THE 100 YEARS- 3 DAYS EVENT IS 6.35 NGVD 29 (5.36 NAVD 88) MEANING ZERO DISCHARGE.

UTILITIES

WATER UTILITY: LEE COUNTY UTILITIES

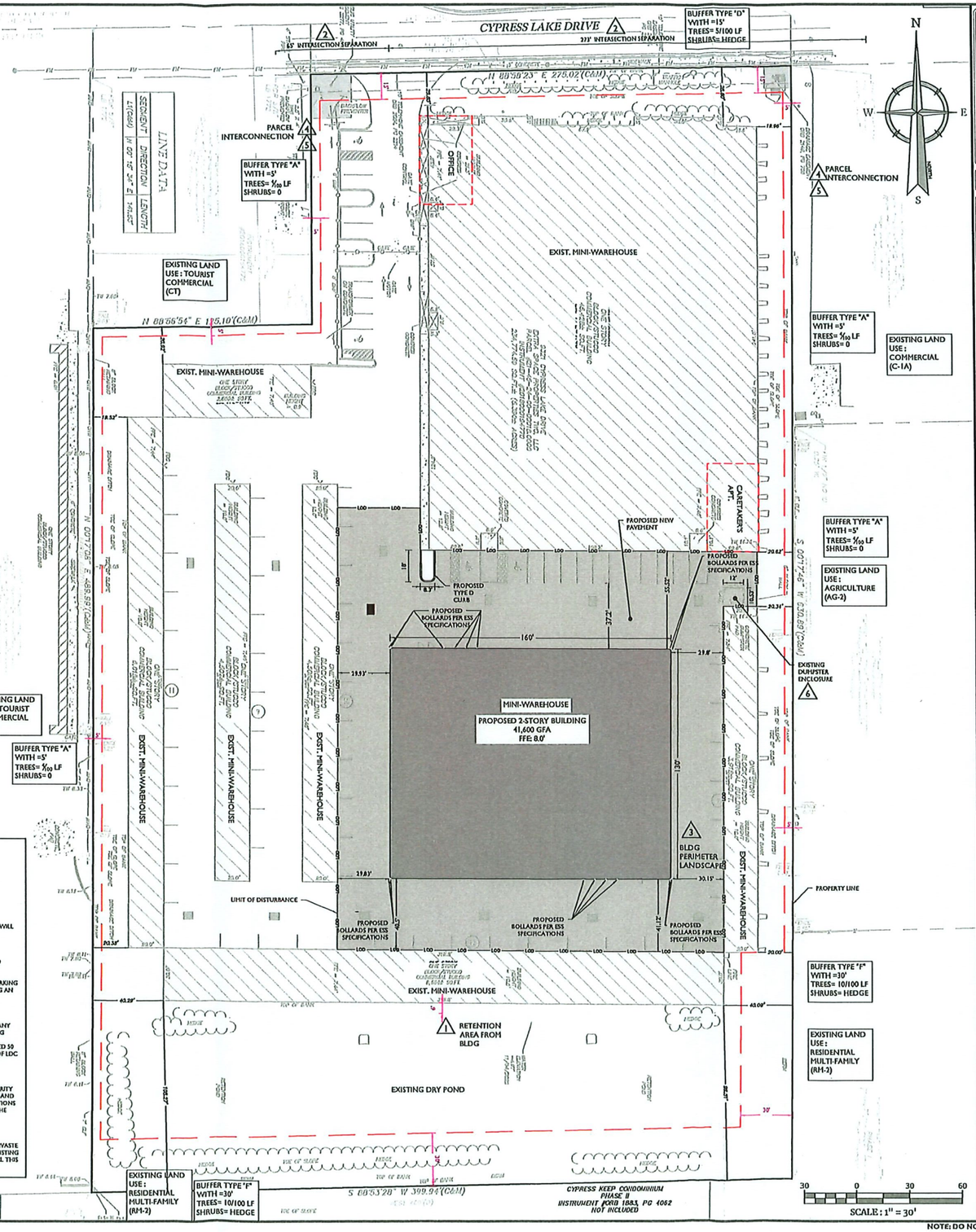
SEWER UTILITY: LEE COUNTY UTILITIES

IRRIGATION: FROM POTABLE WATER

FIRE DISTRICT: IONA MCGREGOR FIRE DISTRICT

NOTE 1: THE PROPOSED BUILDING WILL NOT NEED NEW POTABLE WATER OR SEWER CONNECTION. THE USED IS FOR STORAGE UNIT EXCLUSIVELY, NOT RUNNING WATER OR INSIDE RESTROOM ARE PROPOSED.

NOTE 2: FIRE WATER STUB OUT IS EXISTING WITHIN PARCEL LIMITS. THE BUILDING FIRE PROTECTION SYSTEM WILL BE CONNECTED TO IT.



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REV	DATE	DRAWN BY	DESCRIPTION

EXHIBIT B-1

Michael Robert Costello
FLORIDA PROFESSIONAL ENGINEER
LICENSE NUMBER: PE50202
COLLIERS ENGINEERING & DESIGN, INC.

PRELIMINARY CONCEPTUAL SITE PLAN
FOR
EXTRA SPACE PROPERTIES TWO LLC

PARCEL ID:
21-45-24-00-00018.0000

LEE COUNTY
FLORIDA

Colliers Engineering & Design
TAMPA
5471 West Waters Avenue, Suite 100
Tampa, FL 33634
Phone: 813.207.1061
COLLIERS ENGINEERING & DESIGN, INC.
DOING BUSINESS AS MASER CONSULTING

SCALE	DATE	DRAWN BY	CHECKED BY
AS SHOWN	08/31/2023	YB	MRC

PROJECT NUMBER: 21001158A
DRAWING NAME: C-LAYOUT-MASTER

SHEET TITLE: MASTER CONCEPT PLAN

SHEET NUMBER: 1 of 1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Exhibit C

EXHIBITS PRESENTED AT HEARING

STAFF EXHIBITS

1. *DCD Staff Report with attachments for DCI:* Prepared by Elizabeth Workman, Principal Planner, date received January 10, 2024 (multiple pages – 8.5"x11" & 11"x14") [black & white, color]

2. *PowerPoint Presentations:* Prepared by Lee County Staff for DCI2023-00022, Extra Space Storage – Fort Myers, dated January 25, 2024 (multiple pages – 8.5"x11") [color]

APPLICANT EXHIBITS

a. *48-Hour Notice:* Email from Milena Albuernes, to Hearing Examiner, with copies to Elizabeth Workman, Stuart Rogers, and Kathleen Berkey, dated Monday, January 22, 2024, 10:28 A.M. (multiple pages – 8.5"x11")

1. *PowerPoint Presentations:* Prepared by Collier Engineering and Design, for DCI2023-00022, Extra Space Storage – Fort Myers, dated January 25, 2024 (multiple pages – 8.5"x11") [color]

Exhibit D

HEARING PARTICIPANTS

County Staff:

1. Elizabeth Workman

Applicant Representatives:

1. Katie Berkey, Esq.
2. Stuart Rogers, P.E.

Exhibit E

INFORMATION

UNAUTHORIZED COMMUNICATIONS

The LDC prohibits communications with the Hearing Examiner or her staff on the substance of pending zoning actions. There are limited exceptions for written communications requested by the Hearing Examiner, or where the Hearing Examiner seeks advice from a disinterested expert.

HEARING BEFORE LEE COUNTY BOARD OF COUNTY COMMISSIONERS

A. The Hearing Examiner will provide a copy of this recommendation to the Board of County Commissioners.

B. The Board will hold a final hearing to consider the Recommendation and record made before the Hearing Examiner. The Department of Community Development will notify hearing participants of the final hearing date. Only Parties and participants may address the Board at the final hearing. Presentation by participants are limited to the substance of testimony presented to the Hearing Examiner, testimony concerning the correctness of Findings of Fact or Conclusions of Law contained in the Recommendation, or allegations of relevant new evidence not known or that could not have been reasonably discovered by the speaker at the time of the Hearing Examiner hearing.

C. Participants may not submit documents to the Board of County Commissioners unless they were marked as Exhibits by the Hearing Examiner. Documents must have the Exhibit number assigned at hearing.

COPIES OF TESTIMONY AND TRANSCRIPTS

A. Every hearing is recorded. Recordings are public records that become part of the case file maintained by the Department of Community Development. The case file and recordings are available for public examination Monday through Friday between 8:00 a.m. and 4:30 p.m.

B. A verbatim transcript may also be available for purchase from the court reporting service.

Extra Space Storage – Fort Myers – DCI2023-00022

Attachment C – Conditions

Section A. - Conditions

1. The development of this project must be consistent with the Master Concept Plan (MCP) entitled "Extra Space Properties Two LLC," prepared by Colliers Engineering and Design, dated August 31, 2023, except as modified by the conditions below. This development must comply with all requirements of the Lee County (LDC) at the time of local development order, except as may be granted by deviation as part of this planned development. If changes to the MCP are subsequently pursued, appropriate approvals will be necessary.

   This project is limited to a 118,108 square feet of storage use (mini-warehouse and warehouse, public) with a maximum height of 25 feet. The approval of the subject amendment supersedes Z-99-046 and ADD2023-00080.

2. The following limits apply to the project and uses:

   a. <u>Schedule of Uses</u>

   Accessory Uses & Structures
   Administrative Offices
   Caretaker's Residence
   Entrance Gates and Gatehouse
   Essential Services
   Excavation: Water Retention
   Fences, Walls, gate, gatehouses
   Parking Lot: Accessory
   Signs
   Storage: Indoor and Open (Accessory only)
   Warehouse, Public
   Warehouse, Mini

   b. <u>Site Development Regulations</u>

   Minimum Open Space: 30 percent

   Minimum Setbacks:
   Street: 25 feet
   Side: 15 feet
   Rear: 25 feet
   Waterbody: 6 feet (see Deviation 1)

   Maximum building height: 25 feet
   Maximum lot coverage: 41.4 percent

3. Open Space

   Prior to the issuance a development order, the development order plans must depict 30 percent (72,590.92 square feet) of open space in substantial compliance with the Master Concept Plan.

4. Hours of Operation

   Hours of operation for the Administrative office use are limited to 9:00 a.m. to 6:00 p.m. seven days per week. Hours of operation for the warehouse and storage use are limited to 7:00 a.m. to 9:00 p.m., seven days per week.

5. South and East Property Line Buffers

   Prior to the issuance of a development order, the buffer along the south property line must be a Type "F" buffer with twice the number of trees and shrubs required in LDC Section 10-416(d). The developer must provide a continuous hedge, at least five feet high, and five canopy trees per 100 linear feet along the east property line adjacent to the daycare center located at 13610 Learning Court. The buffer on the balance of the east property line must comply with the requirements of LDC Section 10-416(d).

6. Open Storage

   Prior to local development order approval, the open storage area must be depicted on the landscape plans and comply with the buffer requirements per LDC Section 34-3005(b)(1).

7. Waterbody Setback

   The development order must depict adequate access for maintenance of the surface water management area, no structures may encroach into any easements that may be required by the South Florida Management District, and the application of Deviation 1 is subject to additional review and conditioning by the Director during the development order review process.

8. Building Perimeter Planting Areas

   The development order plans must depict 9,000 square feet of building perimeter planting area located abutting three sides of the existing building abutting Cypress Lake Drive and three sides of the existing mini-warehouse building abutting the existing retention area in substantial compliance with development order 99-10-125.00D.

9. Development Orders

   The development order plans must demonstrate compliance with the required landscaping as previously approved per development order 99-10-125.00D.

Section B. – Deviations

1. Deviation 1 seeks relief from LDC Section 34-2194(b) requirement to provide a 25-foot setback from buildings and structures to water bodies, to allow a six-foot setback.

Deviation 1 is **APPROVED**, subject to Condition 7.

2. Deviation 2 seeks relief from LDC Section 10-285(a) which requires a 660-foot intersection separation for arterial roads to allow a 65-foot (from the driveway to the west) and a 273-foot intersection separation (to Learning Court / South Point Boulevard to the east).

   Deviation 2 is **APPROVED**.

3. Deviation 3 seeks relief from LDC Section 10-416(b), which requires all new developments in commercial zoning districts and commercial components of planned development districts to provide building perimeter plantings equal to ten percent of the proposed building gross ground level floor area. These planting areas must be located abutting three sides of the building with emphasis on the sides most visible to the public, not including the loading areas. The applicant is requesting to allow no building perimeter plantings.

   Deviation 3 is **APPROVED** limited to the proposed two-story mini-warehouse building and subject to Condition 8.

4. Deviation 4 seeks relief from LDC Section 10-610(e), which requires adjacent commercial uses to provide parking lot interconnections for automobile, bicycle, and pedestrian traffic, to allow no interconnection.

   Deviation 4 is **APPROVED**.

5. Deviation 5 seeks relief from LDC Section 34-2015(2)(f), which requires adjacent commercial uses to provide parking lot interconnections for automobile traffic, to allow no interconnections.

   Deviation 5 is **APPROVED**.

6. Deviation 6 seeks relief from LDC Section 10-261(a), which requires 961 square feet of garbage and recyclable storage area to allow the existing 126-square-foot area for garbage and recycling to remain.

   Deviation 6 is **APPROVED**.

Lee County, Florida
DEPARTMENT OF COMMUNITY DEVELOPMENT
ZONING SECTION
STAFF REPORT

CASE NUMBER: DCI2023-00022
TYPE OF CASE: Minor Planned Development Amendment
CASE NAME: Extra Space Storage Fort Myers
TOTAL ACREAGE: +/- 5.39 acres
SUFFICIENCY DATE: November 9, 2023
HEARING EXAMINER DATE: January 25, 2024

Request:
Colliers Engineering and Design has requested to amend Resolution Z-99-046 to eliminate three single story public storage buildings that were approved but never constructed and propose a two-story, 41,600 square foot public storage building with a maximum height of 25 feet.

The subject property is located at 9321 Cypress Lake Drive, east of the intersection of McGregor Boulevard and Cypress Lake Drive, and west of the intersection of South Pointe Boulevard and Cypress Lake Drive. The property is within the Central Urban future land use category. The subject property consists of one STRAP number and the legal description for this property may be found in Attachment D.

Summary:
Staff recommends **APPROVAL** of the applicant's request, with the Conditions found in Attachment C. The applicant seeks four new deviations from Land Development Code (LDC) requirements regarding building perimeter planting, parking lot interconnections, and refuse and solid waste container size requirements. Staff recommends approval of the deviations with conditions (Attachment C). The applicant is requesting to bring forward the two existing deviations previously approved per Resolution Z-99-046 to allow a six-foot waterbody setback from buildings and structures and a 65-foot intersection separation from the driveway to the west and a 273-foot intersection separation to Learning Court / South Pointe Boulevard to the east.

HISTORY OF THE PARCEL:
The subject property was previously rezoned from Commercial (CS-1) and Tourism Commercial (CT) to Commercial Planned Development (CPD) (Attachment F). Resolution Z-99-046 approved a maximum of 98,518 square feet of mini-warehouse with a caretaker's residence. The maximum height of the buildings was approved for 25 feet above grade, with no more than two habitable floors. The one-page Master Concept Plan depicted one large mini-warehouse building located abutting Cypress Lake Drive and nine smaller mini-warehouse buildings located to the south. Four of the buildings were proposed along the perimeters of the property. These four buildings were connected at the corners to form an enclosed area with the rear walls of the buildings forming a solid wall to screen the adjacent properties to the east, west, and south. The remaining buildings are proposed in parallel rows inside the enclosed area. The caretaker's unit is in the southeast corner of the larger storage building, which is located abutting Cypress Lake Drive. In between the south building and the south property line is a retention area and 30-foot-wide-buffer. A development order (99-10-125.00D) was issued and certified for all buildings and infrastructure except for three buildings that were proposed to be in the center of the site. The location of the three buildings is where the current applicant proposes to develop one 41,600-square-foot mini-

warehouse building with a maximum height of 25 feet. The approved resolution allowed a total of 98,518 square feet of mini-warehouse facilities (40 percent lot coverage). The applicant's request narrative provides a breakdown of the constructed mini-warehouse buildings. The site is currently developed with a total of 76,508 square feet of floor area. The 41,600-square-foot building will increase the overall development intensity to 118,108 square feet, which is a 19,590-square-foot increase in building area. The area where the new building is being proposed is currently being used for parking (Attachment B). The applicant requested an administrative amendment (ADD2023-00080) to revise a scrivener's error in the legal description to correct the total acreage from 5.65 acres to 5.39 acres and the lot coverage from 41.9 percent to 41.4 percent because of the modified property acreage (Attachment G). The legal description submitted with the current application is consistent with the legal description approved as part of ADD2023-00080 (Attachments D and G).

CHARACTER OF THE AREA:

South:

The subject property abuts a multi-family development to the south that is zoned RM-2. The subdivision is owned by Cypress Keep Condominium Association and was approved for 180 units and a maximum height of 28 feet (8.00 N.G.V.D.) (Attachment H).

East:

The east property line abuts two properties zoned Commercial (C-1A) and Agricultural (AG-2) both occupied by commercial businesses.

North:

North of the subject property is Cypress Lake Drive, a County-maintained arterial road. Further north is a platted single-family subdivision zoned Residential Multiple Family (RM-2).

West:

To the west of the subject property are two parcels zoned Tourism Commercial (CT) and Residential Multiple Family (RM-2) both developed with commercial uses.

ANALYSIS:

The applicant has submitted a request statement that provides a description of the request (Attachment E). In the narrative, the applicant states that the intent is to construct a new mini-warehouse building instead of three mini-warehouse buildings that were previously approved but never constructed. The area where the three mini-warehouse buildings were proposed is currently providing parking spaces; and the 41,600-square-foot, two-story building is proposed to be developed in this area.

Master Concept Plan:

The applicant has provided a Master Concept Plan (MCP) that depicts the uses, buffers, detention areas, and deviation locations (Attachment N). The proposed two-story building is depicted on the Master Concept Plan within the center of the development with the existing warehouse buildings surrounding it along all four sides.

Planned Development Rezoning:

Section 34-612 of the Lee County Land Development Code (LDC) describes the intent of the utilization of the Planned Development zoning district. The purpose of planned developments is to further implement the goals, objectives, and policies of the Lee Plan, while providing some degree of flexibility in the

planning and design of proposed developments. Section 34-145 of the Land Development Code (LDC) establishes the review criteria for all rezoning requests. Before recommending approval of a rezoning request, the Hearing Examiner must find the request:

a) Complies with the Lee Plan;
b) Meets the Land Development Code and other applicable County regulations or qualifies for deviations;
c) Is compatible with existing and planned uses in the surrounding area;
d) Will provide access sufficient to support the proposed development intensity;
e) The expected impacts on transportation facilities will be addressed by existing County regulations and conditions of approval;
f) Will not adversely affect environmentally critical or sensitive areas and natural resources; and
g) Will be served by urban services, defined in the Lee Plan, if located in a Future Urban Area category.

For Planned Development rezoning requests, the Hearing Examiner must also find:

a) The proposed use or mix of uses is appropriate at the proposed location;
b) The recommended conditions provide sufficient safeguards to the public interest and are reasonably related to the impacts on the public's interest expected from the proposed development; and
c) That each requested deviation:
    1) Enhances the achievement of the objectives of the planned development; and
    2) Preserves and promotes the general intent of this Code to protect the public health, safety and welfare.

<u>Development Pattern Considerations:</u>
The subject property is in the Central Urban future land use category which is characterized as the "urban core" and described as heavily settled areas with the highest levels of public services. The applicant is proposing to expand the approved use by proposing a two-story mini-warehouse building with a maximum height of 25 feet. The subject property is located within an established area of Lee County with urban services and developed land surrounding the property. The residential development to the south was approved with a maximum building height of 28 feet (Attachment H). Staff finds the proposed request as conditioned consistent with **Lee Plan Policy 1.1.3**.

The subject property has been designed to shield the abutting uses from the mini-warehouse use by positioning the buildings along the property lines with the main climate controlled warehouse located abutting Cypress Lake Drive along the north property line. The rear of each mini-warehouse building serves as a wall with the corners of each building adjoining to provide continuous screening. The applicant does not propose to increase the approved building height to remain consistent and compatible with the adjacent 28-foot-in-height multi-family units to the south. The subject property complies with the existing buffer requirements, with a 15-foot-wide right-of-way buffer along the north, five-foot-wide Type-A buffers along the east and west, and a 30-foot-wide Type-F buffer along the south property line. Staff has recommended a condition that at time of development order for the new two-story building, the development order must demonstrate compliance with the landscape buffers as depicted on the MCP. Staff finds the project consistent with **Lee Plan Policies 5.1.5 (Compatibility), 6.1.1 (Evolution of**

Commercial Development), 6.1.3 (Design of Commercial Development), and 6.1.6 (Land Development Regulations for Commercial Development).

The applicant submitted a Traffic Impact Statement (TIS) that analyzes the trip generation for the proposed increase in the commercial use (Attachment I). Staff reviewed the TIS and provided a memorandum detailing the AM and PM peak hour trips and daily traffic volumes (Attachment J). The proposed development is projected to generate less than 100 trips per day and therefore the applicant's TIS does not include any Level of Service (LOS) analysis for roadway sections and intersections in accordance with Administrative Code 13-17. The surrounding roadway system has sufficient capacity to support the new trips that this development is projected to generate. Staff finds the request as conditioned consistent with **Lee Plan Policies 6.1.1 and 6.1.5 (Traffic Carrying Capacity)**.

The subject property is currently operating and is served by Lee County Utilities. A LeeTran bus stop is less than one mile to the east. The north and south sides of Cypress Lake Drive have sidewalks. Emergency Management Service Medic #20 and Iona / McGregor Fire Station #74 is located less than one mile away located at the intersection of South Pointe Boulevard and College Parkway. A Sheriff's substation is over three miles away located at Ben C Pratt/Six Mile Cypress and South Tamiami Trail. The subject property is currently developed and has no protected species or wetlands. The subject property is within the Coastal High Hazard area. The impacts to the parcel have been permitted through the development order process and therefore the request is consistent with **Lee Plan Goal 101.3.2**. In addition, the request consistent with **Lee Plan Policies 4.1.1, 4.1.2, and 4.1.4**.

Property Development Regulations:
The applicant is requesting to increase the total building square feet allowed on the subject property. The previously approved setbacks, including the waterbody setback of six feet (previously approved Deviation 1) are not changing. The allowable lot coverage was approved per ADD2023-00080 to allow 41.4 percent coverage instead of 40 percent lot coverage (Attachment G). The proposed property development regulations are provided in Attachment C.

Schedule of Uses
The applicant is not proposing to revise the previously approved Schedule of Uses. The applicant has provided the Schedule of Uses in Request Statement (Attachment E).

Master Concept Plan
The applicant has provided a Master Concept Plan that depicts the required buffers, setbacks, existing buildings, and locations of all requested or previously approved deviations (Attachment N).

Environmental Considerations:
The applicant requested a waiver (GEN2023-00341) from LDC Sections 34-373(4)(b)i, ii, iii, v, (c – e) which establish the soils, vegetation, historic flowways, and historical site survey map submittal requirements (Attachment K). The site has been permitted for development and therefore a Florida Land Use Cover and Classification System map (FLUCCS) is not required. Environmental Sciences staff has provided a staff report providing the environmental and landscaping analysis (Attachment K).

Per LDC Section 10-415, large development commercial uses must provide 30 percent open space. The applicant is proposing over two acres of impervious and per LDC Section 10-1 is considered a large

development. The applicant is providing 31 percent open space. Staff finds this consistent with **Lee Plan Policy 6.1.1**.

As previously stated, the buffers are in compliance with LDC Section 10-416(d). The applicant has indicated in the strikethrough and underline version of Resolution Z-99-046 that condition 10 (strikethrough #8) will remain (Attachment L). This condition requires twice the number of trees and shrubs required by LDC Section 10-416(d) for a Type-F buffer. Staff has recommended that this condition remain.

Deviation Requests:
The applicant has requested to retain existing deviations and has requested four new deviations (Attachment E). Staff provides the following analysis of the proposed deviations:

Deviation 1 seeks relief from LDC Section 34-2194(b) requirement to provide a 25-foot setback from buildings and structures to water bodies, to allow a six-foot setback.

> **APPROVED** with conditions per Resolution Z-99-046 and Condition 7.

Deviation 2 seeks relief from LDC Section 10-285(a) which requires a 660-foot intersection separation for arterial roads to allow a 65-foot (from the driveway to the west) and a 273-foot intersection separation (to Learning Court / South Point Boulevard to the east).

> **APPROVED** per Resolution Z-99-046.

Deviation 3 seeks relief from LDC Section 10-416(b), which requires all new developments in commercial zoning districts and commercial components of planned development districts to provide building perimeter plantings equal to ten percent of the proposed building gross ground level floor area. These planting areas must be located abutting three sides of the building with emphasis on the sides most visible to the public, not including the loading areas.

The applicant has indicated in the deviation request that none of the existing buildings have plantings around the perimeter. The approved Storage World development order (99-10-125.00D) landscape plan depicts 9,000 square feet of building perimeter planting areas located around three sides of the climate-controlled building abutting Cypress Lake Drive and along three sides of mini-warehouse building #9 (Attachment M). The ten percent of the gross ground level floor areas was based on 89,873-square-foot gross ground level floor area. Staff recognizes that these buildings have bay doors that open along one side and do not have the area to provide a five-foot-wide planting area. However, the approved development order plans depict building perimeter planting abutting the rear of the storage building walls facing abutting uses to provide additional screening.

> Based on the above, staff recommends **APPROVAL** of Deviation 3 with a condition limiting the deviation to the proposed two-story mini warehouse building and a condition that at time of development order, the applicant must provide landscape plans that depict 9,000 square feet of building perimeter planting area in substantial compliance with the landscape plans approved by 99-10-125.00D

Deviation 4 seeks relief from LDC Section 10-610(e), which requires adjacent commercial uses to provide parking lot interconnections for automobile, bicycle, and pedestrian traffic to allow no interconnection.

The applicant has requested this deviation with a justification that includes LDC Section 10-602(b), which states that if a renovation or redevelopment of an existing building exceeds 50 percent of the floor area square footage, the provisions of this article will apply. The applicant indicates that LDC Section 10-610(e) should not apply because the subject property is existing with surrounding existing developments and no areas to provide interconnection due to the location of the existing buildings. The applicant is not increasing impervious and is proposing a two-story mini-warehouse over existing impervious. The access is limited to Cypress Lake Drive and there are no other areas to propose interconnection that would not interfere with existing or required infrastructure.

Staff recommends **APPROVAL** of Deviation 4.

Deviation 5 seeks relief from LDC Section 34-2015(2)(f), which requires adjacent commercial uses to provide parking lot interconnections for automobile traffic to allow no interconnections.

Staff recommends **APPROVAL** of Deviation 5 per Deviation 4 justification.

Deviation 6 seeks relief from LDC Section 10-261(a) that requires 961 square feet of garbage and recyclable storage area, to allow the existing 126-square-foot area for garbage and recycling to remain.

The applicant indicates that the self-storage facility does not allow the use of its facilities for trash or recyclable disposal by the customers. The garbage and recycling areas are used by two employees.

Staff recommends APPROVAL of Deviation 6.

CONCLUSION:
Based on the analysis provided above, staff offers the following review of the decision-making criteria for the planned development rezoning request. Staff finds that the proposed request, as conditioned:

a) Complies with the Lee Plan;

Based on the analysis above, staff finds that the request is consistent with the Lee Plan. The request is compatible with the surrounding existing and proposed uses and meets or exceeds the objectives and policies above.

b) Meets this Code and other applicable County regulations or qualifies for deviations;

The applicant is seeking six deviations from landscaping, setbacks, garbage and recycling areas, parking lot interconnections and intersection separation. Staff recommends approval of these deviations as conditioned (Attachment C).

c) Is compatible with existing and planned uses in the surrounding area;

The mini-warehouse units have been constructed to use the buildings as walls to screen the offsite uses. The request to build a two-story mini-warehouse building in the center

of the parcel is compatible with the surrounding uses because it is limited to a height of 25 feet and has provided a 100-foot setback from the residential community to the south which was permitted to allow 28-foot-in-high buildings. The applicant or successor will be required to provide a landscape plan that demonstrates compliance with the required buffers per the MCP.

d) Will provide access sufficient to support the proposed development intensity;

The existing access is proposed onto Cypress Lake Drive, which is a County maintained arterial road will remain. Staff finds that there is sufficient access to support the proposed development, subject to the recommended approval of Deviation 2 for intersection separation from two locations east and west of the existing access point.

e) The expected impacts on transportation facilities will be addressed by existing County regulations and conditions of approval;

Staff has reviewed the transportation impacts of the development and has concluded that the additional development intensity will not generate more than 100 trips per day and therefore does not require a Level of Service review for roadway sections or intersections per Administrative Code 13-17. At time of development order, the traffic impacts of the development will be reviewed for road improvements that may lessen the impacts to the surrounding uses.

f) Will not adversely affect environmentally critical or sensitive areas and natural resources; and

Staff has provided an environmental staff report (Attachment K). The site has been previously approved for development per Development Order 99-10-125.00D. The applicant was issued a waiver (GEN2023-00341 attached to the environmental staff report) from the soils, topographical, vegetation, flowway, and historical maps.

g) Will be served by urban services, defined in the Lee Plan, if located in a Future Urban area category.

Lee County Utilities is currently providing potable water and sanitary sewer services to the business. The proposed development has access to a sidewalk along Cypress Lake Drive and a LeeTran bus stop located less than a mile to the east. There are emergency services available less than one mile from the subject property.

Additionally,

a) The proposed use or mix of uses is appropriate at the proposed location;

The proposed commercial uses are appropriate within the subject property given the consistency with the Lee Plan Policy for the Central Urban future land use category and the existing or proposed surrounding land uses.

b) The recommended conditions provide sufficient safeguards to the public interest and are reasonably related to the impacts on the public's interest expected from the proposed

development; and Staff finds the proposed conditions appropriate for approval and as conditioned the public's interests are sufficiently addressed.

c) That each requested deviation enhances the achievement of the objectives of the planned development; and preserves and promotes the general intent of this Code to protect the public health, safety, and welfare:

There are six requested deviations and staff is recommending approval with conditions.

Staff, therefore, recommends approval of this planned development rezoning request, as conditioned in Attachment C.

Attachments:

A - Expert Witness List
B - Aerial, Future Land Use, and Zoning Maps
C - Conditions
D - Boundary Survey and Legal Description
E - Applicant Request Statement
F - Resolution Z-99-046 Storage World CPD
G - ADD2023-00080 Extra Space Storage – Fort Myers
H - Cypress Keep Condominiums Development Order 11-27-84
I - Applicant's Traffic Impact Statement
J - Infrastructure Planning / LDOT Memorandum
K - Environmental Sciences staff report
L - Resolution Z-99-046 strike thru and underline
M - Development Order 99-10-125.00D Landscape Plan
N - Extra Space Storage Properties Two LLC Master Concept Plan

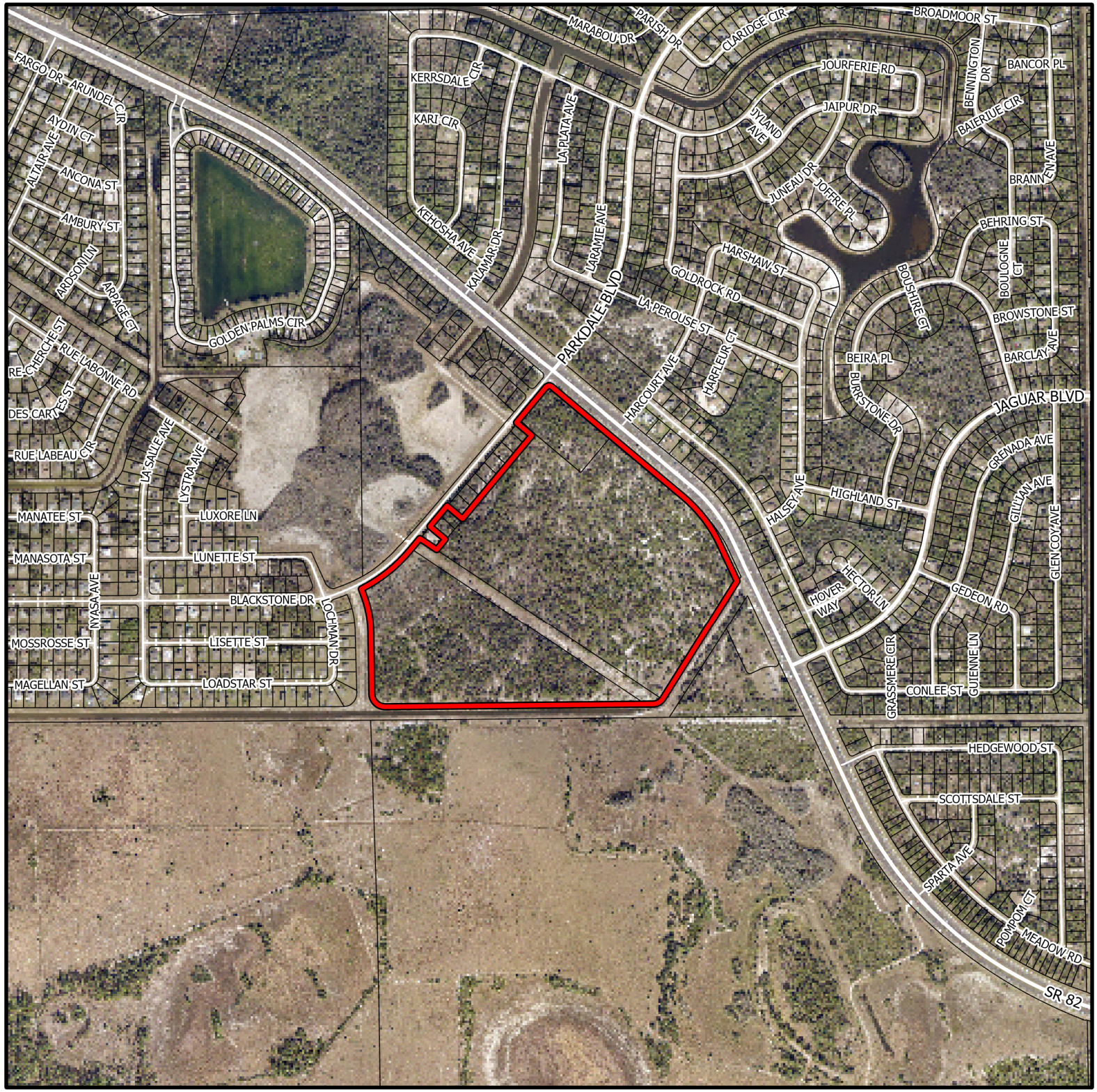
DCI2023-00009 Blackstone Corporate Park MPD

Staff Summary

CASE NUMBER & NAME:	DCI2023-00009 / Blackstone Corporate Park MPD
REQUEST:	Request to rezone 98.03± acres from Commercial (C-1A) and Mixed Use Planned Development (MPD) to Mixed Use Planned Development (MPD) to allow for 500,000 square feet of commercial floor area and 350,000 of industrial floor area with a maximum building height of 65 feet.
RESOLUTION NUMBER:	Z-23-040
LOCATION:	Located along SR 82 and Blackstone Drive, Lehigh Acres Planning Community, Lee County, FL.
OWNER:	MCIN BELL LLC
APPLICANT:	MCIN BELL LLC
AGENT:	Daniel DeLisi, AICP DeLisi Inc. 520 27th Street West Palm Beach, Fl 33407
HEARING EXAMINER RECOMMENDATION:	Approve, subject to conditions and deviations set forth in Exhibit B.
PARTICIPANTS (0):	None

DCI2023-00009

Aerial



Subject Property

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Feet

Lee County
Southwest Florida

Summary of Hearing Examiner Recommendation

BLACKSTONE CORPORATE PARK MPD

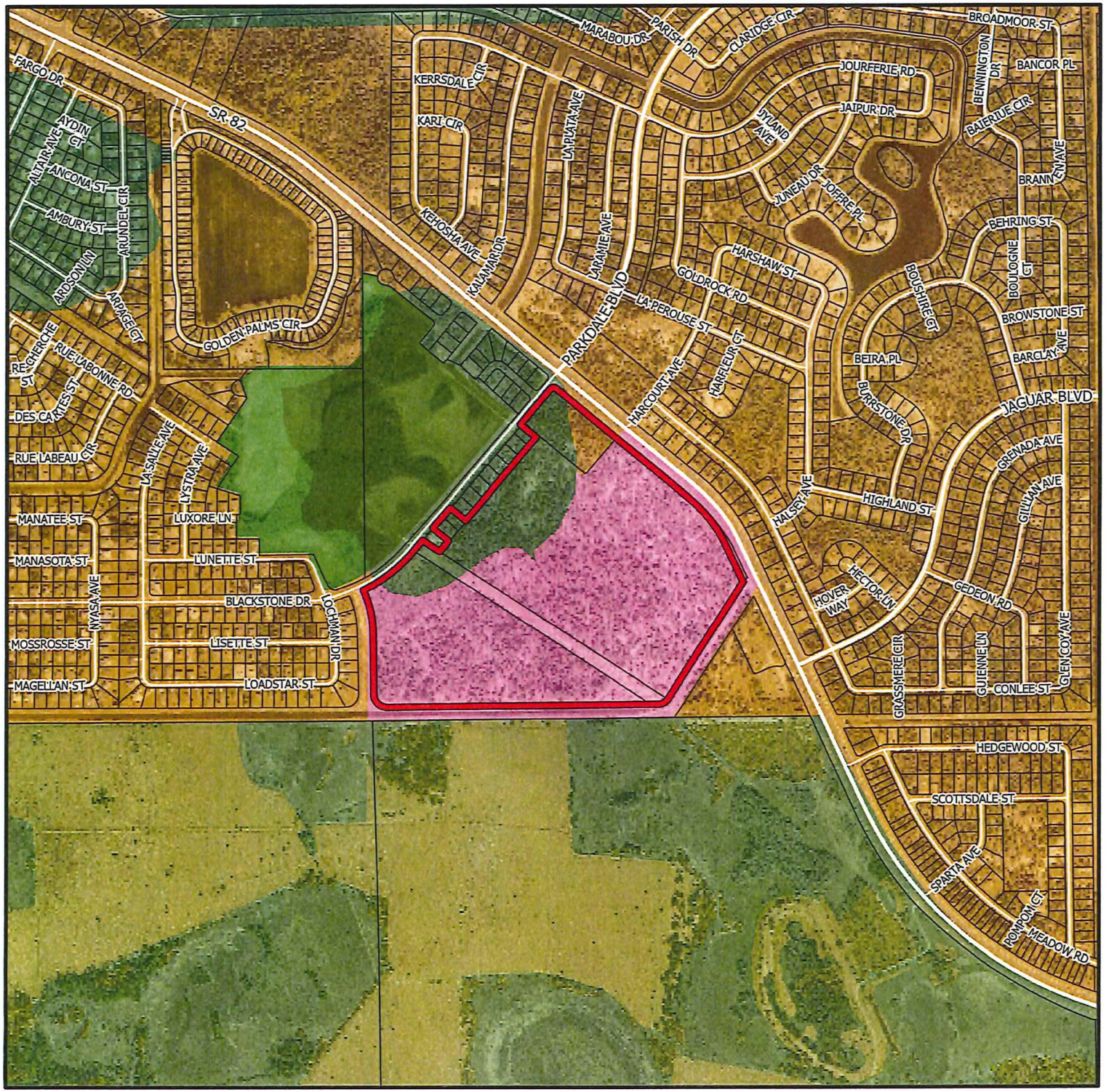
Applicant seeks to amend an existing MPD by adding five acres and modifying the mix of commercial/industrial uses.

The sole point of disagreement between Applicant and Staff relates to an approved deviation for an on-site wastewater treatment facility. Upon extensive review of the Lee Plan, LDC, and the record, the Hearing Examiner recommends carrying forward the approved deviation with conditions. There are safeguards to ensure Applicant must connect to the central sewer system if capacity is available at the time of development order. If capacity is not available, there are protections that require Applicant to cease operation of the on-site facility as soon as capacity becomes available.

Detailed recommendation follows

DCI2023-00009

Future Land Use



Subject Property
Urban Community
Industrial
Density Reduction/ Groundwater Resource
Conservation Lands - Upland
Wetlands
Conservation Lands - Wetland

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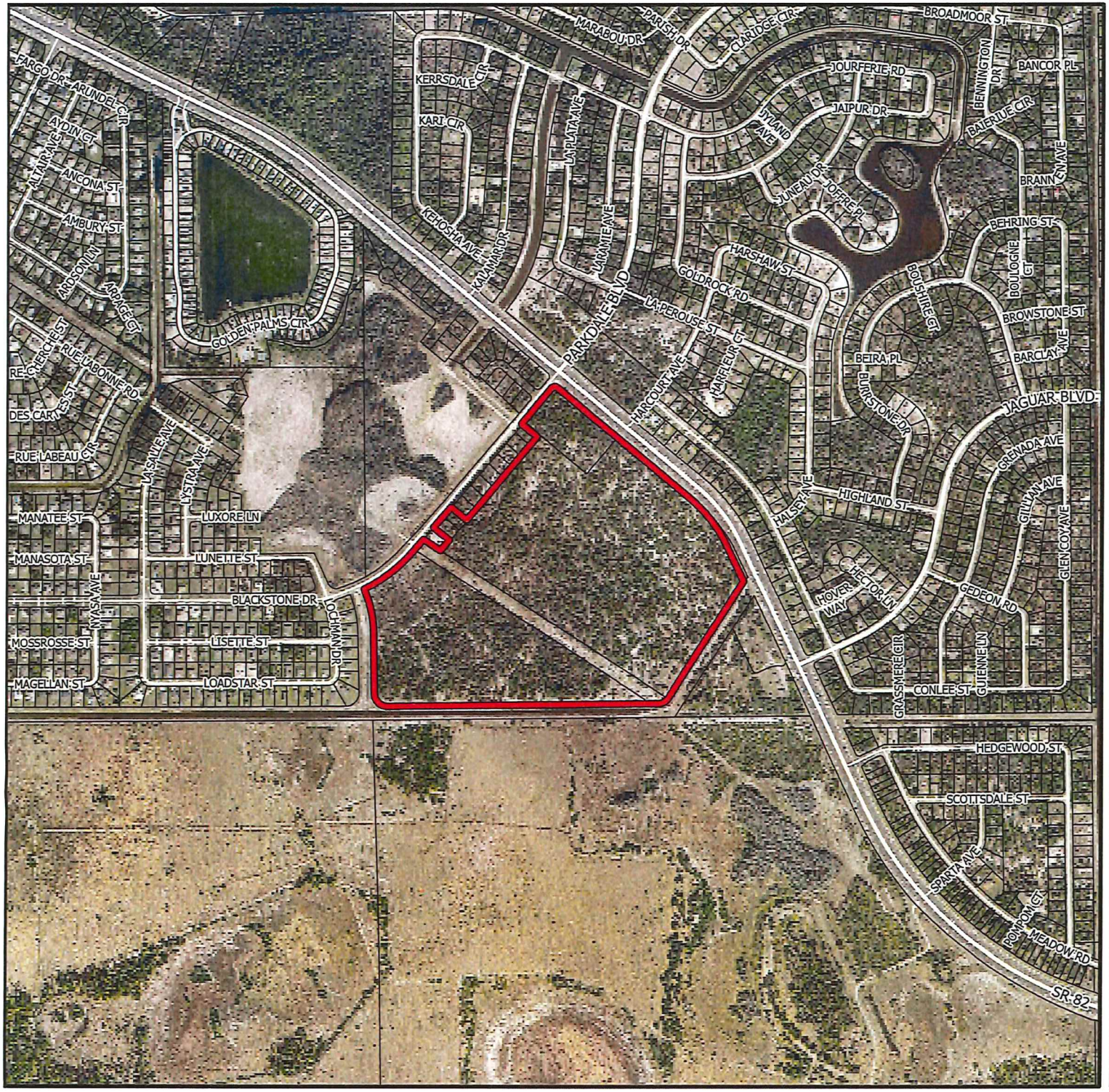
Feet

Lee County
Southwest Florida



DCI2023-00009

Aerial

Subject Property

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Feet

Lee County
Southwest Florida

OFFICE OF THE HEARING EXAMINER, LEE COUNTY, FLORIDA

HEARING EXAMINER RECOMMENDATION

REZONING: DCI2023-00009

Regarding: **BLACKSTONE CORPORATE PARK MPD**

Location: South of State Road 82, East of Blackstone Drive
Lehigh Acres Planning Community
(District 5)

Hearing Date: **December 21, 2023**

I. Request

Add five acres zoned Commercial (C-1A) to a 93.03 acre Mixed Use Planned Development (MPD Z-07-051) to allow 500,000 square feet of commercial floor area and 350,000 square feet of industrial floor area.

The property's legal description is set forth in Exhibit A.

II. Hearing Examiner Recommendation

Approval, subject to the conditions and deviations set forth in Exhibit B.

III. Discussion

The Hearing Examiner serves in an advisory capacity to the Board of County Commissioners (Board) on applications to rezone property.[1] In satisfaction of this duty, the Hearing Examiner accepted testimony and evidence on the application to amend the Blackstone Corporate Park MPD.

In preparing a recommendation to the Board, the Hearing Examiner must consider the Lee County Comprehensive Plan (Lee Plan), the Land Development Code (LDC), and other applicable County regulations to the facts presented in a rezoning request.[2] Specifically, the Hearing Examiner must find the request is compatible with surrounding uses and complies with Lee Plan and LDC requirements relating to such items as transportation facilities, natural resources, and urban services.[3] The Hearing Examiner may take judicial notice of previous Board decisions.[4] The

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[1] LDC §34-145(d)(1)(a) & (2)(a).
[2] LDC §34-145(d)(3).
[3] LDC §34-145(d)(4).
[4] Lee Co. Admin. Code 2-6, 2.3.D(4)(b).

Hearing Examiner's recommendation must be based on competent and substantial evidence.[5]

Discussion supporting the recommendation of approval of the proposed MPD follows below.

Request Synopsis/Zoning History

Applicant seeks to: (1) add five acres to the Blackstone Corporate Park MPD, (2) reduce industrial floor area, and (3) increase commercial intensity.

The property sits at the southeast intersection of S.R. 82 and Blackstone Drive in Lehigh Acres. The Board approved MPD zoning on 93± acres in 2007 to permit 810,000 square feet of industrial floor area and 250,000 square feet of commercial use.[6]

Applicant seeks to develop 500,000 square feet of commercial floor area and 350,000 square feet of industrial uses. Height remains at 65 feet.

	Existing MPD	**Proposed MPD**
Industrial Floor Area	810,000ft^2	350,000ft^2
Commercial Floor Area	250,000ft^2	500,000ft^2
Height	65 feet	65 feet

Site design locates commercial tracts along road frontages with preserves and lakes completing the perimeter. Industrial tracts occupy the central southern portion of the site, farthest from neighboring residences.[7]

Applicant proposes two access points, one on S.R. 82 and one on Blackstone Drive.

Staff recommended approval, finding the proposed MPD satisfies LDC review criteria.

Zoning Review Criteria

Before recommending approval, the Hearing Examiner must find the request:

A. Complies with the Lee Plan;

B. Meets the LDC and other applicable County regulations or qualifies for deviations;

[5] Lee Co. Admin. Code 2-6, 3.3.A(2); LDC §34-83(a)(4)(a)(1)(a).
[6] Z-07-051.
[7] An FP&L easement serves as the dividing line between commercial and industrial uses. Applicant Ex. 2: Revised MCP; DeLisi Testimony (Transcript pg. 10).

C. Is compatible with existing and planned uses in the surrounding area;

D. Will provide access sufficient to support the proposed development intensity;

E. Addresses impacts on transportation facilities by County regulations or conditions of approval;

F. Will not adversely affect environmentally critical/sensitive areas or natural resources; and

G. Will be served by urban services if located in a Future Urban area.[8]

When the requested zoning action is a planned development, the Hearing Examiner must also find:

H. The proposed use/mix of uses is appropriate at the proposed location;

I. Recommended conditions (1) provide sufficient safeguards to the public interest, and (2) reasonably relate to impacts on the public interest expected from the proposed development; and

J. Requested deviations (1) enhance achievement of the objectives of the planned development, and (2) promote the LDC's intent to protect public health, safety, and welfare.[9]

Character of the Area

The property is located south of SR 82 between Alabama Road and Homestead Road. The site is surrounded by residential and vacant lands zoned for commercial, residential, and agricultural uses. A Lehigh Acres Municipal Services Improvement District (LAMSID) restoration area occupies areas west of the site. Properties to the south are within the Density Reduction/Groundwater Resource classification.

Lee Plan Consistency and Compatibility

Planned developments must be consistent with the Lee Plan.[10] Rezoning requests must be compatible with existing/planned uses in the surrounding area.[11] Planned developments must be located to minimize negative effects of proposed uses on neighboring properties.[12]

[8] LDC §34-145(d)(4)(a)(1).
[9] LDC §34-145(d)(4)(a)(2).
[10] LDC §34-411(a).
[11] LDC §34-145(d)(4)(a).
[12] LDC §34-411(c) and (i).

The property is located within the Industrial Development, Urban Community, and Wetlands future land use categories in the Lehigh Acres Planning Community.[13] The site is partially within the Lehigh Commercial Overlay.[14]

Most of the site is within the Industrial Development category. This classification contemplates industrial, manufacturing, and research uses.[15] Recreational/service/retail uses are restricted to 20% of land area to maintain an industrial focus.[16] The LDC further requires at least 30,000 square feet each of commercial and industrial uses to satisfy MPD zoning criteria.[17]

Wetlands are along the western edge of the property.[18] Wetlands consist of very low density residential/recreational uses that do not adversely affect ecological function. The Master Concept Plan (MCP) designates wetlands as preserve areas.

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[13] Lee Plan Maps 1-A, 1-B, 2-A, 2-B; Policies 1.1.4, 1.1.7, 1.5.1.
[14] Lee Plan Map 2-B; Lee Plan Objective 25.6, Policy 25.6.2.
[15] *Id.*
[16] *See* Lee Plan Policy 1.1.7(2).
[17] *See* LDC §34-940(a).
[18] The exact locations of wetlands are delineated through SFWMD permitting. DeLisi Testimony (Transcript pg. 11).

The proposed five acre parcel is designated as Urban Community.[19] Urban Community areas are characterized by a mixture of relatively intense commercial and residential areas with some light industrial uses.[20]

The MPD zoning district is appropriate in the Industrial Development and Urban Community categories on a high-volume arterial roadway.[21] The site plan ensures neighboring residents are adequately buffered from project impacts. The nearest residence is setback 400± feet from industrial site development.[22] Industrial traffic will not travel through residential areas given proposed access locations.[23]

The Board previously found the MPD consistent with the Lee Plan and compatible with the surrounding area.[24] The proposed changes do not alter these findings.

Transportation/Traffic

Planned developments must have access to roads with sufficient capacity to support proposed intensity.[25] Existing regulations or conditions of approval must address expected impacts on transportation facilities.[26]

The site plan reflects access to Blackstone Drive and S.R. 82.[27] Blackstone Drive is a county-maintained collector local road.[28] S.R. 82 is a State-maintained arterial road.[29]

The request relocates the approved Blackstone Drive access closer to the S.R. 82 intersection to reduce conflicts with the neighboring residential community.[30]

Applicant demonstrated the request provides sufficient access to support proposed development.[31]

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[19] Lee Plan Policy 1.1.4.
[20] *See Id.*
[21] Lee Plan Policy 158.2.2 encourages efficient use of industrial areas.
[22] Workman Testimony (Transcript pg. 36). Preservation areas and the LAMSID canal provide extensive buffering. *Id.* See Lee Plan Policy 5.1.5.
[23] Lee Plan Policy 7.1.7.
[24] Z-07-051.
[25] LDC §§34-145(d)(4)(a)(1)(d), 34-411(d)(1).
[26] LDC §§34-145(d)(4)(a)(1)(e), 34-411(d)(2).
[27] Applicant Ex. 2: Revised MCP; Applicant Ex. 3 (slide 10).
[28] *See* Staff Report (pg. 9). Blackstone Drive merges into Parkdale Boulevard north of S.R. 82. *Id.*
[29] *Id.*
[30] Z-07-051 MCP shows the access point on Blackstone Road farther south, closer to residences.
[31] LDC §34-145(d)(4)(a)(1)(d); Staff Report (pg. 9, Attachment M: Infrastructure Planning Memorandum dated 11/27/2023; Attachment L: TIS dated 2/2/2023).

The Traffic Impact Statement (TIS) evaluated transportation impacts and concludes the request will not degrade levels of service on affected roadways/intersections.[32]

Site related impacts will be evaluated during development order review.[33]

Environmental and Natural Resources

Planned development design should reflect creative use of open space.[34] Developers must make an effort to protect and preserve natural site features.[35]

The site is mostly uplands with pine flatwoods.[36] South Florida Water Management District permitting delineated 6.8 acres of wetlands along the property's western border.[37] The wetlands are within the 12.1 acre preserve area.[38] Conditions of approval require Applicant to provide an Indigenous Preserve and Restoration Management Plan.[39]

Applicant's ecologist conducted a protected species site review and discovered gopher tortoise burrows and wood stork.[40] Additional species review will occur at the development order stage. State and federal agencies will address permits as needed.[41]

The MCP complies with buffer and open space requirements.[42] Applicant exceeds the indigenous preservation requirement.[43]

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[32] *See* Staff Report (pg. 9, Attachment M: Infrastructure Planning Memorandum dated 11/27/2023; Attachment L: TIS dated 2/2/2023); Bykau Testimony (Transcript pg. 25-27).
[33] Site related improvements include capital improvements and right-of-way dedications for "direct access" improvements to the project. Direct access improvements include site driveways/roads, median cuts made necessary by driveways/roads, right-turn, left-turn and deceleration/acceleration lanes serving driveways/roads, traffic control measures, and roads/intersection improvements whose primary purpose at the time of construction is to provide access to the development. *See,* Lee Plan Glossary and LDC §2-264; Lee Plan Objective 39.1, Policy 39.1.1. LDC §2-66 *et. seq.*
[34] LDC §34-411(h).
[35] LDC §34-411(g).
[36] Johnson Testimony (Transcript pg. 21-25); Applicant Ex. 3 (slides 11, 14).
[37] Johnson Testimony (Transcript pg. 22); Applicant Ex. 3 (slide 14).
[38] *Id.*
[39] Condition 4.
[40] Johnson Testimony (Transcript pg. 23); *See* Staff Report (Attachment O: Environmental Staff Report with Protected Species Report appended). Mr. Johnson clarified he observed 11 gopher tortoise burrows rather than 10 indicated in the report. *Id.* at pg. 24.
[41] *Id.*
[42] *See* Applicant Ex. 2: Revised MCP; Staff Report (Attachment O).
[43] *See Id.* The LDC requires 12.89 acres of indigenous preservation. The MCP provides 13.6 acres.

Public Services

Public/urban services are the facilities, capital improvements, and infrastructure necessary to support development.[44] The Lee Plan requires an evaluation of available urban services during the rezoning process.[45]

A host of urban services and infrastructure serve the property including roads, potable water, police, fire, and emergency medical services.[46]

Sewer/Wastewater Treatment

The Lee Plan mandates rezoning requests must meet sewer standards prior to issuance of a development order.[47] The Lee Plan and LDC further impose central sewer connection requirements on projects meeting specified development parameters.[48]

The requested MPD undeniably meets connection criteria.[49] However, existing zoning approvals permit the MPD to utilize an on-site wastewater treatment facility in lieu of central sewer connection.[50] Applicant seeks to carry forward the deviation permitting an on-site facility. Staff objects to the deviation, citing FGUA's confirmation it has sufficient sewage capacity to serve the project.

The parties engaged in significant discussion on this issue at hearing. Close examination of the record reveals the parties agree the project must connect to the central sewer system *if capacity is available at the time Applicant seeks development*.[51] The apparent disagreement stems from whether capacity will be available.

Notably, regulations governing sewer connection apply *at the time of development order*, not rezoning. The Lee Plan and LDC are replete with protections ensuring developers connect to sewage systems if capacity is available.[52]

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[44] Lee Plan Glossary: Public services include public water/sewer, paved streets/roads, public transit, parks/recreation facilities, urban levels of police, fire, and emergency services, urban surface water management, schools, employment, industrial, and commercial centers, institutional, public, or administrative facilities, community facilities such as senior citizens centers, libraries, and community centers.

[45] Lee Plan Policy 2.2.1.

[46] *See* Staff Report (pg. 2-3, Attachment G: Utility Letters of Availability). The site is serviced by Lehigh Acres Fire Station #105. The nearest Lee County Sheriff's office is four miles north of the site. Lee Tran does not yet offer transit services to the area. *Id.*

[47] Lee Plan Objective 4.1.

[48] Lee Plan Standard 4.1.2; LDC §10-353.

[49] Lee Plan Standard 4.1.2(1), LDC §10-353.

[50] Z-07-051 Deviation 2. The deviation permitted "a sanitary sewage package treatment facility until sufficient capacity is available to serve the proposed development."

[51] Hearing Testimony (Transcript pg. 29-30, 32, 38-43,51-52, 54-56).

[52] Lee Plan Goals 2, 4, Objectives 2.2, 4.1, 25.9, Standards 4.1.2, Policies 2.2.1, 25.9.1, 25.9.2; LDC §10-353.

Upon thorough review of the Lee Plan, LDC, and the record, the Hearing Examiner concludes it is appropriate to extend the approved deviation. There are sufficient safeguards to ensure Applicant *must* connect to a central sewage system if the local utility has capacity at the time of development order.[53]

If capacity is not available, Applicant may establish a temporary on-site treatment facility. The temporary facility *must* be abated once capacity is available.[54] Maintaining the deviation strikes an appropriate balance between ensuring proper infrastructure is in place without hindering development timing.[55] The request is distinguishable from other cases because the deviation is currently approved.[56]

Deviations

"Deviations" are departures from LDC regulations.[57] The request proposes to carry forward two deviations and add three new deviations.[58] Newly requested deviations relate to excavation setbacks, driveway separation, and indigenous open space. Staff supports the requested deviations.

Discussion on the approved deviation for an on-site wastewater treatment facility that staff recommended withdrawing is found in the *Public Services* section.

The Hearing Examiner's standard of review requires a finding the deviations:

1. Enhance achievement of objectives of the planned development; and
2. Preserve and promote the general intent of the LDC to protect the public health, safety, and welfare.[59]

Applying LDC deviation standards of review to testimony and evidence in the record, the Hearing Examiner concludes requested deviations meet approval criteria.[60]

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[53] LDC §10-104(a)(14) provides an administrative deviation for this scenario (citing to LDC §10-353).
[54] Lee Plan Standard 4.1.2(4); LDC §10-353(b)(2).
[55] Z-07-051, Staff Ex. 3, 4.
[56] The parties were in the same position at the time of the 2007 zoning action when the deviation was first granted. The current staff report makes reference to changed circumstances with FGUA now offering capacity, but Staff corrected the record at hearing in testimony and documentation. *See* Workman Testimony (pg. 36-45) and Staff Ex. 3-4).
[57] LDC §34-2.
[58] Applicant Ex. 3 (slide 12); Fitzgerald Testimony (Transcript pg. 15-21).
[59] LDC §34-145(d)(4).
[60] LDC §34-377(a)(4).

Conditions

The county must administer the zoning process so proposed land uses acceptably minimize adverse impacts to adjacent property. Conditions must plausibly relate to impacts anticipated from the development and mitigate impacts on public health, safety, and welfare.[61]

The MPD will be subject to many conditions of approval. Conditions relate to impacts anticipated from the project.[62] The Hearing Examiner recommends:

1. Revisions to conditions to improve clarity; and
2. Deletion of conditions that restate LDC standards/criteria applicable to the MPD pursuant to Condition 1.

Public

Applicant held a community meeting consistent with LDC requirements.[63] Meeting minutes reflect members supported the requested changes.[64]

No members of the public appeared at hearing.

Conclusion

The Hearing Examiner concurs with staff's analysis and recommendation of approval.

IV. Findings and Conclusions

The Hearing Examiner makes the following findings and conclusions based on the testimony and evidence in the record:

A. *As conditioned herein*, the proposed MPD:

1. Complies with the Lee Plan. *See,* Lee Plan Goals 2, 4, 6, 7, 77, 124, 158, Objectives 1.6, 2.1, 2.2, 6.1, 7.1, 25.10, 60.2, 60.3, 123.2, and Policies 1.1.4, 1.1.7, 1.5.1, 2.1.1, 2.2.1, 6.1.1, 6.1.4, 6.1.5, 6.1.6, 6.1.7, 7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.6, 7.1.7, 25.6.1, 25.6.2, 25.10.1, 60.1.1, 60.4.1, 60.4.2, 61.3.11, 124.1.1, 124.1.2, Standards 4.1.1, 4.1.2, 4.1.4; Lee Plan Maps 1A-B, 2A-B.

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[61] LDC 34-932(b).
[62] LDC §34-83(b)(4)a.3.
[63] *See* Staff Report (Attachment R). The meeting was held before the Lehigh Acres Architectural, Planning, & Zoning Review Board on July 23, 2023.
[64] *See Id.*

2. Complies with the LDC and other County regulations or qualifies for deviations. *See*, LDC Chapters 10, 33, and 34.

3. Is compatible with existing and planned uses in the area. *See,* Lee Plan Policies 1.1.4, 1.1.7, 1.5.1, 2.1.1, 2.1.2, 2.2.1, 6.1.4, 7.1.3, 7.1.4; LDC §34-411(c), (i), and (j).

4. Provides sufficient access to support the proposed development intensity, with expected impacts on transportation facilities addressed by existing County regulations or conditions of approval. *See* Lee Plan Policies 6.1.5, 7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.7.

5. Will not adversely affect environmentally critical areas and natural resources. *See,* Lee Plan Goals 77, 124, Objectives 1.5, 4.1, 77.1, Policies 1.5.1, 6.1.6, 7.1.1, 7.1.6, 124.1.2, Standard 4.1.4, LDC §34-411(h).

6. Will be served by urban services. *See,* Lee Plan Glossary, Map 4A-B, Goals 2, 4; Objectives 2.1, 2.2, 4.1, 6.1, 7.1, 53.1, 56.1; Policy 2.2.1, and Standards 4.1.1 and 4.1.2; LDC §34-411(d).

B. The Master Concept Plan reflects sufficient access to support the intensity of development. In addition, County regulations and conditions of approval will address expected impacts to transportation facilities. *See,* Lee Plan Goal 39, Objective 39.1, Policies 7.1.1,7.1.2, 7.1.3, 7.1.4, 7.1.7; LDC §34-411(d).

C. The proposed mix of uses is appropriate at the proposed location. *See,* Lee Policies 1.1.4, 1.1.7, 1.5.1, 2.1.1, 6.1.4, 6.1.7, 7.1.1, 7.1.2, 7.1.3, 7.1.4.

D. The recommended conditions are sufficient to protect the public interest and reasonably relate to the impacts expected from the development. *See,* LDC Chapters 10, 33, and 34.

E. As conditioned herein, the deviations:

1. Enhance the objectives of the planned development; and

2. Promote the intent of the LDC to protect public health, safety, and welfare. *See* §34-377(b)(4).

Date of Recommendation: January 30, 2024.

Amanda L. Rivera
Deputy Hearing Examiner

Lee County Hearing Examiner
1500 Monroe Street, Suite 218
Post Office Box 398
Fort Myers, FL 33902-0398

Exhibits to Hearing Examiner's Recommendation

Exhibit A Legal Description and Vicinity Map
Exhibit B Recommended Conditions and Deviations
Exhibit C Exhibits Presented at Hearing
Exhibit D Hearing Participants
Exhibit E Information

Exhibit A

LEGAL DESCRIPTION AND VICINITY MAP

Barraco and Associates, Inc.
www.barraco.net
Civil Engineers, Land Surveyors and Planners

DESCRIPTION

Parcel in
Sections 19 and 20, Township 45 South, Range 27 East
Lee County, Florida

A tract or parcel of land being Parcel 44 of Unit 55, Lots 9 and 10, Block 239 of Unit 63, Parcel 50 of Unit 71, Parcel 51 of Unit 72 and Parcels 50 and 51 of Unit 73, and a portion of those lands described in a deed recorded in Official Records Book 475, at Page 32, lying between Grant Boulevard and the Canal, all as shown on the record plat of "MIRROR LAKES", recorded in Plat Book 27, Pages 83 through 160, all of the Public Records of Lee County, Florida, lying in Sections 19 and 20, Township 45 South, Range 27 East, Lee County, Florida, said tract or parcel of land being more particularly described as follows:

Beginning at the Westerly most corner of Lot 11, Block 239, Unit 63 of said record plat of "MIRROR LAKES" run along the Southwesterly, Southeasterly and Northeasterly line of said Lot 11 the following three (3) courses: S56°32'52"E for 150.95 feet; N39°52'15"E for 101.09 feet and N50°07'45"W for 150.00 feet to an intersection with the Southeasterly right of way line of Blackstone Drive (Grant Boulevard, per record plat)(80 feet wide); thence run N39°52'15"E along said Southeasterly right of way line for 200.00 feet to the Northerly most corner of said Lot 9, Block 239; thence run S50°07'45"E along the Northeasterly line of said Lot 9 for 150.00 feet to the Easterly most corner of said Lot 9, Block 239; thence run N39°52'15"E along the Northwesterly line of said Parcel 51, Unit 72 for 810.00 feet to an intersection with the Southwesterly line of said Parcel 44, Unit 55; thence run N50°07'45"W along the Southwesterly line of said Parcel 44 for 150.00 feet to an intersection with said Southeasterly right of way line of Blackstone Drive; thence run along said Southeasterly right of way line the following two (2) courses: N39°52'15"E for 345.00 feet to a point of curvature and Easterly along an arc of a curve to the right of radius 30.00 feet (delta 90°00'00") (chord bearing N84°52'15"E) (chord 42.43 feet) for 47.12 feet to an intersection with the Southwesterly right of way line of State Road 82 (200 feet wide) (F.D.O.T. right of way Section No. 1207-1010); thence run along said Southwesterly right of way line the following three (3) courses: S50°07'45"E for 1,280.75 feet to a point of curvature; Southeasterly along an arc of a curve to the right of radius 1,045.92 feet (delta 25°00'22") (chord bearing S37°37'34"E) (chord 452.86 feet) for 456.48 feet to a point of tangency and S25°07'23"E for 301.11 feet to an intersection with the Northwesterly right of way line of a Canal as shown on said record plat; thence run along the Northwesterly, Northerly, and Easterly right of way line of said Canal the following seven (7) courses: S32°08'36"W for 1,043.44 feet to a point of curvature; Southwesterly along an arc of a curve to the right of radius 87.39 feet (delta 57°15'59") (chord bearing S60°46'36"W) (chord 83.76 feet) for 87.35 feet to a point of tangency; S89°24'36"W for 2,003.93 feet to a point of curvature; Northwesterly along an arc of a curve to the right of radius 100.00 feet (delta 89°45'32") (chord bearing N45°42'38"W) (chord 141.12 feet) for 156.66 feet to a point of tangency; N00°49'52"W for 460.63 feet to a point of curvature; Northerly

DCI2023-00009 Lee County ePlan

DESCRIPTION (CONTINUED)

along an arc of a curve to the left of radius 824.21 feet (delta 20°30'00") (chord bearing N11°04'52"W) (chord 293.33 feet) for 294.90 feet to a point of tangency and N21°19'52"W for 42.19 feet to a point on a non-tangent curve and an intersection with said Southeasterly right of way line of Blackstone Drive; thence run along said Southeasterly right of way line the following two (2) courses: Northeasterly along an arc of a curve to the left of radius 1,138.98 feet (delta 23°29'22") (chord bearing N51°36'57"E) (chord 463.68 feet) for 466.95 feet to a point of tangency and N39°52'15"E for 115.81 feet to the POINT OF BEGINNING. Containing 98.03 acres, more or less.

Bearings hereinabove mentioned are State Plane for the Florida West Zone (NAD1983)(NSRS 2011) and are based on the South line of the Southwest Quarter (SW 1/4) of Section 20 to bear S89°24'36"W.

Digitally signed by Scott A. Wheeler, PSM
Date: 2022.11.14 '16:45:41 -05'00

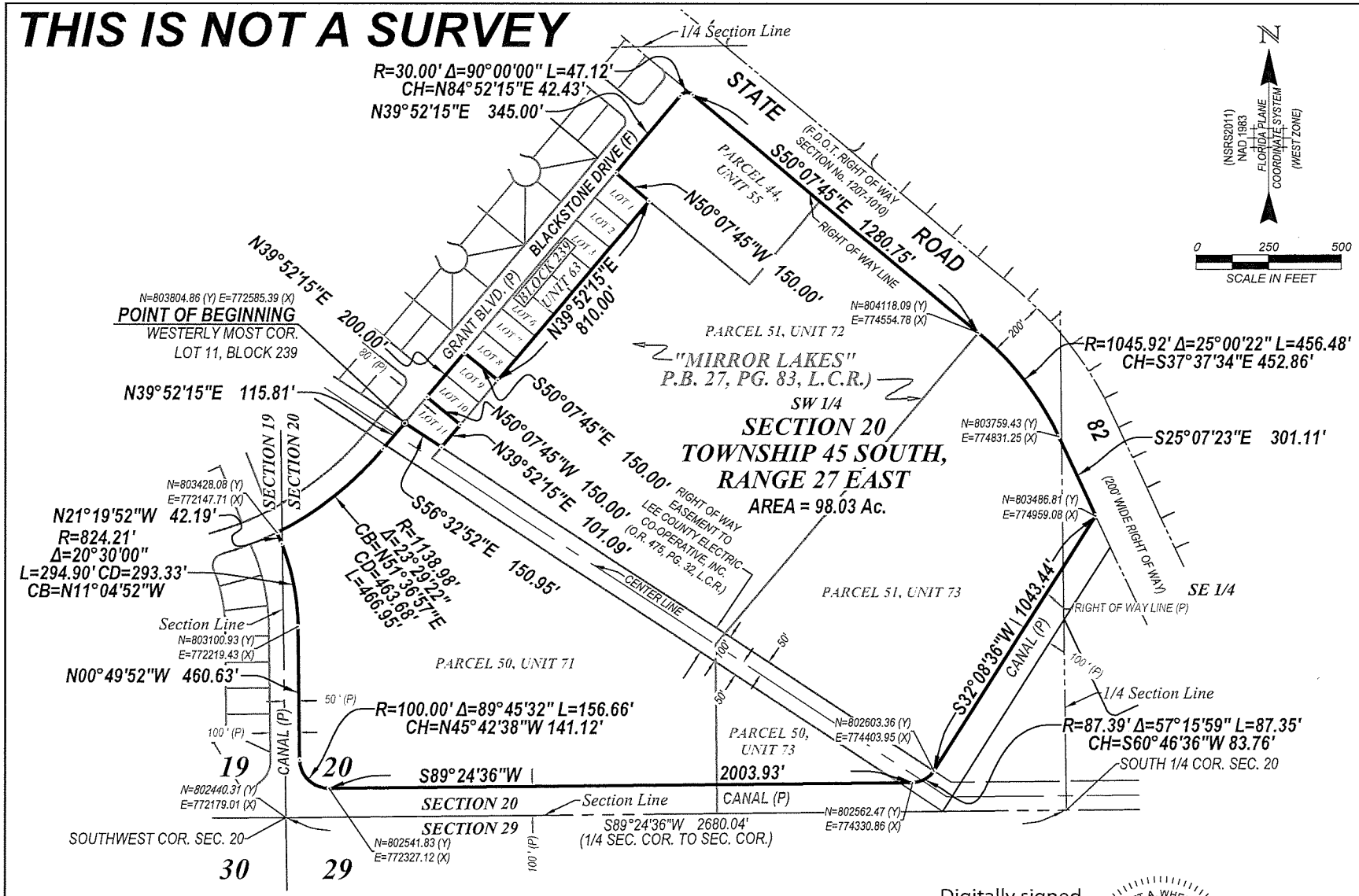
SCOTT A. WHEELER ★ LICENSE NUMBER 5949 ★ STATE OF FLORIDA ★ PROFESSIONAL SURVEYOR AND MAPPER

Scott A. Wheeler (For The Firm)
Professional Surveyor and Mapper
Florida Certificate No. 5949

L:\24145 - Blackstone Corporate Park\Survey\Descriptions\Sketch\24145SK01.doc

REVIEWED
DCI2023-00009
Hunter Searson, GIS Planner
Lee County Government
3/21/2023

THIS IS NOT A SURVEY



Digitally signed by Scott A. Wheeler, PSM
Date: 2022.11.14 '16:45:58 -05'00

SCOTT A. WHEELER LICENSE NUMBER 5949 STATE OF FLORIDA PROFESSIONAL SURVEYOR AND MAPPER

NOTES:

1. ALL DISTANCES SHOWN ARE IN FEET AND DECIMALS THEREOF. UNLESS OTHERWISE NOTED DISTANCES ARE ALSO (U.S. SURVEY FEET) GROUND AND CAN BE MULTIPLIED BY 0.9999568 TO OBTAIN GRID DISTANCES.
2. D.E. - DENOTES DRAINAGE EASEMENT.
3. INST. No.- DENOTES INSTRUMENT NUMBER, LEE COUNTY PUBLIC RECORDS.
4. O.R. - DENOTES OFFICIAL RECORD BOOK, LEE COUNTY PUBLIC RECORDS.
5. (P) - DENOTES PLAT.
6. P.B. - DENOTES PLAT BOOK.
7. PG. - DENOTES PAGE.
8. BEARINGS AND COORDINATES SHOWN ARE STATE PLANE FLORIDA WEST ZONE (NAD1983)(NSRS 2011) AND ARE BASED THE SOUTH LINE OF THE SOUTHWEST QUARTER (SW 1/4) OF SECTION 20 TO BEAR S89°24'36"W.
10. DESCRIPTION IS ATTACHED.

SCOTT A. WHEELER (FOR THE FIRM - LB-6940)
PROFESSIONAL SURVEYOR AND MAPPER
FLORIDA CERTIFICATE NO. 5949

DATE SIGNED:

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED OR DIGITAL SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER

Barraco and Associates, Inc.
CIVIL ENGINEERING - LAND SURVEYING
LAND PLANNING
www.barraco.net
2271 McGREGOR BLVD., SUITE 100
POST OFFICE DRAWER 2800
FORT MYERS, FLORIDA 33902-2800
PHONE (239) 461-3170
FAX (239) 461-3169
FLORIDA CERTIFICATES OF AUTHORIZATION
ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR

MCIN BELL, LLC

PROJECT DESCRIPTION

A PARCEL OF LAND IN SECTION 20, TOWNSHIP 45 SOUTH, RANGE 27 EAST, LEE COUNTY, FLORIDA

PROJECT SURVEYOR

SCOTT A. WHEELER LICENSE NUMBER 5949 STATE OF FLORIDA PROFESSIONAL SURVEYOR AND MAPPER

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED OR DIGITAL SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER

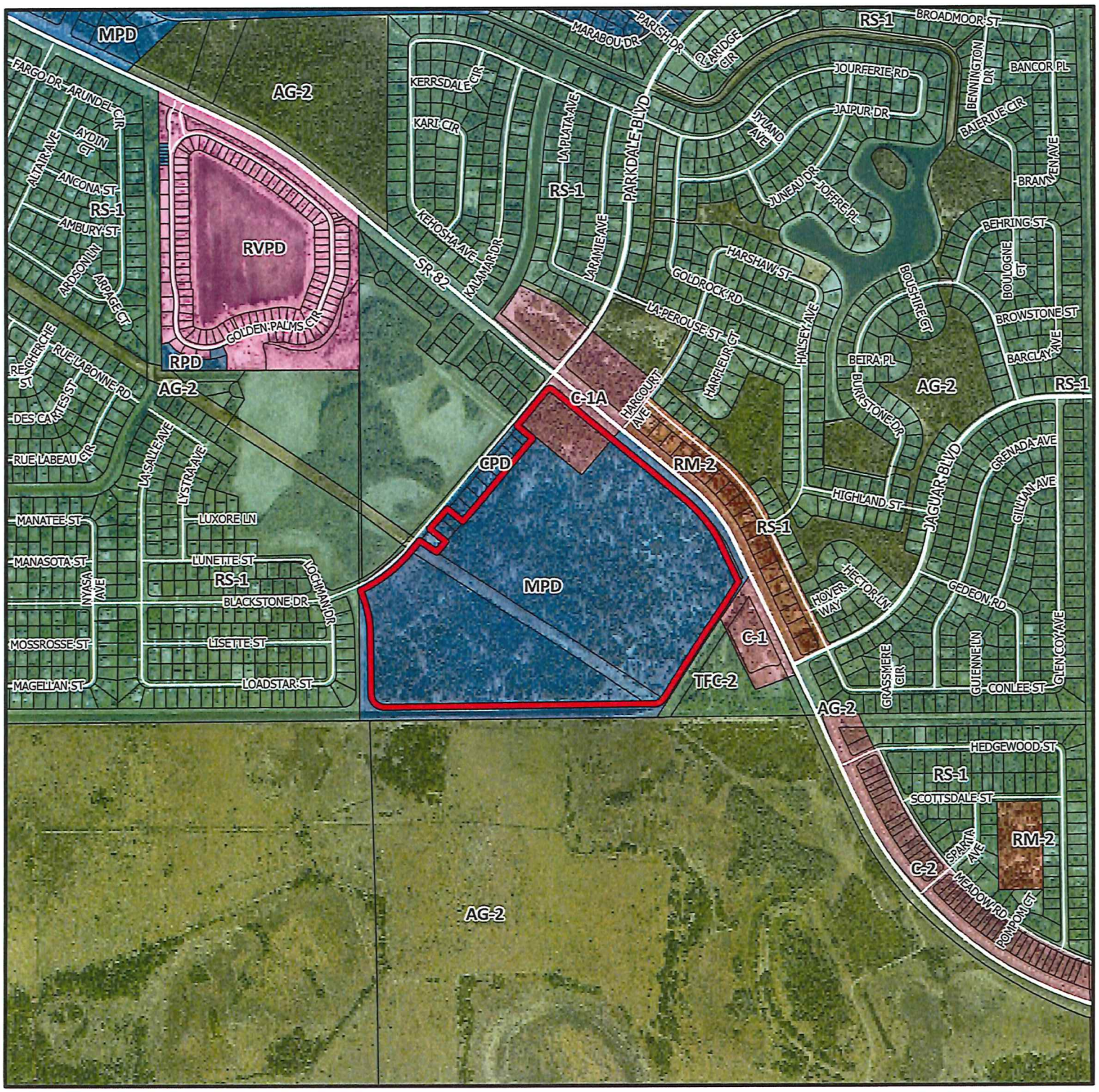
FILE NAME	24145SK01.DWG
LAYOUT	3
LOCATION	J:\24145\DWG\SURVEYING\SKETCH\
PLOT DATE	MON. 11-14-2022 - 3:35 PM
PLOT BY	PETER OLSEN
DRAWING DATA	
SURVEY DATE	11-11-2022
DRAWN BY	P. OLSEN
CHECKED BY	SAW
SCALE	1"=500'
FIELD BOOK	

PLAN REVISIONS

STRAP NUMBERS

SKETCH TO ACCOMPANY DESCRIPTION

PROJECT / FILE NO.	SHEET NUMBER
24145 20-45-27	3 OF 3



DCI2023-00009

Zoning

Subject Property

N
W E
S

0 500 1,000 1,500 2,000
Feet

Lee County
Southwest Florida

Exhibit B

RECOMMENDED CONDITIONS AND DEVIATIONS

CONDITIONS

1. Master Concept Plan (MCP)/Development Parameters

a) MCP. Development must be consistent with one-page MCP entitled "Blackstone Corporate Park" dated December 20, 2023, (Exhibit B1), except as modified by the conditions below.

b) Lee Plan and Land Development Code (LDC). Development must comply the LDC at the time of local development order. Subsequent changes to the MCP or this zoning resolution may require additional zoning approval.

c) Development Parameters. The MPD is limited to 500,000 square feet of commercial floor area and 350,000 square feet of industrial floor area with a maximum height of 65 feet.

2. Use and Development Standards

a) Schedule of Uses

Use Area A
Accessory uses, buildings, and structures
Administrative Offices
Agricultural Uses & Agricultural Accessory Use (see Condition 7)
Amusement Parks
Animals, Clinic
Auto Parts Store – without installation
ATM (Automatic Teller Machine)
Automobile Repair & Service – Group I
Automobile Service Station
Bait & Tackle Shop
Banks and Financial Establishments – Groups I & II
Bar and Cocktail Lounge
Boat Parts Store
Boat Rental
Boat Sales
Broadcast Studio, Commercial Radio & Television
Building Materials Sales
Business Services, Group I
Bus Station / Depot

Business Services – Group II, limited to lawn and garden services, messenger services, packaging services, parcel and express services, and water softening services
Car Wash
Caretaker's Residence
Cleaning & Maintenance Services
Clothing Stores, General
Clubs: Commercial, Fraternal, membership organization, Private
Continuing Care Facilities
Computer & Data Processing
Consumption on Premises
Contractors & Builders – Group I
Convenience Food and Beverage Store – maximum 24 self-service fuel pumps
Cultural Facilities
Department Store
Day Care Center, Child or Adult
Drive-through Facility for any permitted use
Drugstore, Pharmacy
EMS, Fire, or Sheriff's Station
Essential Services
Essential Services Facilities, Groups I
Excavation, Water Retention
Excess Spoil Removal
Fences and Walls
Food Stores – Groups I & II
Food and Beverage Service, Limited
Funeral Home and Mortuary (with or without a crematory)
Gift and Souvenir Shop
Hardware Store
Health Care Facilities – All Groups
Household and Office Furnishings – All Groups
Laundry or Dry Cleaning – Groups I and II
Insurance Companies
Lawn and Garden Supply Stores
Library
Medical Office
Model Display Center
Motion Picture Production Studio
Package Store
Paint, Glass and Wallpaper
Parks – Group I, except Fishing Piers
Parking Lot, Accessory, Garage, Temporary
Personal Services – Groups I & III
Photofinishing Laboratory
Pet Shops

Pharmacy
Place of Worship
Post Office
Printing and Publishing
Processing and Packaging of Agricultural Products
Real Estate Sales Office
Recreation Facilities, Commercial – Groups III & IV
Religious Facilities
Rental and Leasing Establishment – Groups II & III
Repair Shops – Groups I & II
Restaurants, Fast Food
Restaurants – All Groups
Schools, Commercial and Noncommercial
Signs
Specialty Retail Shops – All Groups
Social Services – Group II
Storage, Indoor
Studios
Temporary Uses
Transportation Services – Group III
Theater, Indoor or Outdoor (drive-in)
Used Merchandise Stores – Groups I and II
Variety Store
Vehicle & Equipment Dealers – Groups I, II, III, & IV
Warehouse, Mini-Warehouse, Private, Public, Cold Storage Only

Use Area B

Accessory Uses and Structures
Administrative Offices
Agricultural Services: Office / Base Operations
Agricultural Uses & Agricultural Accessory Uses (see Condition 7)
Amusement Parks
Animals: Clinic or Kennel, Control Center (including Humane Society)
Auto Parts Store – with installation
ATM (Automated Teller Machine)
Automobile Repair & Services – All Groups
Automobile Service Station
Bait & Tackle Shop
Banks and Financial Establishments – Groups I & II
Boat Parts Store
Boat Rental
Boat Repair & Service
Boat Sales
Boat Storage, Dry
Broadcast Studio, Commercial Radio & Television
Building Materials Sales

Business Services – Groups I & II
Bus Station / Depot
Car Wash
Caretaker's Residence
Cleaning & Maintenance Services
Clothing Stores, General
Clubs – All Groups
Cold Storage Warehouse and Processing Plan (including pre-cooling)
Communication Facilities, Wireless (34-1441 et seq.)
Computer & Data Processing
Consumption on Premises
Contractors & Builders – Groups I & II
Cultural Facilities
Day Care Center, Child or Adult
Drive-through Facility for Any Permitted Use
Entrance Gates or Gatehouse
EMS, Fire, or Sheriff Station
Essential Services – All Groups
Essential Services Facilities – Groups I & II
Excavation, Water Retention
Excess Spoil Removal
Factory Outlets (point of manufacture only)
Farm Equipment, Sales, Storage, Rental or Service
Fences and Walls
Flea Market – Open & Indoor
Food Stores – Groups I & II
Food and Beverage Service, Limited
Food Stores – Groups I & II
Funeral Home and Mortuary (with or without crematory)
Freight & Cargo Handling Establishments
Gasoline Dispensing System, Special
Gift and Souvenir Shop
Hardware Store
Helistop – Limited to emergency use only
Household and Office Furnishings – All Groups
Laundry or Dry Cleaning – Groups I and II
Insurance Companies
Lawn and Garden Supply Stores
Library
Maintenance Facility (Government)
Manufacturing of:
- Apparel Products
- Chemical & Allied Products – Groups I & II – Perfumes and Cosmetics only
- Electrical Machinery & Equipment
- Fabricated Metal Products – Groups II & III

- Food & Kindred Products – Groups II & III
- Furniture & Fixtures
- Leather Products – Group II
- Lumber & Wood Products – Groups II & IV
- Measuring, Analyzing & Controlling Instruments
- Novelties, Jewelry, Toys, & Signs
- Paper & Allied Products – Groups II & III
- Rubber & Plastic Products – Group II
- Stone, Clay, Glass & Concrete Products – Group I
- Transportation Equipment – Groups I, III, IV, with Group I limited to Car or Boat Trailers, Travel Trailers and Campers

Medical Office
Mobile Home Dealer
Model Display Center
Motion Picture Production Studio
Nonstore Retailer – All Groups
Paint, Glass and Wallpaper
Parcel and Express Services
Parking Lot – Accessory, Garage, Commercial & Temporary
Personal Services – Groups I & III
Photofinishing Laboratory
Pet Services
Pet Shops
Pharmacy
Place of Worship
Post Office
Printing and Publishing
Processing or Packaging of Agricultural or Fish Products
Processing & Warehousing
Real Estate Sales Office
Recreation Facilities, Commercial – Groups I, III, & IV
Recreation Facilities, Personal
Recycling Facility
Religious Facilities
Rental or Leasing Establishment – Groups II & III
Repair Shops – Groups I, II, III, & IV
Research & Development Laboratories – Groups II & IV
Restaurants – Groups I, II, & III
Retail & Wholesale Sales, when clearly incidental and subordinate to a permitted principal use on the same premises
Schools, Commercial and Noncommercial
Signs
Specialty Retail Shops – All Groups
Storage, Open and Indoor
Studios
Temporary Uses

Transportation Services – Groups II & III
Vehicle & Equipment Dealers – All Groups
Used Merchandise Stores – All Groups
Variety Store
Warehouse: Mini-Warehouse, Private, Public, & Cold Storage Only
Wholesale Establishment – Groups I, III, & IV

b) Site Development Regulations

Minimum lot size:	10,000 square feet
Minimum lot width:	100 feet
Minimum lot depth:	100 feet

Development Setbacks:

Street:	20 feet
Side:	10 feet
Rear:	10 feet
Waterbody:	25 feet
Preserve:	20 feet (30 feet for fire dependent indigenous plant communities)

Building Separation:	One half the sum of the heights of both buildings, or 20 feet whichever is greater.

Minimum Development Perimeter:	25 feet (Industrial areas) 15 feet (Commercial areas)

Maximum Building Height: 65 feet

Minimum Open Space:	30 percent (Commercial) 20 percent (Industrial)

3. Open Space
Development order plans must depict 25.78 acres of open space:
a. 18.54 acres for the commercial development; and
b. 7.25 acres for the industrial development.

Open space areas must be consistent with the MCP "Provided Open Space" table.

4. Indigenous Open Space
a. Development order plans must depict 13.6 acres of indigenous preserve and restoration areas consisting of:
i.) 7.32 acres of restored wetlands;
ii.) 4.78 acres of existing indigenous uplands; and

iii.) 1.5 acres of indigenous preservation area credits consistent with the MCP.

b. Development order plans must include an indigenous preserve and restoration management plan with a map depicting the location of the mechanical and hand-removal methods of exotic vegetation removal and restoration schedule demonstrating preserve restoration completion within five years of the issuance of the development order.

5. Vegetation Removal Permit

a. Developer must submit a Vegetation Removal Permit that includes a map depicting the mechanical and hand-removal areas for exotic vegetation removal within the proposed preservation and restoration areas and survey point map depicting the boundary of the preserve areas. Native vegetation must be protected by tree barricades within the indigenous preserve area.

b. Development proposing impact to wetlands may not commence construction until issuance of required permits. Development activity must remain in compliance with state wetland permits and local development permits. If impacts to wetlands are not permitted by the State, or if issued state wetland permits are inconsistent with the proposed wetland impacts depicted in local development order permits, Developer must amend development permits consistent with state wetland permits or Lee Plan/LDC regulations pertaining to development within wetlands.

6. Blackstone Drive Buffer

Proposed restoration plant material in the 15-foot-wide Type-D buffer along Blackstone Drive must comply with LDC plant material standards.

7. Agricultural Uses

Existing bona fide agricultural uses (pasture/grazing and bee apiary) may continue limited to the existing 93.03 acre MPD, subject to the following:

a) Termination of Agriculture Use. Agricultural uses must terminate on project areas receiving development order approval for vertical development and prior to county issuance of a vegetation removal permit. Development order approvals for plats, infrastructure improvements, landscaping, surface water management, or other non-vertical development do not trigger termination.

b) Additional Clearing Prohibited. Additional clearing of trees or vegetation in an agricultural area is prohibited. Existing areas of bona fide agricultural use may be maintained, (i.e. mowed), but not cleared or expanded. This prohibition does not preclude County approval of requests to remove invasive exotic vegetation.

c) Proof of Termination. Upon approval of local development order for vertical development and prior to the issuance of vegetation removal permit, the property owner must provide written proof of the following, SUBJECT TO review/approval by the County Attorney's Office:

i. Affidavit. Sworn affidavit from the property owner confirming:

(1) Date agricultural uses ceased.

(2) Legal description of the property SUBJECT TO development order approval for vertical development.

(3) Affirmative statement acknowledging and agreeing agricultural uses are illegal and prohibited on the property. Further that the property owner covenants with the County not to resume agricultural uses until the property is rezoned to permit agricultural.

The affidavit constitutes a covenant between the property owner and Lee County binding on the owner and its successors. The covenant must properly recorded in public record of Lee County at the owner's expense.

ii. Termination of Tax Exemption. Termination of the agricultural tax exemption for portions of the property SUBJECT TO a development order for vertical development. Proof of termination must include a copy of the request to terminate the tax exemption submitted to the Lee County Property Appraiser.

8. Development Permits
County development permits do not create rights to obtain permits from state/federal agencies. Further, County development permits do not create liability on the part of the County if Applicant fails to obtain requisite approvals or fulfill obligations imposed by federal/state agencies or undertakes actions in violation of state/federal law. Applicant must obtain applicable state/federal permits prior to commencing development.

DEVIATIONS

1. **Utility Easement**. Deviation 1 seeks relief from the LDC §10-355(a)(1) requirement of a ten-foot-wide public utility easement on both sides of a roadway, to allow the ten-foot-wide public utility easement on the building lot side of the roadway.

HEX Recommendation: Previously Approved

2. **Temporary Sewage Treatment**. Deviation 2 seeks relief from the LDC §10-352 requirement that a commercial development provide connections to sanitary sewage facilities, to allow for a temporary sanitary sewage package treatment facility until sufficient capacity becomes available to serve the MPD.

   Previously Approved. *HEX Recommends* Approval, *subject to* the following conditions:
   1. Developer must provide a letter of denial from the local utility evidencing the utility does not have sufficient capacity to serve the MPD;
   2. The temporary treatment facility must be located within Industrial Use Area B; and
   3. Developer must remove/abate the facility and connect to the sanitary sewer system within 90 days of the local utility providing written notice that sufficient capacity to serve the MPD is available.

3. **Excavation Setback**. Deviation 3 seeks relief from the LDC §10-329(d)(1)a.3 requirement that no excavation be allowed within 50 feet of private property line under separate ownership, to allow excavation up to 25 feet from the property line.

   HEX Recommendation: Approve

4. **Driveway Spacing**. Deviation 4 seeks relief from LDC §10-285(a), which requires driveway spacing for future urban areas to be a minimum of 60 feet from other driveways on a local road, to allow for a separation spacing of 59 feet between the project's proposed access and the LAMSID service driveway located along Blackstone Drive.

   HEX Recommendation: Approve

5. **Indigenous Preservation**. Deviation 5 seeks relief from LDC §10-415(b), which requires large developments with existing indigenous native vegetation communities to provide 50 percent of their open space requirement through indigenous preservation, to allow indigenous preservation to be met through a combination of indigenous upland preservation, upland indigenous bonus credits, and wetland restoration.

   HEX Recommendation: Approve, *subject to* Condition 4.

Exhibits to Conditions:
B1 MCP dated December 20, 2023

OPEN SPACE CALCULATIONS:

REQUIRED OPEN SPACE:

COMMERCIAL USE - 61.78 AC. x 30% = 18.54 AC.

INDUSTRIAL USE - 36.25 AC. x 20% = 7.25 AC.
TOTAL = 25.78 AC.

REQUIRED INDIGENOUS:

50% OF REQUIRED OPEN SPACE
REQUIRED OPEN SPACE = 25.78
25.78 x 50% = 12.89 AC.

PROVIDED OPEN SPACE:

LAKE (25% OF TOTAL)	6.45 AC.
DRY DETENTION	0.66 AC.
COMMERCIAL PARCELS (10%)	3.66 AC.
INDUSTRIAL PARCELS (10%)	1.49 AC.
INDIGENOUS PRESERVE AREAS	13.52 AC.
TOTAL OPEN SPACE*	25.78 AC.

* EACH DEVELOPMENT PARCEL IS REQUIRED TO PROVIDE A MINIMUM OF 10% OPEN SPACE.

PROVIDED INDIGENOUS:

INDIGENOUS PRESERVE AREA

PRESERVE #	FLUCCS	AREA
1	4119E3	0.36 AC.
4	4159E2	0.91 AC.
6	4159E2	0.51 AC.
SUB-TOTAL		1.78 AC.

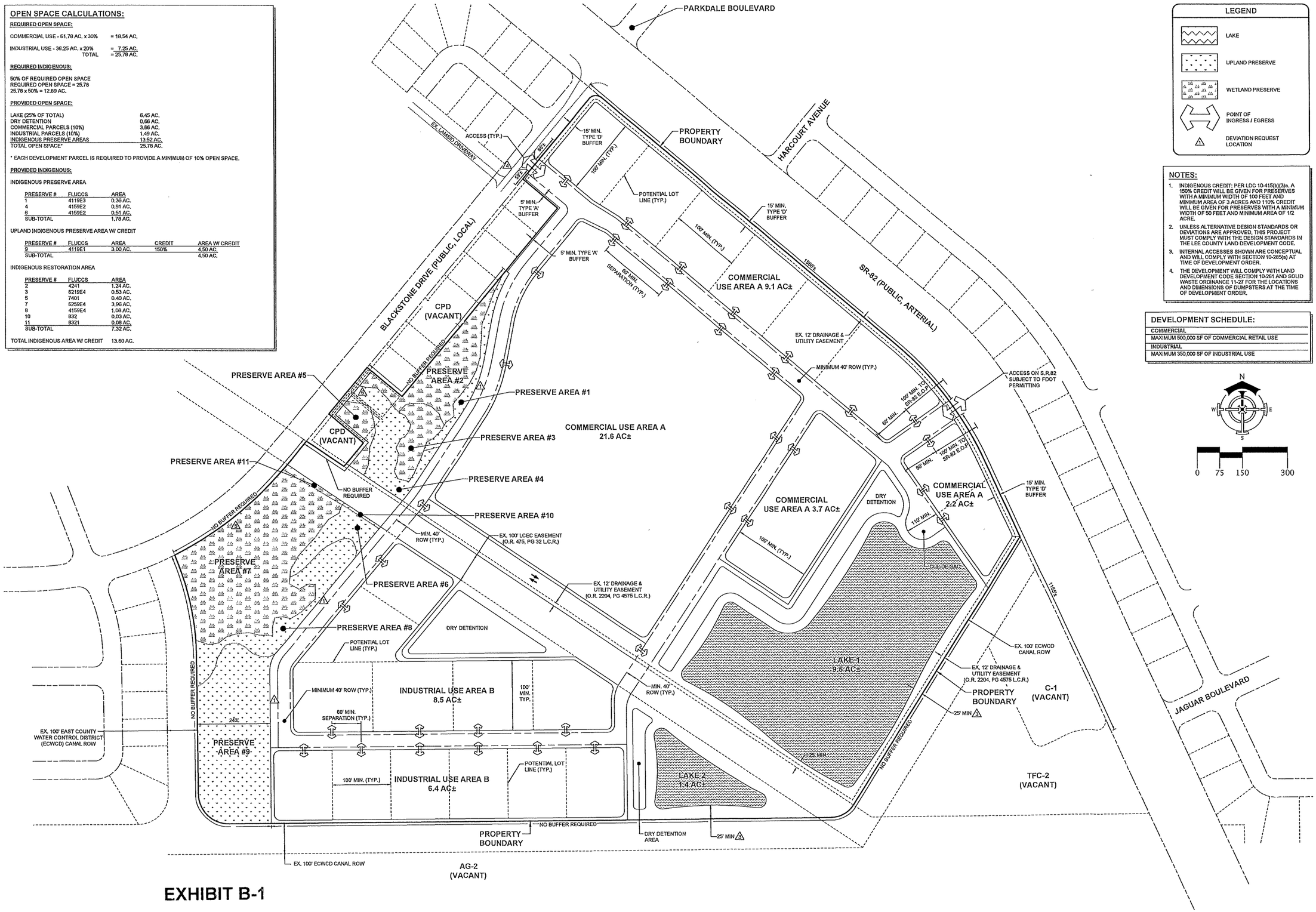
UPLAND INDIGENOUS PRESERVE AREA W/ CREDIT

PRESERVE #	FLUCCS	AREA	CREDIT	AREA W/ CREDIT
9	4119E1	3.00 AC.	150%	4.50 AC.
SUB-TOTAL				4.50 AC.

INDIGENOUS RESTORATION AREA

PRESERVE #	FLUCCS	AREA
2	4241	1.24 AC.
3	6219E4	0.53 AC.
5	7401	0.40 AC.
7	6259E4	3.96 AC.
8	4159E4	1.08 AC.
10	832	0.03 AC.
11	8321	0.08 AC.
SUB-TOTAL		7.32 AC.

TOTAL INDIGENOUS AREA W/ CREDIT 13.60 AC.



LEGEND

- LAKE
- UPLAND PRESERVE
- WETLAND PRESERVE
- POINT OF INGRESS / EGRESS
- DEVIATION REQUEST LOCATION

NOTES:

1. INDIGENOUS CREDIT: PER LDC 10-415(b)(3)a. A 150% CREDIT WILL BE GIVEN FOR PRESERVES WITH A MINIMUM WIDTH OF 100 FEET AND MINIMUM AREA OF 3 ACRES AND 110% CREDIT WILL BE GIVEN FOR PRESERVES WITH A MINIMUM WIDTH OF 50 FEET AND MINIMUM AREA OF 1/2 ACRE.
2. UNLESS ALTERNATIVE DESIGN STANDARDS OR DEVIATIONS ARE APPROVED, THIS PROJECT MUST COMPLY WITH THE DESIGN STANDARDS IN THE LEE COUNTY LAND DEVELOPMENT CODE.
3. INTERNAL ACCESSES SHOWN ARE CONCEPTUAL AND WILL COMPLY WITH SECTION 10-285(a) AT TIME OF DEVELOPMENT ORDER.
4. THE DEVELOPMENT WILL COMPLY WITH LAND DEVELOPMENT CODE SECTION 10-261 AND SOLID WASTE ORDINANCE 11-27 FOR THE LOCATIONS AND DIMENSIONS OF DUMPSTERS AT THE TIME OF DEVELOPMENT ORDER.

DEVELOPMENT SCHEDULE:

COMMERCIAL
MAXIMUM 500,000 SF OF COMMERCIAL RETAIL USE
INDUSTRIAL
MAXIMUM 350,000 SF OF INDUSTRIAL USE

EXHIBIT B-1

DELISI FITZGERALD, INC.
Planning – Engineering – Project Management
A Division of RESPEC Company LLC
1605 Hendry Street
Fort Myers, FL 33901
(239) 418-0691
(239) 418-0692 fax
Florida Registry License Number 33253

ENGINEER OF RECORD:
ANDREW D. FITZGERALD, P.E. (FOR THE FIRM)
FLORIDA P.E. NO. 58776

OWNER / DEVELOPER:
MCIN BELL, LLC
5571 HALIFAX AVENUE
FORT MYERS, FL 33912
(239) 454-4999

PROJECT:
BLACKSTONE CORPORATE PARK

PLAN REVISIONS

#	DATE	DESCRIPTION

MASTER CONCEPT PLAN

Project Manager:	ADF
Drawn By:	EPB
Checked By:	ADF
Project Number:	21635
Located in Section(s):	45
Township: 27 S	Range: 55 E
County, State:	LEE COUNTY, FL

Status:

Sheet Number: 1

N:\PROJECTS\21635 - BLACKSTONE CORPORATE PARK\CAD\MCP\PLAN SET\21635-01-MCP.DWG
12/20/2023 10:23 AM

Exhibit C

EXHIBITS PRESENTED AT HEARING

STAFF EXHIBITS

a. *48-Hour Notice:* Email from Jamie Princing to Hearing Examiner, with copies to Elizabeth Workman, Anthony Rodriguez, Tina Boone, Lauren Schaefer, Erica Temerario, Allyson Hall, Marcus Evans, Rebecca Sweigert, Brandon Dunn, Md Rakibul Alam, Phil Gillogly, Nicholas DeFilippo, Richard Akin, Esq., and Daniel DeLisi, dated Tuesday, December 19, 2023, 9:57 AM (multiple pages – 8.5"x11")

1. *DCD Staff Report with attachments for DCI:* Prepared by Elizabeth Workman, Principal Planner, date received December 7, 2023 (multiple pages – 8.5"x11" & 11"x14") [black & white, color]

2. *PowerPoint Presentation:* Prepared for Blackstone Corporate Park MPD, for Staff Presentation, dated December 21, 2023 (multiple pages – 8.5"x11")

3. *48-Hour Notice:* Letter from Russell P. Schropp, to Lee County Hearing Examiner's Office, dated September 25, 2007, regarding DCI2006-00081, SW Florida Land Ten, LLC in reference to Blackstone Corporate Park MPD (4 pages – 8.5"x11")

4. *Transcript:* For DCI2006-00081, SW Florida Land Ten, LLC in reference to Blackstone Corporate Park MPD (multiple pages – 8.5"x11")

APPLICANT EXHIBITS

a. *48-Hour Notice:* Email from Kirsten Shultz to Hearing Examiner, with copies to Richard Akin, Esq., Elizabeth Workman, Dan DeLisi, and Ron Inge, dated Wednesday, December 13, 2023, 3:12 PM (4 pages – 8.5"x11")

1. *Condition 3:* (1 page – 8.5"x11")

2. *Revised Master Concept Plan:* Prepared by DeLisi Fitzgerald, Inc., for Blackstone Corporate Park (1 page – 11"x17" and 24"x36")

3. *PowerPoint Presentation:* Prepared for Blackstone Corporate Park MPD, for Hearing Examiner Hearing, dated December 21, 2023 (multiple pages – 8.5"x11")

Exhibit D

HEARING PARTICIPANTS

County Staff:

1. Richard Akin, Esq.
2. Yury Byhau
3. Dan DeLisi
4. Drew Fitzgerald
5. Ronald Inge
6. Shane Johnson

Applicant Representatives:

1. Elizabeth Workman

Public Participants:

None

Exhibit E

INFORMATION

UNAUTHORIZED COMMUNICATIONS

The LDC prohibits communications with the Hearing Examiner or her staff on the substance of pending zoning actions. There are limited exceptions for written communications requested by the Hearing Examiner, or where the Hearing Examiner seeks advice from a disinterested expert.

HEARING BEFORE LEE COUNTY BOARD OF COUNTY COMMISSIONERS

A. The Hearing Examiner will provide a copy of this recommendation to the Board of County Commissioners.

B. The Board will hold a final hearing to consider the Recommendation and record made before the Hearing Examiner. The Department of Community Development will notify hearing participants of the final hearing date. Only Parties and participants may address the Board at the final hearing. Presentation by participants are limited to the substance of testimony presented to the Hearing Examiner, testimony concerning the correctness of Findings of Fact or Conclusions of Law contained in the Recommendation, or allegations of relevant new evidence not known or that could not have been reasonably discovered by the speaker at the time of the Hearing Examiner hearing.

C. Participants may not submit documents to the Board of County Commissioners unless they were marked as Exhibits by the Hearing Examiner. Documents must have the Exhibit number assigned at hearing.

COPIES OF TESTIMONY AND TRANSCRIPTS

A. Every hearing is recorded. Recordings are public records that become part of the case file maintained by the Department of Community Development. The case file and recordings are available for public examination Monday through Friday between 8:00 a.m. and 4:30 p.m.

B. A verbatim transcript may also be available for purchase from the court reporting service.

Attachment D – Conditions

Blackstone Corporate Park Major MPD – DCI2023-00009

Section A. - Request

1. The development of this project must be consistent with one-page Master Concept Plan (MCP) entitled "Blackstone Corporate Park" last revised October 4, 2023, except as modified by the conditions below. This development must comply with all requirements of the Lee County LDC at the time of local development order. If changes to the MCP or conditions or deviations are subsequently pursued, appropriate approvals will be necessary.

   This project is limited to 500,000 square feet of commercial floor area and 350,000 square feet of industrial floor area with a maximum height of 65 feet.

Section B. - Conditions

2. The following limits apply to the project and uses:

   a. Schedule of Uses

Use Area A
Accessory uses, buildings, and structures
Administrative Offices
Agricultural Uses & Agricultural Accessory Use (see Condition 7)
Amusement Parks
Animals, Clinic
Auto Parts Store – without installation
ATM (Automatic Teller Machine)
Automobile Repair & Service – Group I
Automobile Service Station
Bait & Tackle Shop
Banks and Financial Establishments – Groups I & II
Bar and Cocktail Lounge
Boat Parts Store
Boat Rental
Boat Sales
Broadcast Studio, Commercial Radio & Television
Building Materials Sales
Business Services, Group I
Bus Station / Depot
Business Services – Group II, limited to lawn and garden services, messenger services, packaging services, parcel and express services, and water softening services
Car Wash
Caretaker's Residence
Cleaning & Maintenance Services
Clothing Stores, General

Clubs: Commercial, Fraternal, membership organization, Private
Continuing Care Facilities
Computer & Data Processing
Consumption on Premises
Contractors & Builders – Group I
Convenience Food and Beverage Store – maximum 24 self-service fuel pumps
Cultural Facilities
Department Store
Day Care Center, Child or Adult
Drive-through Facility for any permitted use
Drugstore, Pharmacy
EMS, Fire, or Sheriff's Station
Essential Services
Essential Services Facilities, Groups I & II
Excavation, Water Retention
Excess Spoil Removal
Fences and Walls
Food Stores – Groups I & II
Food and Beverage Service, Limited
Funeral Home and Mortuary (with or without a crematory)
Gift and Souvenir Shop
Hardware Store
Health Care Facilities – All Groups
Household and Office Furnishings – All Groups
Laundry or Dry Cleaning – Groups I and II
Insurance Companies
Lawn and Garden Supply Stores
Library
Medical Office
Model Display Center
Motion Picture Production Studio
Package Store
Paint, Glass and Wallpaper
Parks – Group I, except Fishing Piers
Parking Lot, Accessory, Garage, Temporary
Personal Services – Groups I & III
Photofinishing Laboratory
Pet Shops
Pharmacy
Place of Worship
Post Office
Printing and Publishing

Processing and Packaging of Agricultural Products
Real Estate Sales Office
Recreation Facilities, Commercial – Groups III & IV
Religious Facilities
Rental and Leasing Establishment – Groups II & III
Repair Shops – Groups I & II
Restaurants, Fast Food
Restaurants – All Groups
Schools, Commercial and Noncommercial
Signs
Specialty Retail Shops – All Groups
Social Services – Group II
Storage, indoor
Studios
Temporary Uses
Transportation Services – Group III
Theater, Indoor or Outdoor (drive-in)
Used Merchandise Stores – Groups I and II
Variety Store
Vehicle & Equipment Dealers – Groups I, II, III, & IV
Warehouse, Mini-Warehouse, Private, Public, Cold Storage Only

Use Area B

Accessory Uses and Structures
Administrative Offices
Agricultural Services: Office / Base Operations
Agricultural Uses & Agricultural Accessory Uses (see Condition 7)
Amusement Parks
Animals: Clinic or Kennel, Control Center (including Humane Society)
Auto Parts Store – with installation
ATM (Automated Teller Machine)
Automobile Repair & Services – All Groups
Automobile Service Station
Bait & Tackle Shop
Banks and Financial Establishments – Groups I & II
Boat Parts Store
Boat Rental
Boat Repair & Service
Boat Sales
Boat Storage, Dry
Broadcast Studio, Commercial Radio & Television
Building Materials Sales

Business Services – Groups I & II
Bus Station / Depot
Car Wash
Caretaker's Residence
Cleaning & Maintenance Services
Clothing Stores, General
Clubs – All Groups
Cold Storage Warehouse and Processing Plan (including pre-cooling)
Communication Facilities, Wireless (34-1441 et seq.)
Computer & Data Processing
Consumption on Premises
Contractors & Builders – Groups I & II
Cultural Facilities
Day Care Center, Child or Adult
Drive-through Facility for Any Permitted Use
Entrance Gates or Gatehouse
EMS, Fire, or Sheriff Station
Essential Services – All Groups
Essential Services Facilities – Groups I & II
Excavation, Water Retention
Excess Spoil Removal
Factory Outlets (point of manufacture only)
Farm Equipment, Sales, Storage, Rental or Service
Fences and Walls
Flea Market – Open & Indoor
Food Stores – Groups I & II
Food and Beverage Service, Limited
Food Stores – Groups I & II
Funeral Home and Mortuary (with or without crematory)
Freight & Cargo Handling Establishments
Gasoline Dispensing System, Special
Gift and Souvenir Shop
Hardware Store
Helistop – Limited to emergency use only
Household and Office Furnishings – All Groups
Laundry or Dry Cleaning – Groups I and II
Insurance Companies
Lawn and Garden Supply Stores
Library
Maintenance Facility (Government)
Manufacturing of:
    Apparel Products

Chemical & Allied Products – Groups I & II – Perfumes and Cosmetics only
Electrical Machinery & Equipment
Fabricated Metal Products – Groups II & III
Food & Kindred Products – Groups II & III
Furniture & Fixtures
Leather Products – Group II
Lumber & Wood Products – Groups II & IV
Measuring, Analyzing & Controlling Instruments
Novelties, Jewelry, Toys, & Signs
Paper & Allied Products – Groups II & III
Rubber & Plastic Products – Group II
Stone, Clay, Glass & Concrete Products – Group I
Transportation Equipment – Groups I, III, IV, with Group I limited to Car or Boat Trailers, Travel Trailers and Campers

Medical Office
Mobile Home Dealer
Model Display Center
Motion Picture Production Studio
Nonstore Retailer – All Groups
Paint, Glass and Wallpaper
Parcel and Express Services
Parking Lot – Accessory, Garage, Commercial & Temporary
Personal Services – Groups I & III
Photofinishing Laboratory
Pet Services
Pet Shops
Pharmacy
Place of Worship
Post Office
Printing and Publishing
Processing or Packaging of Agricultural or Fish Products
Processing & Warehousing
Real Estate Sales Office
Recreation Facilities, Commercial – Groups I, III, & IV
Recreation Facilities, Personal
Recycling Facility
Religious Facilities
Rental or Leasing Establishment – Groups II & III
Repair Shops – Groups I, II, III, & IV
Research & Development Laboratories – Groups II & IV
Restaurants – Groups I, II, & III

Retail & Wholesale Sales, when clearly incidental and subordinate to a permitted principal use on the same premises
Schools, Commercial and Noncommercial
Signs
Specialty Retail Shops – All Groups
Storage, Open and Indoor
Studios
Temporary Uses
Transportation Services – Groups II & III
Vehicle & Equipment Dealers – All Groups
Used Merchandise Stores – All Groups
Variety Store
Warehouse: Mini-Warehouse, Private, Public, & Cold Storage Only
Wholesale Establishment – Groups I, III, & IV

b. Site Development Regulations

Minimum lot size:	10,000 square feet
Minimum lot width:	100 feet
Minimum lot depth:	100 feet

Development Perimeter Minimum Setbacks:

Street:	20 feet
Side:	15 feet (25 feet for Industrial portion)
Rear:	15 feet (25 feet for Industrial portion)
Waterbody:	25 feet
Preserve:	20 feet (30 feet for fire dependent indigenous plant communities)

Internal Development Minimum Setbacks:

Street:	20 feet
Side:	10 feet
Rear:	10 feet

Building Separation:	One half the sum of the heights of both buildings, or 20 feet whichever is greater.
Maximum Building Height:	65 feet
Minimum Open Space:	30 percent (Commercial) 20 percent (Industrial)

3. Open Space
Prior to the issuance of the first development order, the development order plans must depict 25.78 acres of open space. The applicant must depict a minimum of 18.54 acres of open space for the commercial development and 7.25 acres of open space for the industrial development.

4. Indigenous Open Space
   a. Prior to the issuance of the first development order, the development order plans must depict a total of 13.6 acres of indigenous preserve and restoration areas consisting of 7.32 acres of restored wetlands, 4.78 actual acres of existing indigenous uplands and 1.5 acres of indigenous preservation area credits consistent with the Master Concept Plan.
   b. Prior to the issuance of the first development order, the development order plans must include an indigenous preserve and restoration management plan that includes a map depicting the location of the mechanical and hand-removal methods of exotic vegetation removal and restoration schedule demonstrating preserve restoration to be completed within five years of the issuance of the development order.

5. Vegetation Removal Permit
   a. The applicant or successor must submit a Vegetation Removal Permit that includes a map depicting the mechanical and hand-removal areas for exotic vegetation removal within the proposed preservation and restoration areas and survey point map depicting the boundary of the preserve areas. Native vegetation must be protected by tree barricades within the indigenous preserve area.

   b. For development that proposes impact to wetlands, construction may not commence until the issuance of required permits. Development activity must remain in compliance with applicable state wetland permits and applicable local development permits. If impacts to wetlands are not permitted by the State, or if issued state wetland permits are inconsistent with the proposed impacts to wetlands depicted within the local development order permit approvals, Developer must amend local development permit approvals to be consistent with issued state wetland permits or applicable Lee Plan and Land Development Code regulations pertaining to development within wetlands.

6. Blackstone Drive Buffer
   Prior to the issuance of first development order, the proposed restoration plant material must comply with the plant material standards per LDC Section 10-420 for the 15-foot-wide Type-D buffer along Blackstone Drive.

7. Agricultural Uses
   Existing bona fide agricultural uses (PASTURE/GRAZING AND BEE APIARY) may continue on 93.03 acres of the site SUBJECT TO the following:

   a. Termination of Agriculture Use. Agricultural uses must terminate on project areas receiving development order approval for vertical development and prior to county issuance of a vegetation removal permit. Development order approvals for plats, infrastructure improvements, landscaping, surface water management, or other non-vertical development do not trigger termination.

   b. Additional Clearing Prohibited. Additional clearing of trees or vegetation in an agricultural area is prohibited. Existing areas of bona fide agricultural use may be maintained, (i.e. mowed), but not cleared or expanded. This prohibition does not preclude County approval of requests to remove invasive exotic vegetation.

c. Proof of Termination. Upon approval of local development order for vertical development and prior to the issuance of vegetation removal permit, the property owner must provide written proof of the following, SUBJECT TO review/approval by the County Attorney's Office:

i. Affidavit. Sworn affidavit from the property owner confirming:

1. Date agricultural uses ceased.

2. Legal description of the property SUBJECT TO development order approval for vertical development.

3. Affirmative statement acknowledging and agreeing agricultural uses are illegal and prohibited on the property. Further that the property owner covenants with the County not to resume agricultural uses until the property is rezoned to permit agricultural.

The affidavit constitutes a covenant between the property owner and Lee County binding on the owner and its successors. The covenant must properly recorded in public record of Lee County at the owner's expense.

ii. Termination of Tax Exemption. Termination of the agricultural tax exemption for portions of the property SUBJECT TO a development order for vertical development. Proof of termination must include a copy of the request to terminate the tax exemption submitted to the Lee County Property Appraiser.

Section C. – Deviations

1. Deviation 1 seeks relief from the LDC Section 10-355(a)(1) requirement of a ten-foot-wide public utility easement on both sides of a roadway, to allow the ten-foot-wide public utility easement on the building lot side of the roadway only. This deviation was previously APPROVED per Z-07-051.

2. Deviation 2, which was previously approved per Z-07-051 to allow a temporary sewer treatment plant, is WITHDRAWN due to the Letter of Availability per Attachment G.

3. Deviation 3 seeks relief from LDC Section 10-329(d)(1)a.3. which requires that no excavation be allowed within 50 feet of any private property line under separate ownership, to allow excavation up to 25 feet from the property line. Staff recommends APPROVAL of Deviation 3.

4. Deviation 4 seeks relief from LDC Section 10-285(a), which requires driveway spacing for future urban areas to be a minimum of 60 feet from other driveways on a local road, to allow for a separation spacing of 59 feet between the project's proposed access and the LAMSID service driveway located along Blackstone Drive. Staff recommends APPROVAL of Deviation 4 to allow a driveway separation spacing of 59 feet.

5. Deviation 5 seeks relief from LDC Section 10-415(b), which requires large developments with existing indigenous native vegetation communities to provide 50 percent of their open space requirement through indigenous preservation, to allow indigenous preservation to be met through

a combination of indigenous upland preservation, upland indigenous bonus credits, and wetland restoration. Staff recommends APPROVAL of Deviation 5 subject to CONDITION 4.

Lee County, Florida
DEPARTMENT OF COMMUNITY DEVELOPMENT
ZONING SECTION
STAFF REPORT

Case Number: DCI2023-00009
Case Name: Blackstone Corporate Park MPD
Area Subject to Request: +/- 98.03 Acres
Case Type: Major Planned Development Rezone
Sufficiency Date: October 5, 2023
Hearing Date: December 21, 2023

REQUEST:

DeLisi, Inc. has filed an application to add five acres of land that is currently zoned Commercial (C-1A) to 93.03 acres of a previously approved Mixed Use Planned Development (Resolution Z-07-051). The request, if approved, will increase the commercial area to allow 500,000 square feet of commercial floor area and 350,000 square feet of industrial floor area.

The subject property is located along the south side of State Road 82, east of Blackstone Drive. The subject property is located within the Urban Community, Industrial Development, and Wetlands Future Land Use categories according to Lee Plan Map 1-A. The site is also located within the Lehigh Acres Community Plan area. A legal description and boundary survey of the subject property are attached as Attachment B of the staff report.

SUMMARY:

Staff recommends **APPROVAL** of the applicant's request, as conditioned, to rezone 98.03 acres to Mixed Use Planned Development to allow 500,000 square feet of commercial uses and 350,000 square feet of industrial uses with a maximum height of 65 feet (Attachment D). The applicant has requested five deviations. Two of the deviations were previously approved by Resolution Z-07-051 (Attachment E). Three new deviations are being requested from excavation setbacks, driveway separation, and indigenous open space requirements. (Attachment D).

HISTORY OF PARCELS:

Most of the subject property was originally rezoned to Mixed Use Planned Development in 2007 (Resolution Z-07-051). The resolution allows for a mix of uses that include 810,000 square feet of industrial floor area and 250,000 square feet of commercial floor area with a maximum height of 65 feet (Attachment E). When the subject property was rezoned in 2007, the entire property was in the Urban Community Future Land Use category. In 2010, the future land use category was amended to Industrial and Wetlands in accordance with Ordinance 10-16, which was adopted on March 3, 2010, and became effective on June 2, 2010 (Attachment F). The five-acre parcel located at the southeast corner of State Road 82 and Blackstone Drive was not part of the change to the future land use category or the rezoning and remains in the Urban Community Future Land Use Map and in a Commercial zoning district (C-1A).

CHARACTER OF THE AREA:

The subject property is in Lehigh Acres in an area with primarily platted single-family lots. The Urban Community Future Land Use Category surrounds the subject property on the north, east, and west. Conservation Lands Upland and Conservation Lands Wetland future land use categories abut the subject property along Blackstone Drive. The parcels to the south are within the Density Reduction / Groundwater Resource (DR / GR) Future Land Use category. The surrounding zoning districts are Residential (RS-1 and RM-2), Agricultural (AG-2), Two-Family Conservation (TFC-2), and Commercial (C-1). Property immediately surrounding the subject property is depicted in Attachment C of this report and can be characterized as follows:

North

The subject property abuts State Road 82, a State-maintained arterial road. Further north are existing and vacant residential platted lots zoned Multiple-Family (RM-2) and Residential (RS-1).

East

Two properties zoned Commercial (C-1) and Two-Family Conservation (TFC-2) to the east, which are vacant.

South

The subject property abuts vacant Agricultural land (AG-2) to the south.

West

The subject property abuts Blackstone Drive a County-maintained local road. Further west are residential platted lots zoned Residential (RS-1) and Conservation Lands zoned Residential (RS-1).

Availability of Public Services

Public Services are defined by the Lee Plan as "*the requisite services, facilities, capital improvements, and infrastructure necessary to support growth and development at levels of urban density and intensity*." The level of urban services currently serving the subject property are as follows:

Public water and sewer: The applicant has provided a letter of availability for potable water and sanitary sewer from Florida Governmental Utility Authority (FGUA). Potable water and wastewater utility lines are available in proximity to the subject property, with sufficient capacity available for 500,000 square feet of commercial floor and 350,000 square feet of industrial floor area with an estimated potable water usage demand of 101,250 gallons per day and estimated wastewater disposal of 101,250 gallons per day; however, developer funded system enhancements such as line extensions may be required (Attachment G). Resolution Z-07-051 approved a deviation (Deviation 2) to allow for the proposed development to provide a sanitary sewage package treatment facility until sufficient capacity became available to service the proposed development. The applicant has demonstrated that FGUA has the sanitary sewage capacity to support the proposed project; therefore, staff is recommending withdrawal of the deviation.

Public transit and pedestrian facilities: LeeTran does not service this area of Lehigh Acres and there are no shared use paths or pedestrian sidewalks abutting the subject property. Lee Plan Map 3-D depicts a proposed shared use path along State Road 82.

Police, fire, and emergency services: Lehigh Acres Fire Station #105 is located three miles east of the subject property at 636 Thomas Sherwin Avenue South. The Lee County Sheriff's Office is located approximately four miles to the north of the subject parcel.

Property Development Regulations & Off-Street Parking

LDC Section 34-935 establishes the property development regulations for each planned development zoning district. The applicant is requesting to rezone the property to Mixed Use Planned Development (MPD) to develop commercial and industrial uses. LDC Section 34-935(b)(1)a. provides the building and structure setback requirements from the development perimeter as 15 feet for commercial portions and 25 feet for industrial portions of the MPD. LDC Section 34-935(e)(3) requires side and rear setbacks for all lots to be scheduled on the Master Concept Plan (MCP), except that, where a lot line is congruent with the development perimeter, the setback defined in LDC Section 34-935(b) must have priority. The applicant did not provide rear and side setback regulations for the internal lots. Furthermore, the rear and side setback property development regulations from the development perimeter that were provided do not comply with LDC Section 34-935(b)(1)a. (Attachment H). Staff has recommended revised property development regulations to facilitate development in accordance with the MCP and the LDC (Attachment I).

SCHEDULE OF USES:

The applicant is proposing a mix of uses on the property that are consistent with the allowable uses in a Mixed Use Planned Development per LDC Section 34-934. The 93.03 acres of the subject property is currently used for agriculture, specifically cattle grazing and bee apiary. LDC Section 34-202(b)(7) requires property located in an agricultural zoning district at the time a zoning application is filed to include an existing agricultural use affidavit If the use will continue until the property is developed (Attachment S). The subject property was rezoned to Mixed-Use Planned Development per Resolution Z-07-051 and per approved condition 16 the agricultural use must terminate once a local development order has been approved. No development order has been approved or submitted for the 93.03-acre portion of the subject property. The five-acre parcel zoned C-1A is not included in the agricultural use affidavit. Staff has provided a condition to allow the agricultural use until a development order proposing vertical construction has been issued.

DEVIATIONS:

The applicant has requested five deviations. The applicant is requesting to carry over Deviations 1 and 2 from Resolution Z-07-051 (Attachment E). Deviation 1 was approved to allow reduction in the required ten-foot-wide public utility easements that must be provided on both sides of the proposed roadway per LDC Section 10-355(a)(1) to a ten-foot-wide public utility easement on the building lot side of the roadway only. Deviation 1 was approved without conditions. Deviation 2 was previously approved to allow a sanitary sewer package treatment facility until sufficient capacity becomes available to serve the proposed development. The applicant has provided a Letter of Availability from FGUA stating that they have capacity for sewer and

potable water (Attachment G). Staff is recommending withdrawal of Deviation 2 due to the Letter of Availability.

The applicant is requesting three new deviations. Deviation 3 seeks relief from LDC Section 10-329(d)(1)a.3. which requires that no excavation be allowed within 50 feet of any private property line under separate ownership, to allow excavation up to 25 feet from the property line. The applicant indicates that the stormwater lakes are proposed along the east and south property lines which, abut the LAMSID canal rights-of-way. The 25-foot width is wide enough to provide a berm between the lake and the property line which will provide a barrier between the canal and subject property. Staff is recommending approval of the 25-foot-wide lake excavation setback.

Deviation 4 seeks relief from LDC Section 10-285(a), which requires driveway spacing for future urban areas to be a minimum of 60 feet from other driveways on a local road, to allow for a separation spacing of 59 feet between the project's proposed access and the LAMSID service driveway located along Blackstone Drive. Staff recommends approval of Deviation 4 to allow a driveway separation spacing of 59 feet.

Deviation 5 seeks relief from LDC Section 10-415(b), which requires large developments with existing indigenous native vegetation communities to provide 50 percent of their open space percentage requirement through indigenous preservation to allow indigenous preservation, to be met through a combination of indigenous upland preservation, indigenous upland bonus credits, and wetland restoration. The subject property consists of a mix of indigenous and non-indigenous pine flatwood areas and non-indigenous wetland areas. Indigenous is defined as native vegetative communities consisting of 75 percent or less invasive exotic vegetation. The applicant is required to provide 12.89 acres of indigenous open space. The subject property has 4.78 acres of indigenous upland to comply with LDC Section 10-415(b). The applicant proposes to restore 7.32 acres of non-indigenous area (6.21 acres of wetland and 1.11 acres of upland) to comply with the indigenous requirements. The applicant has provided indigenous restoration plans (Attachment O). Staff is recommending approval of Deviation 5, as conditioned (Attachment D).

Review Criteria

LDC Section 34-145 establishes the review criteria for rezoning requests. Before recommending approval of a rezoning request, the Hearing Examiner must find the request:

a) Complies with the Lee Plan;

b) Meets the Land Development Code and other applicable County regulations or qualifies for deviations;

c) Is compatible with existing and planned uses in the surrounding area;

d) Will provide access sufficient to support the proposed development intensity;

e) The expected impacts on transportation facilities will be addressed by existing County regulations and conditions of approval;

f) Will not adversely affect environmentally critical or sensitive areas and natural resources; and

g) Will be served by urban services, defined in the Lee Plan, if located in a Future Urban Area category.

For Planned Development rezoning requests, the Hearing Examiner must also find:

a) The proposed use or mix of uses is appropriate at the proposed location;

b) The recommended conditions provide sufficient safeguards to the public interest and are reasonably related to the impacts on the public's interest expected from the proposed development; and

c) That each requested deviation:

    1) Enhances the achievement of the objectives of the planned development; and

    2) Preserves and promotes the general intent of this Code to protect the public health, safety and welfare.

The applicant has provided a narrative that addresses the planned development rezoning request with analysis against the applicable criteria (see Attachment J). The following provides staff's analysis of the request, as measured against the established criteria.

REVIEW CRITERIA ANALYSIS:

The five-acre portion of the subject property is located at the corner of State Road 82 and Blackstone Drive and in the Urban Future Community and Wetlands future land use categories (FLUC) per the Lee Plan. **Lee Plan Policy 1.1.4** states the Urban Community future land use category consists of areas characterized by a mixture of relatively intense commercial and residential uses. Predominant land uses in this category will be residential, commercial, public and quasi-public, and limited light industrial. As vacant properties within this category are developed, the existing base of public services will need to be maintained and expanded. The applicant is proposing commercial uses within "Commercial Use Area A" on the Master Concept Plan as proposed by the Schedule of Uses (Attachments K & Q). The proposed uses for "Commercial Use Area A" are consistent with the allowable uses for a Mixed Use Planned Development in accordance with LDC Section 34-934. Staff finds the request, as conditioned, to be **CONSISTENT with Policy 1.1.4.**

Most of the subject property is in the Industrial Development future land use category with the Wetland future land use category predominately located along Blackstone Drive. **Lee Plan Policy 1.1.7** describes the Industrial Development future land category as a FLUC that plays an important role in strengthening the County's economic base and is becoming increasingly important as the County grows in size and urban complexity. This category is reserved mainly for industrial uses and land use mixtures including industrial, manufacturing, research, recreational, and office (if specifically related to adjoining industrial uses). These uses have locational requirements that require transportation, water, sewer, fire protection, and other public service type needs. The applicant is proposing a mix of industrial, and retail uses in "Industrial Use Area B" on the Master Concept Plan (Attachment K). The industrial uses are proposed south of the Florida Power and Light (FPL) easement, and the retail uses will be located on the north side along State Road 82. The Schedule of Uses for "Industrial Use Area B" is consistent with the allowable uses in a Mixed Use Planned Development in accordance with LDC Section 34-934.

Per Lee Plan Policy 1.1.7, recreational, service and retail uses may not exceed 20 percent of the total acreage within the Industrial Development future land use category within the Lehigh Acres Planning Community. Currently there is approximately 314.62 acres in the Industrial Development future land use category in Lehigh Acres. That would allow for approximately 63 acres of commercial uses consistent with Policy 1.1.7. Currently 3.88 acres have been developed with retail/commercial within Lehigh Acres, or about 1.23 percent. The proposed rezoning includes commercial uses on approximately 57 acres of the Industrial Development future land use area (including the FPL easement), which is within the available acreage for commercial uses (Attachment T). The combination of manufacturing and retail provide an expansion of economic opportunity while being consistent with the 20 percent threshold for commercial in the Commercial Use Area. The proposed project has access to State Road 82, a State-maintained Road, that has direct access to Interstate 75 to support transportation of goods and services for manufacturing and distribution. The applicant has provided a Letter of Availability stating that there is sufficient wastewater and potable water capacity to serve the proposed commercial and industrial uses.

Staff finds the request, as conditioned, to be **CONSISTENT with Policy 1.1.7**.

As mentioned, a portion of the subject parcel along Blackstone Drive and within the five-acre parcel are within the Wetlands future land use category. **Lee Plan Policy 1.5.1** limits permitted land uses to very low-density residential uses and recreational uses that will not adversely affect the ecological functions of wetlands. The applicant has indicated that approximately 6.8 acres of land is wetlands, which will be preserved and restored consistent with **Lee Plan Goal 124**. Staff finds the request, as conditioned, to be **CONSISTENT with Policy 1.5.1 and Goal 124**.

The applicant held a public information meeting on July 27, 2023, at Lehigh Acres Municipal Services Improvement District (LAMSID) offices which is in the Lehigh Acres Planning Community in accordance with LDC Section 33-1401 (Attachment R). No one from the public attended the meeting.

The proposed development complies with **Objectives 2.1 and 2.2** for development location and timing due to the variety of surrounding residential uses to support the proposed commercial use. As mentioned, there is access to potable water and sewer, fire and EMS stations are within three to four miles of the subject property demonstrating compliance with **Lee Plan Objectives 2.1 and 2.2 and Policy 2.2.1 and Standards 4.1.1 and 4.1.2**. The applicant has demonstrated compliance with **Lee Plan Policy 4.1.4** by providing an environmental assessment that states that the site consists primarily of pine, pine flatwood and melaleuca habitats. The applicant is proposing to preserve and restore the indigenous and non-indigenous habitat to comply with the open space requirements per **LDC Section 10-415** and **Lee Plan Objective 123.2**. Staff finds the request, as conditioned, to be **CONSISTENT with Objectives Lee Plan Objectives 2.1, 2.2, and 123.2, Policy 2.2.1, and Standards 4.1.1, 4.1.2 and 4.1.4.**

Lee Plan Objective 6.1 and Policies 6.1.1, 6.1.4, 6.1.5, 6.1.6, and 6.1.7 require commercial land uses to be consistent with policies that require the availability of essential services, site design standards to provide landscaping, open space, and buffering, proximity to other similar centers, traffic carrying capacity, and the impact on surrounding uses. The development is in an area that is served by central water and sewer, EMS, Fire, and Police protection. The existing zoning currently allows for commercial development and will continue to provide for commercial development. The proposed rezoning will allow for a greater distribution of commercial and industrial uses and will add approximately five acres of commercial area at the

intersection of State Road 82 and Blackstone Drive. The applicant has provided a Master Concept Plan that depicts Land Development Code (LDC) required buffers and open space (see Attachment K). The open space is in compliance with **LDC Section 10-415** which requires 30 percent open space for commercial uses and 20 percent open space for industrial uses. The project is over ten acres in size and per **LDC Section 10-415** the applicant is providing half of the required open space as indigenous open space. The MCP demonstrates code compliant open space. The buffers are in compliance with **LDC Section 33-1405** and **LDC 10-416(d).** The Traffic Impact Statement provided by the applicant and reviewed per the Institute of Transportation Engineers trip generation manual for 500,000 square feet of commercial floor area and 350,.000 square feet of industrial floor area are attached as Attachment L. Infrastructure Planning has provided a staff memorandum and determined that the request will not have an adverse effect on the surrounding roadway system and that access to the site is subject to Florida Department of Transportation (Attachment M). Staff finds the proposed project, as conditioned, to be consistent with the **Lee Plan Objective 6.1 and Policies 6.1.1, 6.1.4, 6.1.5, 6.1.6, and 6.1.7.**

Lee Plan Objectives 60.2 and 60.3 and Policies 60.1.1, 60.4.1, 60.4.2, and 61.3.11 all speak to the design of the stormwater management system and the utilization of green infrastructure to filter pollutants and protect the surrounding natural environment. The applicant submitted a Surface Water Management Plan (Attachment N). The subject property abuts Lehigh Acres Municipal Services Improvement District (LAMSD) drainage canals along the west, south, and east property lines. The applicant is proposing to direct stormwater runoff to dry detention areas and then into the master stormwater ponds to provide additional water quality treatment. The preservation areas along Blackstone Drive will be maintained outside of the proposed water management system. The drainage system is being designed to preserve the existing drainage patterns, which currently sheet flow to the LAMSID drainage canals. The applicant proposes to maintain this drainage pattern and provide dry and wet ponds to improve water quality before outfalling into the LAMSID drainage canals. The wetland preserve is not being integrated into the surface water management system but is being restored through exotic removal and habitat restoration (Attachment O). The proposal is consistent with **Lee Plan Policies 60.4.1 and 60.4.2** which encourage new developments to utilize green infrastructure in site designs. Staff finds the request, as conditioned, to be consistent with **Lee Plan Objectives 60.2 and 60.3 and Policies 60.1.1, 60.4.1, 60.4.2, and 61.3.11.**

The northwest corner of the subject property is within the Lehigh Commercial Overlay which was created to include all of the commercially zoned property in Lehigh Acres. The remaining portion of the site is within the Industrial Development future land use category. **Lee Plan Policy 25.6.1** directs an increase of commercial land within the overlay if some of the overlay is developed for other uses, which is occurring due to an increase in residential. The proposed rezoning is consistent with **Lee Plan Policy 25.6.1** because it proposes an increase in commercial development. **Lee Plan Policy 25.6.2** allows commercial use on certain lands that might otherwise be used for residential. Tracts with vacant lots at the intersection of future collector or arterial roads in sparsely developed areas where there are limited or no commercial locations in any of the Commercial Overlays are encouraged to focus commercial uses. The subject property is located at the intersection of a State Road 82 (arterial road) and Blackstone Drive (local road), which meets the location standards for commercial land. This Policy allows for new commercial property to be requested through the planned development process consistent with this request.

Lee Plan Objective 25.10 and Policy 25.10.1 encourage onsite preservation of indigenous plant communities to preserve, protect, and, where possible, enhance the physical integrity, ecological values, and natural beauty of Lehigh Acres Community Plan area. The applicant is providing 4.78 acres of indigenous uplands, which includes credits, and 7.32 acres of indigenous restoration as depicted on the Master Concept Plan (Attachment K). The applicant has provided a protected species survey, indigenous restoration plan, and monitoring schedule demonstrating consistency with **Lee Plan Objective 25.10 and Policy 25.10.1** (Attachment O). No protected species or evidence of protected species were found on the site. The applicant indicated that a formal jurisdictional wetland determination has not been completed; therefore, the acreage of State protected wetlands could increase or decrease once South Florida Water Management District completes their review. The applicant has indicated that the subject property has 6.8 acres of wetlands that will be preserved and restored. **Lee Plan Policy 124.1.1** ensures that development in wetlands is limited to low density residential uses and uses of recreational, open space, or conservation nature that are compatible with wetland functions. Commercial and industrial uses are not allowable uses in wetlands. At time of development order, the applicant may need to update the design if the wetland boundaries increase or provide information about on-or off-site mitigation to be consistent with **Lee Plan Policy 124.1.2**. Staff has provided a condition to ensure consistency with the **Lee Plan Policy 124.1.2** (Attachment D).

Land Development Code Compliance

Staff finds the proposed planned development rezoning request, as conditioned, to be in compliance with the LDC, including regulations which pertain to:

- Use and corresponding supplemental regulations, such as parking;
- LDC Chapter 10 Development Standards; and
- Details required on the MCP and compliance with Division 9 of Article VI, Chapter 34, Planned Development Districts.

All relevant County regulations, which are not specifically deviated from as part of this planned development request, will apply, such as LDC, Code of Ordinances and Administrative Code provisions. If future deviations are proposed, each will be evaluated within the parameters of the established LDC review criteria.

Compatibility with existing and planned uses in the surrounding area.

Staff finds the request, as conditioned, to be compatible with existing and planned uses in the surrounding area. Rezoning the subject property will increase the commercial area to serve the Lehigh Acres community, which the Lee Plan encourages through the Commercial Overlay. The industrial uses proposed within the south portion of the property will increase the diversity of employment opportunities within the community. The surrounding land uses are primarily vacant commercial or agricultural lands in the Density Reduction / Groundwater Resource Area, Urban Community or Wetland or Upland Conservation Future Land Use categories. Platted residential lots within the Urban Community Future Land Use category are located north of State Road 82 and to the west. The subject property is separated from the residential single-family lots to the west by a 100-foot canal right-of-

way. The applicant has designed the site to provide preservation and restoration areas between the residential single-family lots and the subject property and provides 343 feet of separation (243-foot-wide preserve and 100-foot-wide canal) from the industrial uses. The applicant has provided Property Development Regulations that staff has revised to be consistent with **LDC Section 34-935(b)(1)a.** a maximum building height of 65 feet in accordance with **LDC Section 34-935(f)** (Attachments H & I). The Schedule of Uses is consistent with **LDC Section 34-934** (Attachment Q). The applicant has provided a Master Concept Plan that demonstrates compliance with required buffers and open space per **LDC Sections 33-1405 and 10-416(d)** (Attachment K). The request will remain compatible with the surrounding uses.

Sufficiency of Access and Transportation Impacts.

The subject property is located along State Road 82, State-maintained arterial road and Blackstone Drive, which turns into Parkdale Boulevard, a collector road located north of State Road 82. The applicant has submitted a Traffic Impact Statement (TIS) that details the impacts on transportation facilities to support the proposed uses (Attachment L). Infrastructure Planning has provided a staff memorandum evaluating the TIS and has determined that the expected impacts on transportation facilities are not significant and may be addressed by the Land Development Code at time of development order (Attachment M).

No adverse impacts to environmentally critical or sensitive areas and natural resources.

There are wetlands along the west boundary of the site as indicated by the Protected Species Survey (Attachment O). **Lee Plan Policy 124.1.2** states that the County will not undertake an independent review of impacts to wetlands authorized by the South Florida Water Management District and that no development in wetlands regulated by the State of Florida may be commenced without the appropriate state agency permit or authorization. The project is not currently under State review; therefore, the State wetland acreage is unknown. The applicant is proposing to preserve approximately 6.8 acres of wetlands and may need to revise the design to propose protection of wetlands or mitigate for the impacts if the State determines more than 6.8 acres of wetlands exist on the subject parcel, which will be determined at time of development order. The applicant's Protected Species Survey indicates that there were no protected species onsite. Environmental Staff have provided a staff report containing analysis and findings (Attachment O).

Will be served by urban services, defined in the Lee Plan, if located in a Future Urban area category.

As noted, and defined above, the subject property is located within a future urban area. The subject property has adequate access to urban services to accommodate the development proposed by the request. Future improvements required by the LDC at time of local development order approval will further improve urban services and pedestrian facilities surrounding the subject property.

Supplemental Planned Development Criteria.

Staff finds the request to be consistent with the following additional criteria:

a) The proposed use or mix of uses is appropriate at the proposed location; and

b) The recommended conditions provide sufficient safeguards to the public interest and are reasonably related to the impacts on the public's interest expected from the proposed development; and

c) The deviations enhance the achievement of the objectives of the planned development and protects the public health and safety.

OUTSTANDING ISSUE:

The applicant must revise the Master Concept Plan to provide the internal setbacks per **LDC Sections 34-935(b)(1)a.** and **34-935(e)(3)**. Staff has revised the Property Development Regulations for the perimeter setbacks and internal setbacks to be consistent with the Land Development Code for Mixed-Use Planned Developments.

CONCLUSION:

Based upon an analysis of the application and the standards for approval of planned development rezonings, staff finds the request to be consistent with the established review criteria. As conditioned, the major MPD rezone is consistent with the Urban Community, Industrial Development, and Wetlands future land use designations and the applicable goals, objectives, and policies of the Lee Plan. The request, as conditioned, is appropriate in the context of its surroundings. Staff recommends **APPROVAL** of the request to rezone the 98.03-acre property from C-1A and MPD to MPD to allow 500,000 square feet of commercial floor area and 350,000 square feet of industrial floor area with a maximum height of 65 feet with the conditions attached as Attachment D of this report.

ATTACHMENTS:

A. Expert Witness Information
B. Boundary Survey and Legal Description
C. Location Aerial, Future Land Use, and Current Zoning Maps
D. Recommended Conditions of Approval
E. Resolution Z-07-051
F. Ordinance 10-16
G. FGUA Letter of Availability
H. Proposed Property Development Regulations
I. Staff Recommended Property Development Regulations
J. Applicant's Project Narrative
K. Master Concept Plan
L. Traffic Impact Statement (TIS)
M. Infrastructure Planning Staff Memorandum

N. Surface Water Management Plan
O. Environmental Sciences Staff Report
P. Schedule of Deviations and Written Justification
Q. Schedule of Uses
R. Public Information Meeting
S. Bona Fide Agricultural Use Affidavit
T. Industrial Development FLUM Commercial Inventory for Lehigh Acres

DCI2023-00007
Bayshore 75

Staff Summary

CASE NUMBER & NAME:	DCI2023-00007 / Bayshore 75
REQUEST:	Request to rezone 74.11± acres from Agricultural (AG-2) and Mobile Home (MH-2) to Residential Planned Development (RPD) to allow for up to 250 single family dwelling units.
RESOLUTION NUMBER:	Z-24-003
LOCATION:	1711 Williams Rd. and 6601 Bayshore Rd., North Fort Myers Planning Community, Lee County, FL.
OWNER:	CAH-SWFL Land holdings, LLC
APPLICANT:	CAH-SWFL Land holdings, LLC
AGENT:	Christopher Scott, AICP Peninsula Engineering 2600 Golden Gate Parkway Naples, FL 34105
HEARING EXAMINER RECOMMENDATION:	Approve, subject to conditions and deviations set forth in Exhibit B.
PARTICIPANTS (1):	Clinton Busbee II

DCI2023-00007

Aerial

Subject Property

N
W E
S

0 500 1,000 1,500
Feet

Lee County
Southwest Florida

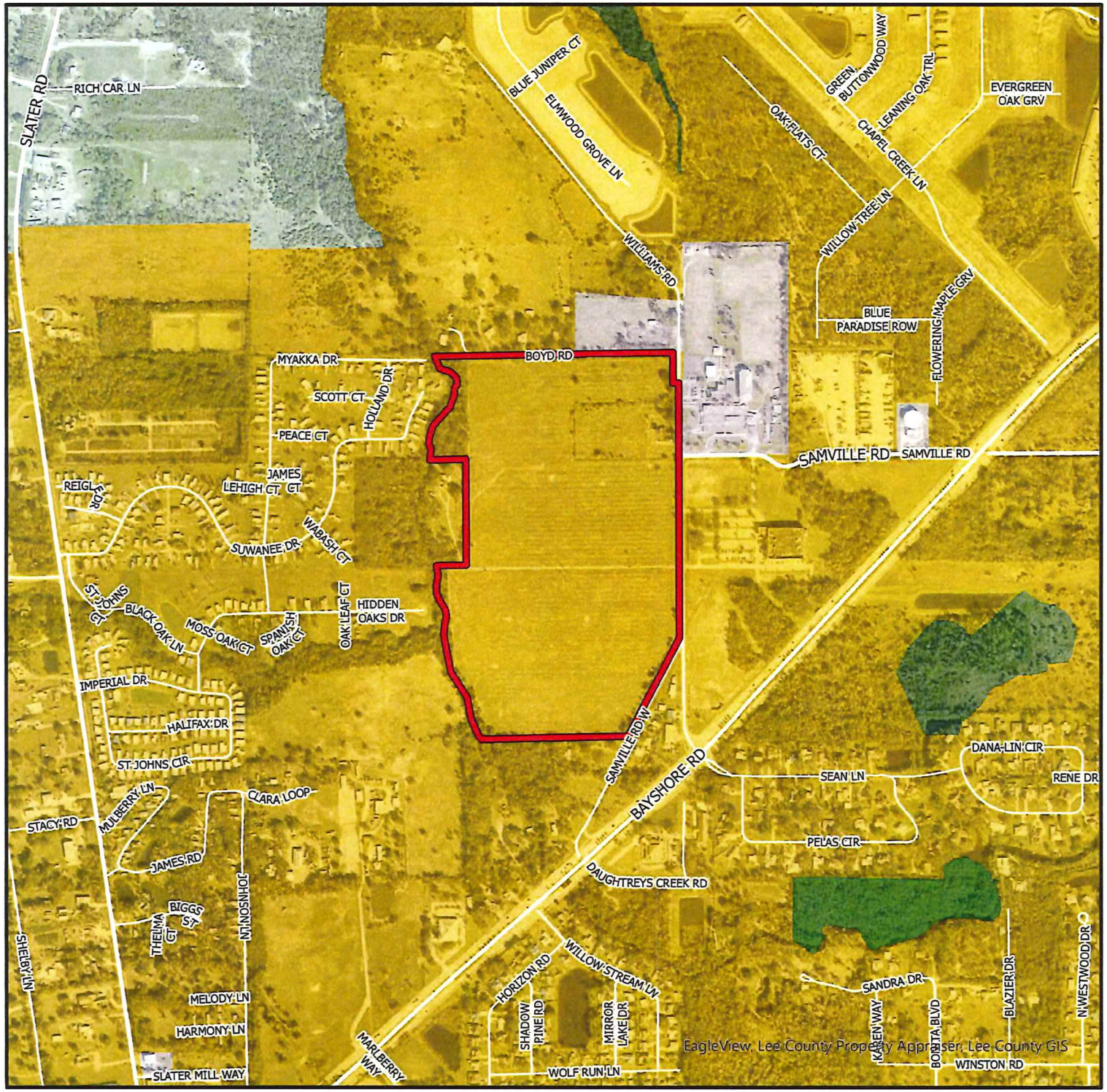
Summary of Hearing Examiner Recommendation

BAYSHORE 75 RPD

The proposed residential subdivision with a density of 3.4 units per acre is consistent with surrounding residential development patterns. There are several single family residences in the vicinity of the property as well as a park, school, and church. The request constitutes infill development.

The Master Concept Plan protects indigenous vegetation along Daughtrey's Creek. Development tracts are distanced from FEMA floodways on the property.

Detailed recommendation follows



DCI2023-00007

Future Land Use

- Subject Property
- Suburban
- Public Facilities
- Rural
- Conservation Lands - Upland
- Wetlands

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Feet

Lee County
Southwest Florida

DCI2023-00007

Aerial

Subject Property

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0 500 1,000 1,500
Feet

Lee County
Southwest Florida

OFFICE OF THE HEARING EXAMINER, LEE COUNTY, FLORIDA

HEARING EXAMINER RECOMMENDATION

REZONING: DCI2023-00007

Regarding: **BAYSHORE 75 RPD**

Location: 17111 Williams Road and 6601 Bayshore Rd
North Fort Planning Community
(District 5)

Hearing Date: February 1, 2024

I. Request

Rezone 74.11± acres from Agricultural (AG-2) and Mobile Home (MH-2) to Residential Planned Development (RPD) to allow up to 250 single family dwelling units.

The property's legal description is set forth in Exhibit A.

II. Hearing Examiner Recommendation

Approve, subject to the conditions and deviations set forth in Exhibit B.

III. Discussion

The Hearing Examiner serves in an advisory capacity to the Board of County Commissioners (Board) on applications to rezone property to the planned development zoning district.[1] In furtherance of this duty, the Hearing Examiner accepted testimony and evidence on an application to rezone approximately 75.11 acres to the Residential Planned Development District (RPD).

In preparing a recommendation to the Board, the Hearing Examiner must apply the Lee County Comprehensive Plan (Lee Plan), the Land Development Code (LDC), and other County regulations to the facts adduced at hearing. There must be substantial competent evidence in the record to support the recommendation.

Discussion supporting the Hearing Examiner's recommendation of approval with conditions follows below.

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[1] LDC 34-145(d)(4) a.

Request

The request seeks to rezone 74.11 acres from Mobile Home (MH-2) and Agriculture (AG-2) to RPD to allow construction of up to 250 dwellings and an amenity center. The project will connect to potable water and sanitary sewer service. Maximum building heights will be 35 feet.

Existing onsite structures will be removed to accommodate the plan of development depicted on the Master Concept Plan (MCP).

The MCP depicts tracts surrounding lakes and an amenity center. The west property boundary abuts Daughtry's Creek and a single family residence.

Character of Area

North Fort Myers west of the interstate is developed with variety of commercial and residential land uses, churches, and essential service facilities.

The 74.11 acre property is across Williams Road from Bayshore Elementary School and a large church. A short distance to the north is the Bayshore Soccer Complex, a small community park. Williams Road terminates north of the park. The southeast corner abuts Samville Road West and single family homesites.

Development History

The property is zoned for mobile home development and agriculture. It is improved with a farmhouse. The remainder of the site is pasture with ditches.

Two electric easements bifurcate the property: a 160 foot wide FPL transmission line easement and 12 foot wide LCEC easement. The LCEC easement is proposed for relocation within the FPL easement.

Lee Plan

Future Land Use

The property is located north of Bayshore Road and east of Interstate 75 in the North Fort Myers Planning District.[2] The property is designated as Suburban by the Lee Plan.[3] Suburban areas are predominantly residential areas where it is appropriate to protect residential neighborhoods.[4]

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[2] Lee Plan Maps 1-B, 2-A.
[3] Lee Plan Future Land Use Map 1-A.
[4] Lee Plan Policy1.1.5.

Development in North Fort Myers is subject to a Community Plan adopted as part of the Lee Plan as well as criteria in the LDC.[5] The Plan emphasizes protecting North Fort Myers' character, economic vitality, and quality of life.[6]

The Lee Plan encourages a diverse mix of housing to serve County residents.[7] The proposed single family subdivision expands housing options within the North Fort Myers community.[8]

The Lee Plan also encourages compact and contiguous development patterns in areas with services and infrastructure.[9] Surrounding lands feature residential land uses, a school, park, and church. The request to develop a residential subdivision constitutes infill development.[10]

The property's current zoning designation is MH-2 and AG-2. The purpose of the MH-2 district is to accommodate housing needs of residents who prefer mobile home living/alternatives to conventional dwellings. The purpose of agricultural districts is to provide for agricultural operations with ancillary residential use.[11] The Lee Plan discourages new agricultural uses in future urban areas with public services and infrastructure available to serve development.[12] The requested residential planned development zoning district authorizes development of land uses better suited to suburban property.[13]

Compatibility

Compatibility exists when land uses can exist in proximity, and no one use unduly negatively impacts another use.[14] Planned development zoning is a useful tool when integrating new development with surrounding land uses.[15] The planned development zoning district allows flexibility in site design to address potential incompatibilities with neighboring development.[16]

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[5] Lee Plan Goal 30 adopted by Lee County Ordinance No. 09-11 on February 25, 2009. Community specific LDC regulations adopted by Lee County Ordinance No. 12-01 on January 10, 2012.
[6] *See* Lee Plan Goal 30.
[7] Lee Plan Goals 5, 135, 158. Policies 135.1.9.(directive to ensure a mix of residential housing types countywide), 160.1.3.
[8] Lee Plan Policy 30.1.3 (directive to encourage a diversity of housing types in North Fort Myers).
[9] Lee Plan Objectives 2.1, 2.2, Policies 2.2.1, 5.1.3.
[10] Lee Plan Policy 5.1.3.
[11] LDC 34-651.
[12] Lee Plan Goal 9, Objective 9.2.
[13] Lee Plan Goal 5, Objective 9.2, Policies 5.1.1, 5.1.5 5.1.7, 9.2.1.
[14] Florida Statutes s. 163.3164(9); The Lee Plan offers benchmarks from which to measure compatibility, particularly in the context of uses adjacent to established residential development. Lee Plan Policies 5.1.5, 135.9.5, 135.9.6.
[15] LDC 34-612(2).
[16] *Id.*

The proposed density of 3.4 units per acre is consistent with surrounding residential development patterns and the Suburban future land use designation, which allows up to six units per acre. There are several single family residences in the vicinity as well as a park, school, and church. The proposed subdivision is compatible with those uses and constitutes infill development consistent with development in the area.[17]

LDC

Development must comply with County land development regulations or seek deviations.

The application seeks approval of one deviation from the LDC. A "deviation" is a departure from a land development regulation.[18] Applicants requesting deviations must demonstrate the deviation will enhance the objectives of the planned development and will not cause a detriment to the public.[19] The requested deviation pertains to street design to allow for hammerhead configurations rather than cul-de-sacs.[20]

Applicant offered testimony and evidence in support of the requested deviation based on the LDC standard of review.[21] Staff recommended approval of the deviation based on a letter of no objection from the Fire District.[22]

The LDC requires the Hearing Examiner to recommend approval, approval with modifications or denial of a requested deviation based upon a finding that the deviation:

(1) Enhances the planned development; and
(2) Preserves and promotes public health, safety and welfare.[23]

The Hearing Examiner finds the requested deviation meets LDC approval criteria.

Development will be subject to impact fees for road, park, fire, school, and emergency medical services.[24]

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[17] Lee Plan Policy 5.1.3.
[18] LDC 34-2.
[19] LDC 34-373(a)(9).
[20] LDC 10-416(d)(9): Development abutting natural waterways and LDC 10-416(d)(6): Roads within 125 feet of existing dwellings.
[21] LDC §34-377(a)(4).
[22] Staff Report Attachment K: Letter from Fire Marshal Rick Jones dated May 3, 2023.
[23] LDC §34-377(a)(4).
[24] LDC Chapter 2, Article VI.

Environmental/Natural Resources

Requests to rezone property must not adversely affect environmentally critical/sensitive areas or natural resources.

The site has been impacted by agricultural uses, but there are natural resources worthy of preservation, specifically Heritage Trees.[25] There are no jurisdictional wetlands. The MCP protects a floodway associated with Daughtrey's Creek and indigenous vegetation.[26]

The MCP reflects 29.64 acres of open space comprised of water management lakes, buffers, and Live Oak hammock.[27] The 40% of the site devoted to open space includes a Live Oak Hammock.[28] The management plan provides for maintenance and monitoring of preserves with success criteria.[29]

The perimeter ditch functions independently from the project storm water management system.[30] Wet and dry detention areas will treat/filter storm water flows before outfall to Daughtery's Creek and ultimately the Caloosahatchee River.[31]

The protected species survey disclosed nine gopher tortoise burrows.[32] The gopher tortoise and its burrow are protected by Florida law.[33] The law requires relocation of gopher tortoises prior to development activity. Applicant's environmental consultant testified the property owner would secure authorization from the Florida Wildlife Commission (FWC) to relocate the gopher tortoises to an approved recipient site in accordance with FWC Gopher Tortoise Permitting Guidelines.[34]

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[25] Staff Report Attachment E: Environmental Staff Report. The site contains 37 Live Oaks and 2 Slash Pine meeting Heritage Tree Status.
[26] Lee Plan Objective 30.5, Policies 30.5.7, 61.3.3, 123.2.15.
[27] Lee Plan Goal 77, Objective 123.2, Policy 123.2.17, *Cf.* Lee Plan Objectives 29.9, 33.3, Policies 29.2.4, 29.9.1, 29.9.2, 29.9.3, 33.3.4.
[28] The oak hammock will not be saved in its entirety to accommodate easements for drainage and access to Daughtery's Creek and Boyd Road.
[29] Lee Plan Objectives 30.5, 123.2, Policies 30.5.7, 123.2.8, 123.2.11, 123.2.13, 123.2.15, 123.3.1.
[30] Testimony of Daniel Hartley, PE, Peninsula Engineering.
[31] Lee Plan Goals 60, 61, 125, Objectives 60.4, 61.2, Policies 60.4.1, 60.4.5, 61.3.11, 125.1.1, 125.1.2.
[32] The estimated gopher tortoise population is approximately 5. Testimony of Bruce Laymanm, Senior Ecologist Peninsula Engineering. Transcript February 1, 2024.
[33] Chapter 68A-27 FAC.
[34] Lee Plan Objective 12.8, Policy 123.8.1. Testimony of Bruce Layman, Senior Ecologist Peninsula Engineering. Transcript February 1, 2024. Mr. Layman testified there was also sufficient open space to accommodate relocation onsite.

Discontinuation of livestock grazing, and introduction of sanitary sewer service will improve water quality leaving the site.[35] Buffers and landscaped areas within common areas must follow Xeriscape principles using native landscape to conserve water.[36]

The Hearing Examiner finds the proposed RPD zoning district will not harm environmentally critical/sensitive areas or natural resources.[37]

Transportation

Applications to rezone property must demonstrate sufficient road access to support proposed development intensity and expected impacts on transportation facilities will be addressed by County regulations and conditions of approval.

Transportation studies concluded traffic generated by the RPD will not negatively affect surrounding roadways.[38] The MCP depicts two access drives onto Williams Road. Williams Road is a two lane County maintained local road with a posted speed limit of 30 miles per hour. Bayshore/State Road 78 operates at acceptable levels of service and will continue to do so following project buildout in 2029. No road improvements are necessary to accommodate projected trip generation.[39]

The Traffic Impact Statement concludes the RPD will satisfy its transportation impacts with road impact fees.[40]

Developer will address site related improvements during the development order review process.[41]

Public Services and Infrastructure

Public services are the services, facilities, capital improvements, and infrastructure necessary to support development.[42] The Lee Plan requires an evaluation of the availability of public services during the rezoning process.[43]

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[35] Lee Plan Goal 125, Policies 125.1.1, 125.1.2, 123.1.3.
[36] Lee Plan Objective 126.2, Policy 126.2.1 The common elements of the project will have Florida friendly plantings with low irrigation requirements.
[37] Lee Plan 125.1.2.
[38] Staff Report Attachment M, Traffic Impact Statement dated May 30, 2023, and Attachment F: Memorandum from Md Rakibul Alam, Senior Transportation Planner to Chahram Badamtchian, Senior Planner dated January 2, 2024. Testimony at hearing confirmed the project will generate less than 300 trips during the peak hour.
[39] *Id.*
[40] Lee Plan Policies 38.1.1, 39.1. 1.
[41] Lee Plan Objective 39.1 and Policy 39.1.1.
[42] Public services and infrastructure available to serve the project will include public water (Lee County Utilities), sewer (FGUA), paved streets, parks and recreation facilities, libraries, police, fire and emergency services, urban surface water management, and schools.
[43] Lee Plan Policy 2.2.1.

The property has access to services and infrastructure necessary to support the proposed subdivision. The property fronts on Williams Road a two-lane County maintained roadway.[44] Lee County Utilities will serve the site with potable water. FGUA has capacity/infrastructure to provide sanitary sewer service. Sanitary sewer eliminates the risk of septic tank contamination of groundwater and Caloosahatchee River.

North Fort Myers Fire Protection and Rescue Service District and EMS Station provide fire and emergency medical services to the site.[45] The North District Offices of the Lee County Sheriff provides law enforcement services.

Schools, parks, libraries, community facilities, shopping, and employment centers are located within reasonable distances.[46]

Conditions

The County must administer the zoning process so proposed land uses minimize adverse impacts on adjacent property and protect environmental resources.[47] Conditions must be plausibly related to anticipated impacts, and pertinent to mitigating impacts to public health, safety, and welfare.[48]

The RPD will be subject to five conditions of approval designed to address impacts reasonably anticipated from development.[49]

The Hearing Examiner recommends revisions to wording of conditions and deviations to improve clarity.

Public

One member of the public spoke at hearing expressing support for the request. His concerns centered on maintaining access to his property on the banks of Daughtery's Creek.[50]

Conclusion

The Hearing Examiner finds the RPD zoning district meets the criteria set forth in the LDC and, as conditioned, is compatible with surrounding development.

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[44] Lee County Administrative Code 11-1.
[45] North Fort Myers Fire District Station #3 located on Slater Road, one mile east.
[46] Lee Plan Policy 30.5.1.
[47] Lee Plan Policies 5.1.5, 135.9.6; LDC §§34-145(d)(4) a.2.(b), LDC 34-377(a)(3), 34-411, and 34-932(c).
[48] LDC §34-932(b).
[49] LDC §§34-83(b)(4) a.3, 34-377(a)(2)c; Lee Plan Goals 59, 61, 77, Policies 5.1.5, 60.1.1, 61.3.11.
[50] Access to the man's property is via a dirt road within the existing FPL easement. Establishing legal access to the property is outside the scope of the zoning hearing.

IV. Findings and Conclusions

Based on the testimony and exhibits presented in the record, the Hearing Examiner finds:

A. The proposed Bayshore 75 RPD is consistent with the Lee Plan. Lee Plan Goals 2, 4, 5, 30, 59, 60, 61, 77, 124, 125; Objectives 4.1, 5.1, 77.1, 77.3, 123.2, 123.4, 123.8, 125.1, 126.2, and Policies 1.1.5, 1.6.5, 2.2.1, 5.1.1, 5.1.5, 5.1.7, 77.3.1, 135.1.9, 135.9.6, 160.1.3, Lee Plan Maps 1-A, 1-B, 2-A, 4-A, 4-B, and Table 1(a).

B. As conditioned, the RPD zoning designation:

1. is consistent with the Land Development Code or qualifies for deviations. LDC Chapters 2, 10, 33, and 34.

2. is compatible with existing or planned uses in the surrounding area. Lee Plan Goal 30, Policies 1.1.5, 5.1.5, 30.1.3, 135.1.9, 135.9.5, 135.9.6, 160.1.3; LDC §§34-411, 34-413, *and*

3. will not adversely affect environmentally sensitive areas or natural resources. Lee Plan Goals 30, 60, 61, 123, 125, Objectives 30.5, 60.4, 61.2, 77.1, 77.3, 123.1, 123.2, 123.3, 123.4, 123.8, 125.1, 126.2, Policies 59.1.5, 60.4.1, 61.3.3, 61.3.6, 61.3.8, 61.3.11, 77.3.1, 77.3.4, 123.2.3, 123.2.4, 123.2.6, 123.2.8, 123.2.15, 123.3.1, 123.8.1, 125.1.2, 125.1.3, 126.1.4, and Standard 4.1.4.

C. There is sufficient road access to support the proposed development intensity and County regulations will adequately address expected impacts on transportation facilities. Lee Plan Objectives, 39.1, Policies 38.1.1, 39.1.1; LDC §§2-261 *et seq.*, 34-411(d).

D. Public services and infrastructure will be available to serve the development, notwithstanding its Rural designation. Goal 4, Objective 4.1, Policies 2.2.1, Standards 4.1.1, 4.1.2, Maps 4-A, 4-B.

E. The proposed uses are appropriate at the subject location. Lee Plan Goals 2, 5, 30; Policies 1.1.5, 30.1.3, 124.1.1, 135.1.9, 135.9.5, 135.9.6

F. County regulations and recommended conditions of approval provide sufficient safeguards to protect the public interest. Lee Plan Policies 5.1.2, 5.1.5, 59.1.2, 61.3.3, 61.3.8, 123.2.8, 123.2.9, 135.9.6; LDC §§34-377(a)(3), 34-411.

G. The recommended conditions reasonably relate to impacts expected from the proposed development. Lee Plan Goal 30, Policies 5.1.5, 61.3.3, 123.2.15, 123.8.1; LDC 34-145(d)(4) a.2.(b), 34-411, and 34-932(c).

H. Deviations recommended for approval enhance the planned development and preserve the intent of the LDC to protect the public health, safety, and welfare. LDC 34-373(a)(9), 34-377(a)(4).

Date of Recommendation: February 8, 2024.

Donna Marie Collins
Chief Hearing Examiner

Lee County Hearing Examiner
1500 Monroe Street, Suite 218
Post Office Box 398
Fort Myers, FL 33902-0398

Exhibits to Hearing Examiner's Recommendation

Exhibit A Legal Description and Vicinity Map
Exhibit B Recommended Conditions and Deviations
Exhibit C Exhibits Presented at Hearing
Exhibit D Hearing Participants
Exhibit E Information

Exhibit A

LEGAL DESCRIPTION AND VICINITY MAP

Exhibit A

PENINSULA ENGINEERING

LEGAL DESCRIPTION

A TRACT OF LAND LYING IN SECTIONS 19 AND 30,
TOWNSHIP 43 SOUTH, RANGE 25 EAST,
LEE COUNTY, FLORIDA

COMMENCING AT THE NORTHEAST CORNER OF SECTION 30, TOWNSHIP 43 SOUTH, RANGE 25 EAST; THENCE ALONG THE NORTH LINE OF SAID SECTION 30 SOUTH 89°03'16" WEST FOR 25.00 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF WILLIAMS ROAD AND THE POINT OF BEGINNING OF THE PARCEL HEREIN DESCRIBED:

THENCE ALONG THE WEST LINE OF SAID WILLIAMS ROAD, THENCE SOUTH 00°13'35" EAST FOR 1,136.05 FEET TO THE INTERSECTION WITH THE NORTHWESTERLY RIGHT-OF-WAY LINE OF OLD BAYSHORE ROAD;

THENCE ALONG THE NORTHWESTERLY RIGHT-OF-WAY LINE OF OLD BAYSHORE ROAD THENCE SOUTH 27°20'10" WEST FOR 688.94 FEET;

THENCE LEAVING SAID LINE THENCE SOUTH 88°52'15" WEST FOR 904 FEET MORE OR LESS TO A POINT IN DAUGHTRY'S CREEK;

THENCE NORTHERLY ALONG THE CENTERLINE OF DAUGHTRY'S CREEK FOR THE FOLLOWING 14 COURSES:

1. THENCE NORTH 49°33'43" WEST FOR 20.72 FEET;
2. THENCE NORTH 23°47'10" WEST FOR 114.58 FEET;
3. THENCE NORTH 11°35'50" WEST FOR 145.33 FEET;
4. THENCE NORTH 31°58'44" WEST FOR 184.85 FEET
5. THENCE NORTH 10°53'53" WEST FOR 240.33 FEET;
6. THENCE NORTH 08°00'50" EAST FOR 69.58 FEET;
7. THENCE NORTH 12°41'15" EAST FOR 41.91 FEET;
8. THENCE NORTH 07°53'52" WEST FOR 42.35 FEET;
9. THENCE NORTH 31°37'50" WEST FOR 80.84 FEET;
10. THENCE NORTH 18°15'14" WEST FOR 38.05 FEET;
11. THENCE NORTH 03°09'35" WEST FOR 56.87 FEET;
12. THENCE NORTH 12°43'52" EAST FOR 56.24 FEET
13. THENCE NORTH 10°32'40" WEST FOR 54.10 FEET;
14. THENCE NORTH 02°57'45" WEST FOR 8.41 FEET TO A POINT ON THE SOUTH LINE OF THE NORTH ½ OF THE NORTHWEST ¼ OF THE NORTHEAST ¼ OF SAID SECTION 30;

THENCE ALONG SAID SOUTH LINE OF THE NORTH ½ OF THE NORTHWEST ¼ OF THE NORTHEAST ¼ OF SAID SECTION 30 NORTH 88°57'54" EAST FOR 181.82 FEET TO THE SOUTHEAST CORNER OF THE NORTH ½ OF THE NORTHWEST ¼ OF THE NORTHEAST ¼ OF SAID SECTION 30;

THENCE ALONG THE WEST LINE OF THE NORTHEAST ¼ OF THE NORTHEAST ¼ OF SAID SECTION 30 THENCE NORTH 00°16'01" WEST FOR 657.63 FEET TO THE NORTHWEST CORNER OF THE NORTHEAST ¼ OF THE NORTHEAST ¼ OF SAID SECTION 30;

THENCE ALONG THE NORTH LINE OF SAID SECTION 30 SOUTH 89°03'32" WEST FOR 220.56 FEET TO A POINT ON THE CENTERLINE OF DAUGHTRY'S CREEK;

THENCE ALONG THE CENTERLINE OF DAUGHTRY'S CREEK FOR THE FOLLOWING 12 COURSES:

1. THENCE NORTH 06°17'55" EAST FOR 65.55 FEET;
2. THENCE NORTH 21°18'09" WEST FOR 39.57 FEET;
3. THENCE NORTH 07°01'31" EAST FOR 42.53 FEET;
4. THENCE NORTH 16°19'50" EAST FOR 69.68 FEET;
5. THENCE NORTH 42°21'13" EAST FOR 157.93 FEET;
6. THENCE NORTH 18°11'23" EAST FOR 87.44 FEET;
7. THENCE NORTH 00°34'08" EAST FOR 39.37 FEET;
8. THENCE NORTH 34°15'35" EAST FOR 32.04 FEET;
9. THENCE NORTH 11°47'26" WEST FOR 41.53 FEET;

10. THENCE NORTH 45°06'24" WEST FOR 46.03 FEET;
11. THENCE NORTH 70°18'29" WEST FOR 72.06 FEET;
12. THENCE NORTH 21°58'21" WEST FOR 79.85 FEET;

THENCE EASTERLY ALONG A LINE PARALLEL TO AND 20 FEET SOUTH OF THE NORTH LINE OF THE SOUTH ½ OF THE SOUTH ½ OF THE SOUTHEAST ¼ OF SECTION 19, TOWNSHIP 43 SOUTH, RANGE 25 EAST, THENCE NORTH 89°02'54" EAST 193.04 FEET TO A POINT 20 FEET SOUTH OF THE NORTHWEST CORNER OF THE SOUTH ½ OF THE SOUTHEAST ¼ OF THE SOUTHEAST ¼ OF SECTION 19, TOWNSHIP 43 SOUTH, RANGE 25 EAST, LEE COUNTY, FLORIDA;

THENCE ALONG A LINE PARRALLEL TO AND 20 FEET SOUTH OF THE NORTH LINE OF THE SOUTH ½ OF THE SOUTHEAST ¼ OF THE SOUTHEAST ¼ OF SAID SECTION 19, NORTH 89°02'54" EAST FOR 1,274.57 FEET

TO A POINT ON THE WEST BOUNDARY OF A PARCEL OF LAND DESCRIVBED IN OFFICIAL RECORDS BOOK 2528 PAGE 3427 OF THE OFFICIAL RECORDS OF LEE COUNTY,

THENCE ALONG SAID PARCEL OF LAND FOR THE FOLLOWING 2 COURSES:

1. SOUTH 00°07'28" EAST FOR 190.00 FEET
2. NORTH 89°52'32" EAST FOR 35.00 FEET

THENCE SOUTHERLY ALONG A LINE LYING 25' WESTERLY OF THE EAST LINE OF SOUTH ½ OF THE SOUTH ½ OF THE SOUTHEAST ¼ OF SECTION 19, TOWNSHIP 43 SOUTH, RANGE 25 EAST, SOUTH 00°04'34" EAST 457.44 FEET TO A POINT LYING 25' WESTERLY OF THE NORTHEAST CORNER OF SECTION 30, TOWNSHIP 43 SOUTH, RANGE 25 EAST;

AND THE POINT OF BEGINNING OF THE PARCEL HEREIN DESCRIBED.

CONTAINING 74.11 ACRES MORE OR LESS.

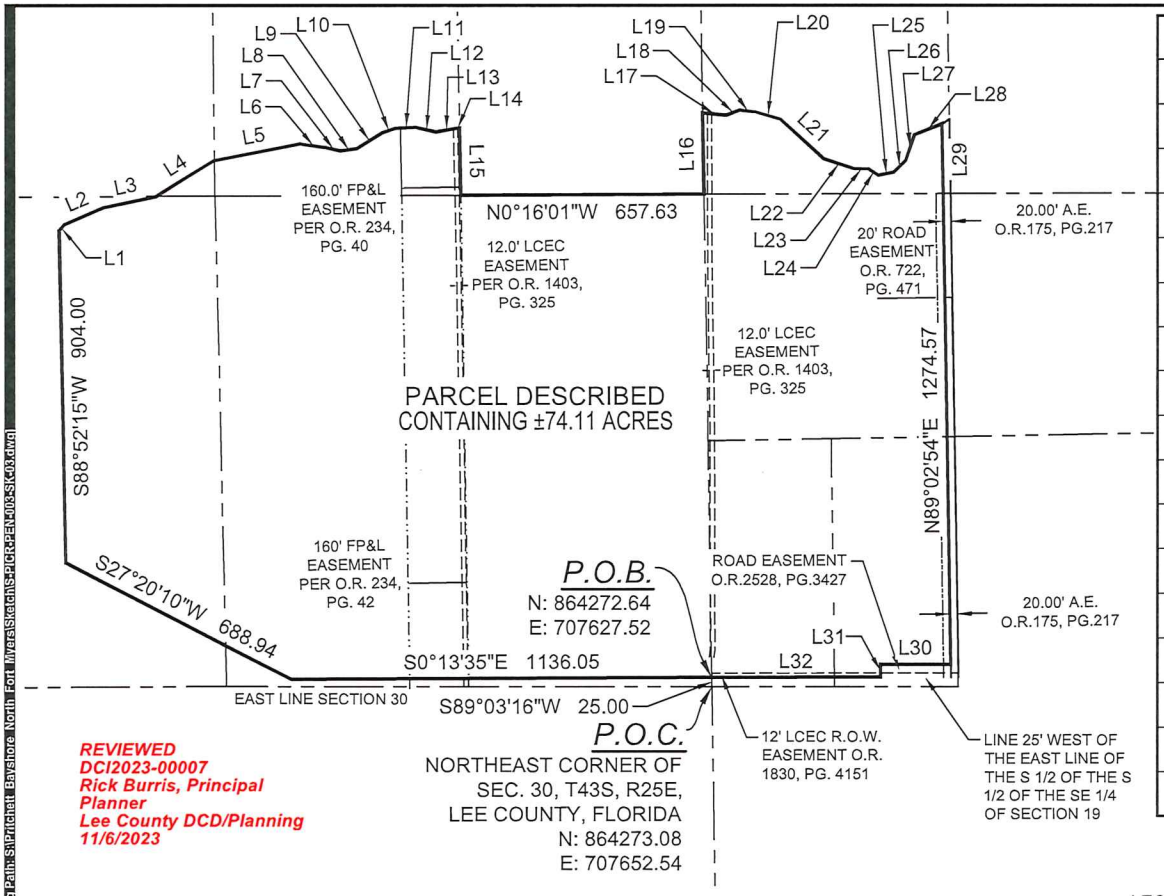
SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD.

BEARINGS ARE BASED ON STATE PLANE COORDINATES FLORIDA WEST ZONE (NAD83) WITH THE WEST RIGHT OF WAY LINE OF WILLIAMS ROAD LYING WITHIN THE NORTHEAST QUARTER OF SECTION 30, TOWNSHIP 43 SOUTH, RANGE 25 EAST, LEE COUNTY, FLORIDA BEING SOUTH 00°13'35" EAST.

APRIL 18TH, 2023
DATE OF SURVEY

LANCE T MILLER, P.S.M. #LS5627
CERTIFICATE OF AUTHORIZATION #LB-8479
REFERENCE: S:\Pritchett_Bayshore_North_Fort_Myers\Sketch\P-PICR-PEN-001.dwg (SKETCH-03)

REVIEWED
DCI2023-00007
Rick Burris, Principal Planner
Lee County DCD/Planning
11/6/2023



LINE TABLE		
LINE #	LENGTH	BEARING
L1	20.72	N49°33'43"W
L2	114.58	N23°47'10"W
L3	145.33	N11°35'50"W
L4	184.85	N31°58'44"W
L5	240.33	N10°53'53"W
L6	69.58	N8°00'50"E
L7	41.91	N12°41'15"E
L8	42.35	N7°53'52"W
L9	80.84	N31°37'50"W
L10	38.05	N18°15'14"W
L11	56.87	N3°09'35"W
L12	56.24	N12°43'52"E
L13	54.10	N10°32'40"W
L14	8.41	N2°57'45"W
L15	181.82	N88°57'54"E
L16	220.56	S89°03'32"W

LINE TABLE		
LINE #	LENGTH	BEARING
L17	65.55	N6°17'55"E
L18	39.57	N21°18'09"W
L19	42.53	N7°01'31"E
L20	69.68	N16°19'50"E
L21	157.93	N42°21'13"E
L22	87.44	N18°11'23"E
L23	39.37	N0°34'08"E
L24	32.04	N34°15'35"E
L25	41.53	N11°47'26"W
L26	46.03	N45°06'24"W
L27	72.06	N70°18'29"W
L28	79.85	N21°58'21"W
L29	193.04	N89°02'54"E
L30	190.00	S0°07'28"E
L31	35.00	N89°52'32"E
L32	457.44	S0°04'34"E

REVIEWED
DCI2023-00007
Rick Burris, Principal Planner
Lee County DCD/Planning
11/6/2023

PENINSULA ENGINEERING
2600 GOLDEN GATE PARKWAY
NAPLES, FLORIDA 34105
PHONE: 239.403.6700 FAX: 239.261.1797
EMAIL: INFO@PEN-ENG.COM
WEBSITE: WWW.PEN-ENG.COM

- CERTIFICATE OF AUTHORIZATION #LB- 8479
- NOT VALID WITHOUT THE SIGNATURE OF A FLORIDA LICENSED SURVEYOR AND MAPPER.
- NO OTHER PERSON OR ENTITY MAY RELY UPON THIS EXHIBIT.
- THIS EXHIBIT IS ONLY FOR THE LANDS AS DESCRIBED. IT IS NOT A CERTIFICATE OF TITLE, ZONING, EASEMENTS OR FREEDOM OF ENCUMBRANCES.

GENERAL NOTES:

- BEARINGS ARE BASED ON STATE PLANE COORDINATES, FLORIDA WEST ZONE, NAD83, WITH THE WEST RIGHT OF WAY LINE OF WILLIAMS ROAD LYING WITHIN THE NORTHEAST QUARTER OF SEC. 30, T. 43S., R. 25E., LEE COUNTY, FLORIDA BEING SOUTH 00°13'35" EAST.
- THIS SKETCH MAY HAVE BEEN REDUCED
- SEE ATTACHMENT FOR FULL LEGAL DESCRIPTION

LEGEND:
A.E. = ACCESS EASEMENT
P.O.C. = POINT OF COMMENCEMENT
P.O.B.=POINT OF BEGINNING
PB=P.B.=PLAT BOOK
OR=O.R.=OFFICIAL RECORDS
PG=PG.=PAGE
SEC.=SECTION
T.=TOWNSHIP
R.=RANGE
S.=SOUTH
E.=EAST

THIS IS NOT A SURVEY

0 500 1000
SCALE IN FEET

REV.	REVISION

Date:	APRIL 18TH, 2023
Horizontal Scale:	1" = 500'
Fieldbook/Page:	
Fieldwork by:	
Drawn by:	TFW

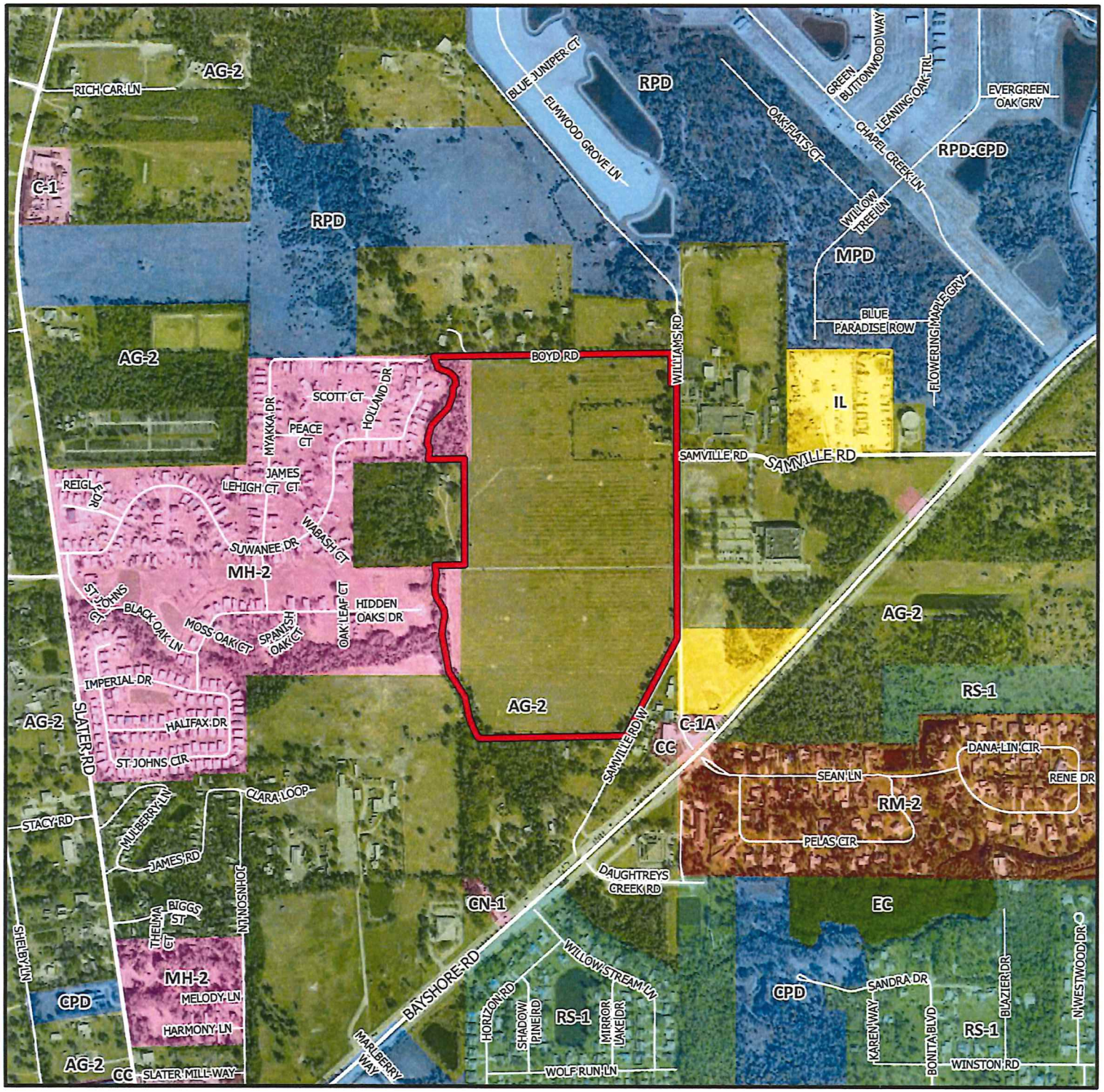
APPROVED:
LANCE T MILLER, P.S.M. #LS5627

TITLE:
SKETCH OF DESCRIPTION
OF A TRACT OF LAND LYING IN SECTIONS 19 AND 30, TOWNSHIP 43 SOUTH, RANGE 25 EAST, LEE COUNTY, FLORIDA

PENINSULA ENGINEERING

CLIENT: PENINSULA ENGINEERING
PROJECT NO. P-CAH-101
SHEET #: SK OF 03
DRAWING NO.: S-PICR-PEN-003-SK-03.dwg

Save Date: 5/10/2023 2:20:03 PM | Saved By: LVanle | Plot Date: 5/10/2023 2:21:11 PM | Drawing Path: S:\Pritchett, Bayshore North, Fort Myers\Sketches\PICR-PEN-003-SK-03.dwg



DCI2023-00007

Zoning

Subject Property

N
W E
S

0 500 1,000 1,500
Feet

Lee County
Southwest Florida

Exhibit B

Recommended Conditions and Deviations
As revised by the Hearing Examiner

CONDITIONS

1. Master Concept Plan/Development Parameters

Master Concept Plan (MCP). Development must be consistent with the one-page MCP entitled "Bayshore 75 RPD" last revised on January 29, 2024 (Exhibit B1), except as modified by conditions below.

Compliance with Lee Plan and Land Development Code (LDC). Development must comply with the Lee Plan and LDC, except for the deviation granted herein. Future changes to the MCP may require additional development approval.

Approved Development Parameters. The property may develop up to 250 single-family dwelling units.

2. Schedule of Permitted Uses and Property Development Regulations

a. Schedule of Permitted Uses

Residential Tracts

Accessory Uses and Structures
Dwelling Units:
    Single-Family Detached
Entrance Gates and Gatehouse
Essential Services
Essential Service Facilities, Group I
Excavation, Water Retention
Fences and Walls
Home Occupation
Model Homes
Parking Lot, Accessory (Limited to Model Homes/Sales Centers)
Real Estate Sales Office
Residential Accessory Uses
Signs
Temporary Uses, limited to construction trailers at the time of Development, Real Estate Sales Office and Temporary Amenity Structures/Equipment

Amenity/Clubhouse Tracts
Accessory Uses and Structures
Essential Services
Essential Service Facilities, Group I
Fences and Walls
Parking Lot, Accessory
Real Estate Sales Office
Recreational Facilities:
Private-On-Site
Signs
Temporary Uses, limited to construction trailers at the time of Development, Real Estate Sales Office and Temporary Amenity Structures/Equipment

b. Site Development Regulations

	Single-Family Dwelling	Clubhouse/Amenity
Min. Lot Area	4,400 sq. ft.	22,500 sq. ft.
Min. Lot Width	40 feet	150 feet
Min. Lot Depth	110 feet	150 feet
Max. Lot Coverage	60%	60%
Max. Building Height	35 feet	35 feet
Min. Private Street Setback	20 feet	20 feet
Min. Public Street Setback	25 feet	25 feet
Min. Side Setback	5 feet	10 feet
Min. Rear Setback	10 feet	10 feet
Min. Accessory Rear Setback	5 feet	5 feet
Min. Boundary Setback	25 feet	25 feet

3. Model Home and Real Estate Sales

a. No more than nine model homes may operate simultaneously.

b. Development order plans must identify the location of model homes and real estate sales.

c. Real estate sales will be limited to the sale of lots and units within project.

d. Each model must feature a separate different design.

4. Environmental

a. Development order plans must:

i. depict 29.64 acres of open space.
ii. depict 1.32 acres of indigenous preserve.
iii. include a schedule for indigenous preserve monitoring consistent with LDC requirements.
iv. Include a map depicting the location of mechanical and hand-removal of exotic vegetation.

b. Development order application submittals must include:

i. Survey point maps depicting preservation areas and mechanical clearing limits with the vegetation removal permit.
ii. Species management plan.
iii. An updated 100% Gopher Tortoise survey prior to the issuance of the vegetation removal permit.

5. State/Federal Permits

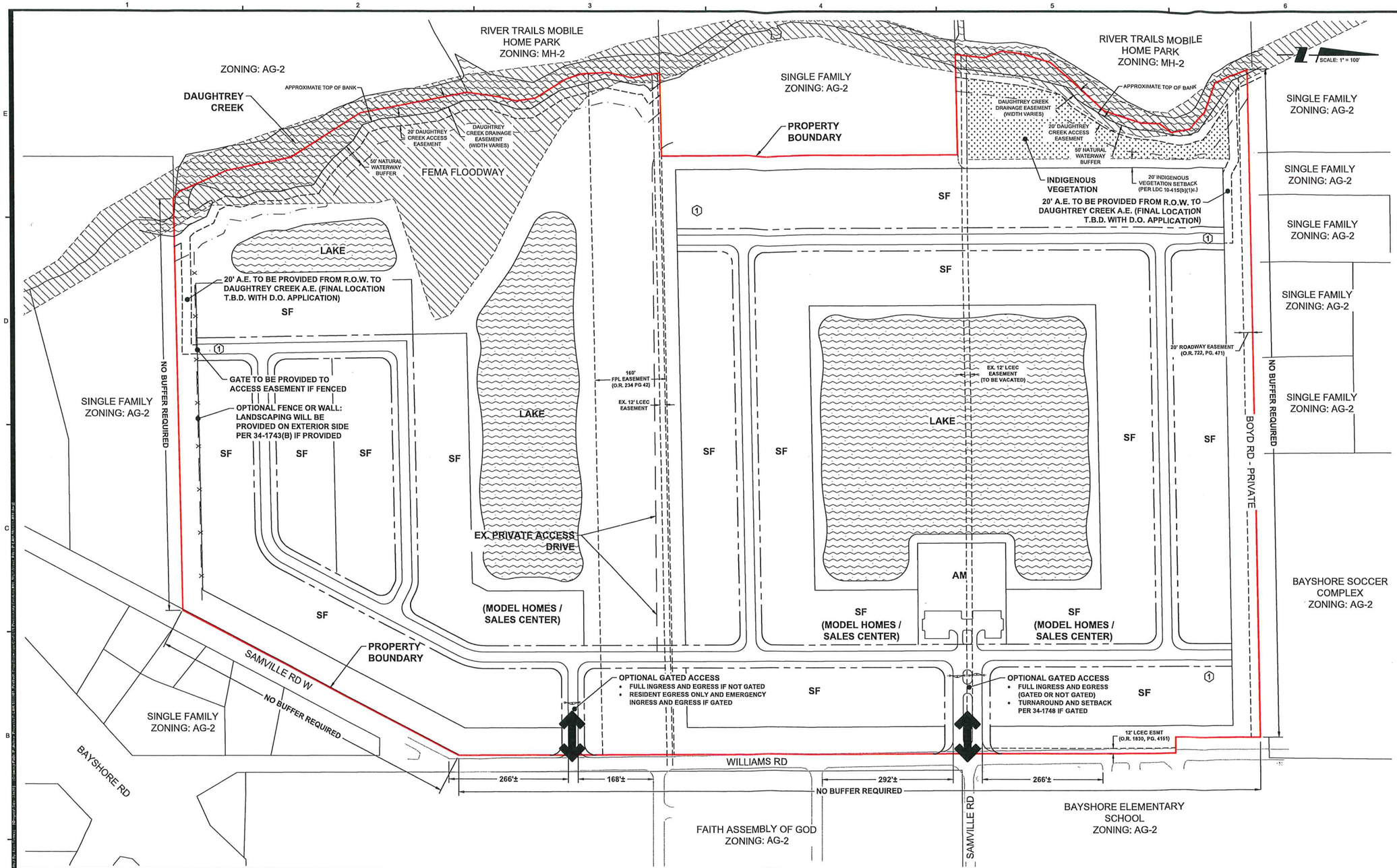
County development permits do not create rights to obtain permits from state or federal agencies and do not create liability on the part of the County if applicant fails to obtain requisite approvals or fulfill obligations imposed by state/federal agencies or if applicant undertakes actions resulting in a violation of state or federal law. Applicant must obtain applicable state/federal permits prior to commencing development.

DEVIATIONS

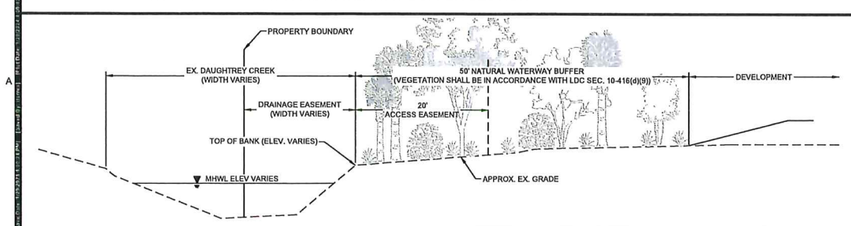
1. Street Design Standards. Deviation 1 seeks relief from LDC §10-296(k), which requires dead-end streets to be closed at one end by a circular turnaround, to allow a hammerhead design for dead-end streets that are a maximum of 150 feet in length.

   Hearing Examiner Recommendation: Approved.

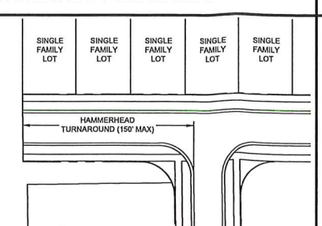
Exhibits to Conditions:
B1 Master Concept Plan Last Revised January 29, 2024



TYPICAL DAUGHTREY CREEK NATURAL WATERWAY BUFFER SECTION



HAMMERHEAD TURNAROUND DETAIL



LEGEND

- SF — SINGLE FAMILY HOMES
- AM — AMENITY / CLUBHOUSE
- PROPERTY BOUNDARY
- # — DEVIATION
- LAKE
- FEMA FLOODWAY
- INDIGENOUS VEGETATION

OPEN SPACE CALCULATIONS

PROPERTY AREA: 74.11 AC

REQUIRED OPEN SPACE CALCULATION:
- 40% OF PROPERTY AREA
- 74.11 AC. X 40%
- TOTAL REQUIRED OPEN SPACE: 29.64 AC

PROVIDED OPEN SPACE CALCUATION:
- LAKE = 7.41 AC (25% OF REQUIRED OPEN SPACE MAY BE COMPRISED OF LAKE)
- INDIGENOUS AREA: 1.32 AC
- OTHER OPEN SPACE: 20.91 AC (OTHER OPEN SPACE IS PROVIDED IN BUFFERS, LANDSCAPE AREAS, ACTIVE / PASSIVE RECREATION AREAS)
- TOTAL OPEN SPACE PROVIDED: 29.64 AC

DEVIATIONS

1 — HAMMERHEAD TURNAROUND

PENINSULA ENGINEERING
• CIVIL ENGINEERING • PLANNING AND ZONING • ENVIRONMENTAL SERVICES • LANDSCAPE ARCHITECTURE • SURVEYING • LAND DEVELOPMENT
2600 Golden Gate Pkwy Naples, FL 34105
239.403.6700 Pen-Eng.com

PROJECT:

BAYSHORE 75 RPD

TITLE:

MASTER CONCEPT PLAN

CLIENT:

PRITCHETT DEVELOPMENT COMPANY

REVISIONS:

No:	Revision:	Date:
1	REVISED PER LEE COUNTY COMMENTS	4/27/23
2	REVISED PER LEE COUNTY COMMENTS	8/8/23
3	REVISED CLIENT	1/23/24

NOTES:

PROFESSIONAL SEALS:

PROFESSIONAL ENGINEER:

FLORIDA LICENSE NUMBER:

Florida Engineering Certificate of Authorization #28275
Florida Landscape Certificate of Authorization #LC26000632

DATUM NOTE:
ALL ELEVATIONS ARE BASED ON NAVD 88 (NORTH AMERICAN VERTICAL DATUM OF 1988).

Bar Scale: 1" = 100'
0 25' 50' 100' 200' 300'

SEC: 19, 30	TWP: 43S RGE: 25E
City: FORT MYERS	County: LEE
Designed by:	CURTIS WICKSTROM
Drawn by:	CURTIS WICKSTROM
Date:	JAN 2023
Horizontal Scale:	1" = 100'
Vertical Scale:	N.T.S.
Project Number:	P-CAH-101-001
File Name:	P-CAH-101-001-X08.dwg
Sheet ID:	X08
Sheet Number:	

EXHIBIT B-1

Exhibit C

EXHIBITS PRESENTED AT HEARING

STAFF EXHIBITS

1. *DCD Staff Report with attachments for DCI:* Prepared by Chahram Badamtchian, Senior Planner, date received January 17, 2024 (multiple pages – 8.5"x11" & 11"x14") [black & white, color]

APPLICANT EXHIBITS

a. *48-Hour Notice:* Email from Chris Scott, to Hearing Examiner, with copies to Maria Perez, Chahram Badamtchian, Neale Montgomery, Esq., Camryn Siverson, Joseph Adams, Esq, Ric Pritchett, and Christi Pritchett, dated Monday, January 29, 2024, 2:00 p.m. (multiple pages – 8.5"x11")

b. *Updated 48-Hour Notice:* Email from Chris Scott, to Hearing Examiner, with copies to Maria Perez, Chahram Badamtchian, Neale Montgomery, Esq., Camryn Siverson, Joseph Adams, Esq, Ric Pritchett, and Christi Pritchett, dated Monday, January 29, 2024, 4:29 p.m. (multiple pages – 8.5"x11")

1. *PowerPoint Presentation:* Prepared for Bayshore 75 RPD, DCI2023-00007, Lee County Hearing Examiner, February 1, 2024 (multiple pages – 8.5"x11")[color]

2. *Revised Master Concept Plan:* Prepared by Peninsula Engineering for Bayshore 75 RPD, last revised January 29, 2024 (1 page – 11"x17")

3. *Résumés:* For Christopher Scott, AICP, LEED-AP, Bruce Laymanm, PWS, and Daniel Hartley, P. E. (3 pages – 8.5"x11")

Exhibit D

HEARING PARTICIPANTS

County Staff:

1. Chahram Badamtchian

Applicant Representatives:

1. Daniel Hartley, P.E.
2. Bruce Laymanm, PWS
3. Neale Montgomery, Esq.
4. Ric Pritchett
5. Christopher Scott, AICP, LEED-AP
6. Norman Trebilcock

Public Participants:

1. Clinton Busbee II

Exhibit E

INFORMATION

UNAUTHORIZED COMMUNICATIONS

The LDC prohibits communications with the Hearing Examiner or her staff on the substance of pending zoning actions. There are limited exceptions for written communications requested by the Hearing Examiner, or where the Hearing Examiner seeks advice from a disinterested expert.

HEARING BEFORE LEE COUNTY BOARD OF COUNTY COMMISSIONERS

A. The Hearing Examiner will provide a copy of this recommendation to the Board of County Commissioners.

B. The Board will hold a final hearing to consider the Recommendation and record made before the Hearing Examiner. The Department of Community Development will notify hearing participants of the final hearing date. Only Parties and participants may address the Board at the final hearing. Presentation by participants are limited to the substance of testimony presented to the Hearing Examiner, testimony concerning the correctness of Findings of Fact or Conclusions of Law contained in the Recommendation, or allegations of relevant new evidence not known or that could not have been reasonably discovered by the speaker at the time of the Hearing Examiner hearing.

C. Participants may not submit documents to the Board of County Commissioners unless they were marked as Exhibits by the Hearing Examiner. Documents must have the Exhibit number assigned at hearing.

COPIES OF TESTIMONY AND TRANSCRIPTS

A. Every hearing is recorded. Recordings are public records that become part of the case file maintained by the Department of Community Development. The case file and recordings are available for public examination Monday through Friday between 8:00 a.m. and 4:30 p.m.

B. A verbatim transcript may also be available for purchase from the court reporting service.

ATTACHMENT C

DCI2023-00007, Bayshore 75 RPD
Conditions and Deviations

A. Conditions

1. MASTER CONCEPT PLAN/DEVELOPMENT PARAMETERS

The development of this project must be consistent with the one-page Master Concept Plan entitled **"**Bayshore 75 RPD" last revised on August 8, 2023, except as modified by the conditions below. This development must comply with all requirements of the Lee County Land Development Code (LDC) at time of local Development Order approval, except as may be granted by deviation as part of this planned development. If changes to the Master Concept Plan are subsequently pursued, appropriate approvals will be necessary.

This planned development will allow a maximum of 250 single-family dwelling units.

2. USES AND SITE DEVELOPMENT REGULATIONS

a. Schedule of Uses

Residential Tracts

Accessory Uses and Structures
Dwelling Units:
    Single-Family Detached
Entrance Gates and Gatehouse
Essential Services
Essential Service Facilities, Group I
Excavation, Water Retention
Fences and Walls
Home Occupation
Model Homes
Parking Lot, Accessory (Limited to Model Homes/Sales Centers)
Real Estate Sales Office
Residential Accessory Uses
Signs
Temporary Uses, limited to construction trailers at the time of Development, Real Estate Sales Office and Temporary Amenity Structures/Equipment

Amenity/Clubhouse Tracts
Accessory Uses and Structures
Essential Services
Essential Service Facilities, Group I
Fences and Walls
Parking Lot, Accessory

Real Estate Sales Office
Recreational Facilities:
Private-On-Site
Signs
Temporary Uses, limited to construction trailers at the time of Development, Real Estate Sales Office and Temporary Amenity Structures/Equipment

b. Site Development Regulations

	Single-Family Dwelling	Clubhouse/Amenity
Min. Lot Area	4,400 sq. ft.	22,500 sq. ft.
Min. Lot Width	40 feet	150 feet
Min. Lot Depth	110 feet	150 feet
Max. Lot Coverage	60%	60%
Max. Building Height	35 feet	35 feet
Min. Private Street Setback	20 feet	20 feet
Min. Public Street Setback	25 feet	25 feet
Min. Side Setback	5 feet	10 feet
Min. Rear Setback	10 feet	10 feet
Min. Accessory Rear Setback	5 feet	5 feet
Min. Boundary Setback	25 feet	25 feet

3. Model home and real estate sales:

a. The number of model homes will be limited to no more than nine within the development at any point in time.

b. Any model homes or real estate sales must be identified on the development order plans.

c. Real estate sales will be limited to the sale of lots or units within the Bayshore 75 RPD only.

d. Models cannot be of the same floor plan and each must be a separate different design.

4. **<u>Environmental Conditions:</u>**
   a. Prior to the issuance of the first development order, the development order plans must depict 29.64 acres of open space.

   b. Prior to the issuance of the first development order, the development order plans must depict a total of 1.32 acres of indigenous preserve.

   c. Prior to the issuance of the first development order, the development order plans must include the following:

      i. A schedule for the indigenous preservation and restoration to be completed within at least five consecutive years; and

      ii. A map depicting where mechanical and hand-removal methods of exotic vegetation removal will be located.

   d. Prior to the issuance of the first development order, the applicant must submit:

      i. The applicant must submit with the vegetation removal permit survey point maps depicting the preservation areas and mechanical clearing limits.

      ii. The applicant must submit a species management plan.

      iii. Prior to the issuance of the vegetation removal permit, a 100 Percent gopher tortoise survey must be conducted.

      iv. Prior to the issuance of the vegetation removal permit, the developer may not commence construction on development impacting wetlands until issuance of required state permits. Development activity must comply with state wetland permits and applicable local development permits.

B. DEVIATION:

Deviation 1: A deviation from Lee County Land Development Code (LDC) Section 10-296(k), which requires dead-end streets to be closed at one end by a circular turnaround, to instead to allow for a hammerhead design for dead-end streets that are a maximum of 150 feet in length. This deviation is approved.

The applicant has provided a letter of no-objection from the North Fort Myers Fire District for the hammerhead design of dead-end internal streets.

LEE COUNTY, FLORIDA
DEPARTMENT OF COMMUNITY DEVELOPMENT
ZONING SECTION
STAFF REPORT

TYPE OF CASE:	PLANNED DEVELOPMENT/DCI
CASE NUMBER:	DCI2023-00007
HEARING EXAMINER DATE:	February 01, 2024
SUFFICIENCY DATE:	November 07, 2023

Applicant: Peninsula Engineering in reference to Bayshore 75 RPD.

Request: Request to rezone 74.11± acres from Agricultural (AG-2) and Mobile Home (MH-2) To Residential Planned Development (RPD) to allow for up to 250 single family dwelling units.

Location: The subject property is located at 17111 Williams Road and 6601 Bayshore Road, North Fort Myers Planning Community, Lee County, FL (District #4). The applicant indicates the STRAP numbers are: 19-43-25-00-00010.0000 and a portion of 30-43-25-00-00008.0000

Summary

Staff recommends APPROVAL of the applicant's request to rezone the subject property from Agricultural (AG-2) and Mobile Home (MH-2) to Residential Planned Development (RPD) with the conditions and deviations found in Attachment C.

The conditions have been prepared to address the proposed development and consistency with the Lee County Comprehensive Plan (Lee Plan), compatibility with surrounding land uses, and addressing future infrastructure needed to support the development.

The applicant's request included one (1) deviation from the requirements of the Land Development Code. Staff is recommending approval of the requested deviation.

Character of the Area

The area going through a fast-paced rezoning and development process. Within the vicinity of this development there are several large Planned Developments approved, with some are currently under development. The Planned Developments in the area include: Bayshore 57 MPD, approved for 140,000 square feet of commercial and 176 residential units, Oak Creek RPD, approved for 1,120 dwelling units, Chapel Creek RPD/CPD, approved for 60,000 square feet of commercial and 625 residential units, Gully Creek RPD, approved for 330 residential units, and Bayshore 65 MPDD, approved for 357 residential units and commercial entitlement.

To the north, across Boyd Road, there are some large-lot single family dwellings, zoned AG-2. A portion of Bayshore Soccer Complex (North Fort Myers Soccer League) is also located to the north of this project.

To the east, across Williams Road, there an elementary school (Bayshore Elementary), the Bayshore Soccer Complex, zoned AG-2, and a church (Faith Assembly of God), zoned AG-2 and IL.

To the south, there is a single-family residence, zoned AG-2. To the south/southeast, across Samville Road W, there are several single-family dwellings zoned AG-2.

Analysis
The subject site, which consists of 74.11± acres, is currently vacant and is mostly zoned Agricultural (AG-2) with a small portion of it zoned Mobile Home (MH-2). The request is to rezone the property to Residential Planned Development (RPD) to allow for the development of the site with up to 250 residential dwelling units.

The Future Land Use of the property is Suburban, which allows a density range of one (1) to six (6) dwelling units per acre. The applicant is proposing 250 dwelling units on the site with a density of approximately 3.4 dwelling units per acre.

As required by Land Development Code Section 33-1532, the applicant held an advertised public informational meeting in North Fort Myers on June 22, 2023. A synopsis of that meeting in attached hereto as Attachment "H".

<u>Environmental</u>
Environmental staff reviewed this request and recommended approval subject to conditions (Attachment E).

<u>Transportation</u>
Infrastructure Planning staff has reviewed this project and has recommended approval (Attachment F).

It is anticipated that this project, when completed by 2029, will generate 2,344 daily trips. The roadway level of service analysis indicates Willams Road will operate at a Level of Service standard (LOS "C") with or without the project.

Lee Plan
The subject property is located in the Suburban Future Land Use category.

This development proposes 250 dwelling units on 74.11± acres. The proposed density of this project will be about 3.4 dwelling units per acre, which is consistent with the allowed density of 1 to 6 dwelling units per acre in the Suburban Community category. Therefore, this request is consistent with Policy 1.1.3 of the Lee Plan.

The proposed development promotes contiguous and compact growth patterns, limits urban sprawl and minimizes the costs of services. Adequate public services exist to serve the property. Sewer and water are available to the site. The property has direct frontage on Williams Road and Samville Road West. Therefore, the request is consistent with Objectives 2.1 and 2.2 and Policies 2.1.1 and 2.2.1 of the Lee Plan.

Water service from the Lee County Utilities and sewer service from the Florida Governmental Utility Authority (FGUA) are available to the site and the site will be connected to those services. Staff finds the request consistent with Standards 4.1.1 and 4.1.2 of the Lee Plan (Attachment "G").

This development will be designed to pretreat the run-off water before it is discharged off-site. This will ensure that water quality is maintained or improved for the protection of the environment. Therefore, the request is consistent with Goal 125 of the Lee Plan.

Public Services
Public services are defined by the Lee Plan as the requisite services, facilities, capital improvements, and infrastructure necessary to support growth and development at levels of urban density and intensity.

Public sewer and water: Central potable water and sanitary sewer service is available to the site from Lee County Utilities and Florida Governmental Utility Authority (FGUA), with adequate capacity to serve this development. Development must connect to public water and sewer services when development activity triggers the connection requirements of the LDC.

Paved streets and roads: The subject property fronts on Williams Road, providing adequate access to the site.

Public transit: Bus Route 590 is located along Bayshore Road, which is about a quarter mile south of the project entrance. (Attachment "I").

Parks and recreation facilities/community facilities: North Fort Myers Park located at 2000-2051 North Recreation Parkway and North Fort Myers Library located at 2001 North Tamiami Trail are less than 2 miles from this site.

Urban levels of police, fire, and emergency services: The subject property will be provided urban levels of police, fire and emergency services. Fire protection is provided by North Fort Myers Fire Control District, located at 16290 Slater Road, approximately 2 miles from this site. Ambulance services are co-located with the fire station.

Urban surface water management: Any future development will be required to comply with the LDC, including provisions for surface water management.

Schools: The subject property is located within the Lee County School District East Choice Zone. Based on the information provided by the School District, there is a capacity issue within the Concurrency Service Area (CSA) at the elementary level; however, capacity is available in the adjacent CSA. There is adequate capacity for middle and high schools in the area for the anticipated 74 school-aged children who will reside within this development (Attachment "J").

Employment and commercial centers: The subject property is in close proximity of existing commercial uses on Bayshore Road, North Tamiami Trail and North Cleveland Avenue, providing employment and shopping opportunities in the area.

Planning Community Map and Allocation Table
POLICY 1.6.5: The Planning Communities Map and Acreage Allocation Table (see Map 1-B and Table 1(b)), depict the proposed distribution, extent, and location of generalized land uses for the year 2045.

The subject property is located in the North Fort Myers Planning Community. The Planning Community Year 2045 Allocations indicate that 10,035 acres are allocated to residential uses in the North Fort Myers Planning Community. From that number, 2,225 acres of residential acreage is still available. Staff finds the request CONSISTENT with the allocations for the North Fort Myers Planning Community.

Deviations:
The applicant is requesting the following deviation:

Deviation 1: A deviation from Lee County Land Development Code (LDC) Section 10-296(k), which requires dead-end streets to be closed at one end by a circular turnaround to instead to allow for a hammerhead design for dead-end streets that are a maximum of 150 feet in length.

The applicant has provided a letter of no-objection from North Fort Myers Fire District for the hammerhead design of dead-end internal streets.

Findings and Conclusions

Based upon an analysis of the application and the standards for approval of planned development rezonings, as required by Land Development Code Section 34-145(d)(4)a.1, staff offers the following findings and conclusions:

The request, as conditioned:

- Complies with Lee Plan as discussed in the Lee Plan analysis section of this report, specifically Lee Plan Policies 1.1.3, 2.1.1, 2.2.1; Objectives 2.1, and 2.2, Standards 4.1.1 and 4.1.2; Goal 125.

- Meets the Land Development Code and other applicable County regulations or qualifies for deviations.

- Is compatible with existing and planned uses in the surrounding area.

- Will provide access sufficient to support the proposed development intensity and the expected impacts on existing or planned transportation facilities will be mitigated through existing County regulations or conditions of approval.

- Will not adversely affect environmentally critical or sensitive areas and natural resources.

- Will be served by urban services, as defined in the Lee Plan.

- The proposed residential uses are appropriate at the proposed location.

- The recommended conditions provide sufficient safeguards to the public interest and are reasonably related to the impacts on the public's interest expected from the proposed development.

- The deviation recommended for approval, pursuant to section 34-373(a)(9):

    - Enhances the achievement of the objectives of the planned development; and

    - Preserves and promotes the general intent of this Code to protect the public health, safety and welfare.

Conclusion
Lee County staff has reviewed the proposed rezoning request and recommends approval of the RPD zoning with conditions. The uses and density proposed by this request are consistent with the Lee Plan and compatible with surrounding existing land uses.

ATTACHMENTS:

A. Expert Witness Information
B. Maps: Surrounding Zoning, Future Land Use and Aerial Photograph
C. Recommended Conditions and Deviations
D. Master Concept Plan
E. Memorandum from Lee County Section of Zoning, Environmental Review
F. Memorandum from Lee County Department of Transportation
G. Letter of Availability for Water and Sewer
H. Public Informational Meeting Summary
I. LeeTran Bus Route Map
J. Memorandum from the Lee County School District
K. Letter of no objection from North Fort Myers Fire District
L. Application and Narrative
M. TIS
N. Legal Description

CPA2023-00008

Water Supply Plan Update

SUMMARY SHEET
CPA2023-00008 – WATER SUPPLY PLAN UPDATE
TRANSMITTAL HEARING

BOARD DIRECTION AND PROPOSED AMENDMENTS:
The Board of County Commissioners initiated this amendment on August 1, 2023. The proposed amendments incorporate the Lee County Water Supply Facilities Work Plan (Work Plan) into the Lee Plan by reference, as required by Florida Statutes (F.S.) §163.3177(6)(c), with the following amendments:

- Amend Policies 1.4.5, 20.3.2, 25.9.3, 55.1.2, 55.1.3, and 95.1.1.
- Add Policies 54.1.13, 54.1.14, and 54.1.15.
- Table 5 - Ten Year Water Supply Development Projects

LPA PUBLIC HEARING:
The LPA discussed the proposed amendments as they related to central water lines in the Buckingham Community, the feasibility of desalination and reverse osmosis, and public facilities within the DR/GR future land use category.

LPA PUBLIC INPUT:
One member of the public addressed the Local Planning Agency concerning impacts to Lee County's water supply, existing residences in the Buckingham Community, using groundwater to fill lakes used for irrigation, development within the DR/GR future land use category, and the use of the Floridan aquifer.

LPA MOTION:
A motion was made to recommend that the Board of County Commissioners (BoCC) ***transmit*** CPA2023-00008. The motion passed 7 to 0.

RAYMOND BLACKSMITH	**AYE**
JENNIFER SAPEN	**AYE**
DUSTIN GARDNER	**AYE**
DAWN RUSSELL	**AYE**
DON SCHROTENBOER	**AYE**
STAN STOUDER	**AYE**
HENRY ZUBA	**AYE**

STAFF RECOMMENDATION:
Staff recommends that the BoCC *transmit* the proposed amendment as provided in Attachment 1.

STAFF REPORT FOR Water Supply Plan: CPA2023-00008

Text Amendment to the Lee Plan

Amendment Type:
County Initiated
Direction: 08/01/2023

Staff Recommendation:
Transmit

Applicant
Lee County Board of County Commissioners

Representative:
Lee County Department of Community Development

Lee County Utilities

Hearing Dates:
LPA: 01/22/2024
BoCC #1: 03/06/2024
BoCC #2: TBD

Attachments:
1. Proposed Text Amendments
2. 2022 Lower West Coast Water Supply Plan Update
3. Lee County Water Facilities Work Plan (Work Plan)

PURPOSE

Incorporate the Lee County Water Supply Facilities Work Plan (Work Plan) into the Lee Plan by reference as required by Florida Statutes (F.S.) §163.3177(6)(c) with the following amendments:

- Amend Policies 1.4.5, 20.3.2, 25.9.3, 55.1.2, 55.1.3, and 95.1.1.
- Add Policies 54.1.13, 54.1.14, and 54.1.15.
- Table 5 - Ten Year Water Supply Development Projects

BACKGROUND AND DISCUSSION

Chapter 163, Part II, F.S. requires the County to incorporate the Work Plan into the Lee Plan after the South Florida Water Management District (the District) approves a regional water supply plan or its update. The District's Lower West Coast Regional Water Supply Plan (LWCWSP) Update (Attachment 2) was approved by the District's Governing Board on December 8, 2022. Subsequently, the Board of County Commissioners initiated this amendment to incorporate the Work Plan into the Lee Plan as required by statute on August 1, 2023. The Work Plan identifies and plans for the water supply sources and facilities needed to serve existing and new development within Lee County. The Work Plan is found as Attachment 3 of this staff report.

According to state guidelines, the Work Plan and the Lee Plan must address existing water supply facilities, level of service standards, the development of traditional and alternative water supplies, service delivery, conservation, and reuse programs necessary to serve existing and new development for at least a 10-year planning period. This Work Plan has a planning time schedule consistent with the Lee Plan and the LWCWSP Update. It provides projected water system demands to 2045, includes population estimates and projections, identifies all necessary improvements to the water system facilities for the required planning horizon, and addresses the facilities and capacity needed to serve Lee County Utilities' Future Water Service Area as identified on Map 4-A of the Lee Plan.

Florida Statutes require that local work plans are incorporated into local comprehensive plans to improve coordination between land use planning and water supply planning. By doing so, the comprehensive plan also becomes consistent with the regional water supply plans prepared by each water management district. Policy 55.1.3 as identified in Attachment 1 incoporates the Work Plan, by reference, into the Comprehensive Plan.

There have not been significant changes to the Florida Statutes directly addressing water supply needs since Lee County incorporated the last Work Plan into the Lee Plan. The proposed amendments to the Lee Plan and the update of the Work Plan have considered the following statutory provisions as well as the South Florida Water Management Districts LWCWSP:

1. Coordinate appropriate aspects of its comprehensive plan with the South Florida Water Management District's LWCWSP [s.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. For local governments subject to a regional water supply plan, revise the General Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Aquifer Recharge Element (the "Infrastructure Element"), within 18 months after the water management district approves an updated regional water supply plan, to:

    a. Identify and incorporate the alternative water supply project(s) selected by the local government from projects identified in the South Florida Water Management District's 2022 LWCWSP, or alternative project(s) proposed by the local government under s. 373.709(8)(b), F.S. [s. 163.3177(6)(c)4, 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 South Florida Water Management District's LWCWSP [s. 163.3177(6)(c)4, 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 [s. 163.3177(6)(c)4, F.S.].

5. To the extent necessary to maintain internal consistency after making changes described in Paragraphs 1 through 4 above, revise the Conservation Element to assess projected water needs and sources for at least a 10-year planning period, considering the South Florida Water Management District's 2022 LWCWSP, as well as applicable Water 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.].

6. To the extent necessary to maintain internal consistency after making changes described in Paragraphs 1 through 4 above, revise the Intergovernmental Coordination Element to ensure

coordination of the comprehensive plan with the South Florida Water Management District's LWCWSP [s.163.3177 (6) (h) 1., F.S.].

7. 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 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.].

Based on analysis of the December 2022 LWCWSP and existing Florida Statutes, Lee Plan amendments to Policies 1.4.5, 20.3.2, 25.9.3, 55.1.2, 55.1.3, 95.1.1, and Table 5 are necessary. In addition, there is a need for three new policies that encourage the use of grant funding for the development of alternative water supply and reduce reliance on the Surficial Aquifer System and the Intermediate Aquifer System (See proposed Policies 54.1.13, 54.1.14, 54.1.15). Attachment 1 to this staff report identifies the proposed amendments in strike-through and underline format with a brief explanation of the changes.

CONCLUSION

Florida Statutes direct local governments to revise elements and sub-elements of their comprehensive plans to coordinate with the appropriate water management districts regional water supply plans. The requirements also direct local governments to adopt a Work Plan for a 10-year planning period considering the water management districts regional water supply plans. Staff is proposing several Lee Plan amendments identified in Attachment 1 to comply with the expanded statutory requirements. The Work Plan and proposed text changes are consistent with the requirements of Florida Statutes.

PART 2
LOCAL PLANNING AGENCY
REVIEW AND RECOMMENDATION

DATE OF PUBLIC HEARING: January 22, 2024

A. LOCAL PLANNING AGENCY REVIEW

Staff provided a presentation addressing the requirement to amend the Lee Plan, requirements of the Lee County Water Supply Facilities Work Plan, and the specific amendments required to ensure consistency with South Florida Water Management District Lower West Coast Water Supply Plan Update.

Members of the LPA asked about the proposed amendments as they related to connection to central water lines in the Buckingham Community, the feasibility of desalination and reverse osmosis, and public facilities within the DR/GR future land use category.

One member of the public addressed the Local Planning Agency concerning impacts to Lee County's water supply, existing residences in the Buckingham Community, using groundwater to fill lakes used for irrigation, development within the DR/GR future land use category, and the use of the Floridan aquifer.

B. LOCAL PLANNING AGENCY RECOMMENDATION

A motion was made to recommend that the Board of County Commissioners (BoCC) ***transmit*** CPA2023-00008. The motion passed 7 to 0.

RAYMOND BLACKSMITH	**AYE**
JENNIFER SAPEN	**AYE**
DUSTIN GARDNER	**AYE**
DAWN RUSSELL	**AYE**
DON SCHROTENBOER	**AYE**
STAN STOUDER	**AYE**
HENRY ZUBA	**AYE**

C. STAFF RECOMMENDATION

Staff recommends that the BoCC *transmit* the proposed amendment as provided in Attachment 1.

ATTACHMENT 1

Text Amendments

Text Amendments:

II Future Land Use Element

POLICY 1.4.5: The Density Reduction/Groundwater Resource (DR/GR) future land use category includes upland areas that provide substantial recharge to aquifers most suitable for future wellfield development. These areas also are the most favorable locations for physical withdrawal of water from those aquifers. ~~Only minimal public facilities exist or are programmed.~~

1. New land uses in these areas that require rezoning or a development order must demonstrate compatibility with maintaining surface and groundwater levels at their historic levels utilizing hydrologic modeling, the incorporation of increased storage capacity, and inclusion of green infrastructure. The modeling must also show that no adverse impacts will result to properties located upstream, downstream, as well as adjacent to the site. Offsite mitigation may be utilized, and may be required, to demonstrate this compatibility. Evidence as to historic levels must be submitted as part of the rezoning application and updated, if necessary, as part of the mining development order application.

2. Permitted land uses include agriculture, natural resource extraction and related facilities, conservation uses, public and private recreation facilities, and residential uses at a maximum standard density of one dwelling unit per ten acres (1 du/10 acres). See Objectives 33.2 and
33.3 for potential density adjustments resulting from concentration or transfer of development rights.

3. Private Recreational Facilities may be permitted in accordance with the site locational requirements and design standards, as further defined in Goal 13. No Private Recreational Facilities may occur within the DR/GR land use category without a rezoning to an appropriate Planned Development zoning category, and compliance with the Private Recreation Facilities performance standards, contained in Goal 13. (Ord. No. 91-19, 94-30, 99-16, 02-02,10-20, 12-24, 15-13, 18-18, 19-13, 20-06)

- Delete language that could be interpreted as a prohibition or limitation of public facilities within the DR/GR. DR/GR lands are the primary source of water supplies for Lee County making public facilities necessary. Additionally, to protect water resources, public water and sewer connections are encouraged within the DR/GR, therefore it is appropriate for Lee County to provide public facilities within this land use category.

- Allows development of public facilities in the DR/GR to protect existing water resources and expands the use of alternative water sources in accordance with the Lower West Coast Water Supply Plan's (LWCWS~~-~~P) goal~~s~~ to improve water use efficiency and water quality. (p. ES-7)

POLICY 20.3.2: Central water lines may be extended along roads of the Buckingham Community Plan area upon request of property owners, with extension and connection fees paid by the person(s) receiving the water service. The County may also extend central water lines through the Buckingham Community Plan area, if necessary. Connection to this expanded water service network will be on a voluntary basis for existing customers, unless required by state or federal regulations. Under no circumstances will the availability of central water be accepted as justification for a density or intensity increase, or reduction of lot size requirements (except as provided in Policy 20.1.5), within the Buckingham Community Plan area. (Ord. No. 10- 15, 18-18)

- Add language to remove potential inconsistencies with state or federal regulations that may mandate centralized water service in certain areas or may restrict the availability of other water sources.

POLICY 25.9.3: Lee County will support the expansion of water and sewer facilities throughout Lehigh Acres. ~~work with Florida Governmental Utilities Authority (FGUA) to prioritize areas for the expansion of utilities.~~ (Ord. No. 10-16, 18-18)

- Add language to specifically support the expansion of water and sewer facilities through Lehigh Acres. The LWCWSP identified three wells in the Sandstone that showed declining water levels in the Sandstone aquifer. The development of centralized water and sewer facilities will provide the opportunity to bring alternative water sources to alleviate the pressure from private residential wells on the aquifer in this area (p.91-93) and develop a sustainable water strategy (p. 100)

IV. Community Facilities and Services Element

a. Potable Water

POLICY 54.1.13: Encourage and pursue the use of funding assistance provided by the South Florida Water Management District for the development of alternative water supply and water conservation projects.

- Add language to encourage and pursue cost-share funding programs detailed in the LWCWSP (p.31)

POLICY 54.1.14: Encourage water uses that reduce reliance on the surficial aquifer system (SAS) and intermediate aquifer system (IAS) through the use of alternative water systems to meet future water demands.

- Add language to reduce the reliance on the surficial aquifer and intermediate aquifer system to manage and protect groundwater supplies. (p.95 - LWCWSP)

POLICY 54.1.15: Consider the feasibility of desalinated seawater from the Gulf of Mexico as an additional water source option.

- Add language to consider the use of desalinated seawater from the Gulf of Mexico as an alternative water source as detailed in the LWCWSP (p.79)

POLICY 55.1.2: Perform groundwater modeling and analysis, as needed, to assess the potential impact of land use changes on water resources of the County. Analysis will focus on adequacy of water supply, including groundwater level draw-down and avoidance of adverse impacts on natural systems from water supply withdrawals, declining water levels, and harmful movement of saline water. Modeling and analysis performed by the County does not eliminate any site specific requirements that are part of an application for new or proposed development. (Ord. No. 00-22, 03-04, 17-19)

- Add language to address declining water levels and saline intrusion as detailed in the LWCWSP. (Ch. 6 and Goals and Objectives - LWCWSP)

POLICY 55.1.3: Actively implement and utilize the Water Supply Facilities Work Plan, Lee County, Florida, ~~May 2019~~~~November 2023~~[insert date of BoCC approval of the 2024 LC WSFWP], adopted by reference, as a guide to potable water supply facility planning consistent with the Ten Year Water Supply Development Projects (Table 5), potable water resources, and water conservation. (Ord. No. 94-30, 00-22, 03-04, 09-13, 16-01, 17-19, 19-02)

- Update the date to the latest LC WSFWP update.

VI. Capital Implements Element

POLICY 95.1.1: Incorporate the schedule of capital improvements adopted as part of the annual operating budget on an annual basis. Table 3(a) includes estimated costs, timing of need, location, and revenue sources for all public facility projects to be undertaken during the ensuing five-year period. CIP project priorities for public facilities will be based on:

1. System preservation/maintenance of assets;
2. Operation at or below the applicable minimum LOS, existing or projected, based on approved development orders;
3. Provision of system continuity;
4. Removal of a direct and immediate threat to the public health or safety;
5. Donation or matching fund offers;
6. Return on investment; and
7 Other considerations (e.g. improving facilities in urban areas, state or federal

regulations, consistency with applicable adopted government plans, emergency evacuation, regulatory or non-regulatory LOS, competition with other governmental or private sector facilities, revenue-generating potential, similar projects in planning and commission districts).

(Ord. No. 94-30, 00-22, 07-16, 16-03, 17-19)

- Add language to remove potential inconsistencies with state or federal regulations.

Table Amendments:

Table 5 – Ten Year Water Supply Development Projects

TABLE 5
10 Year Water Supply Development Projects
APPROVED LEE COUNTY CIP FY 23/24

WATER SUPPLY DEVELOPMENT PROJECTS

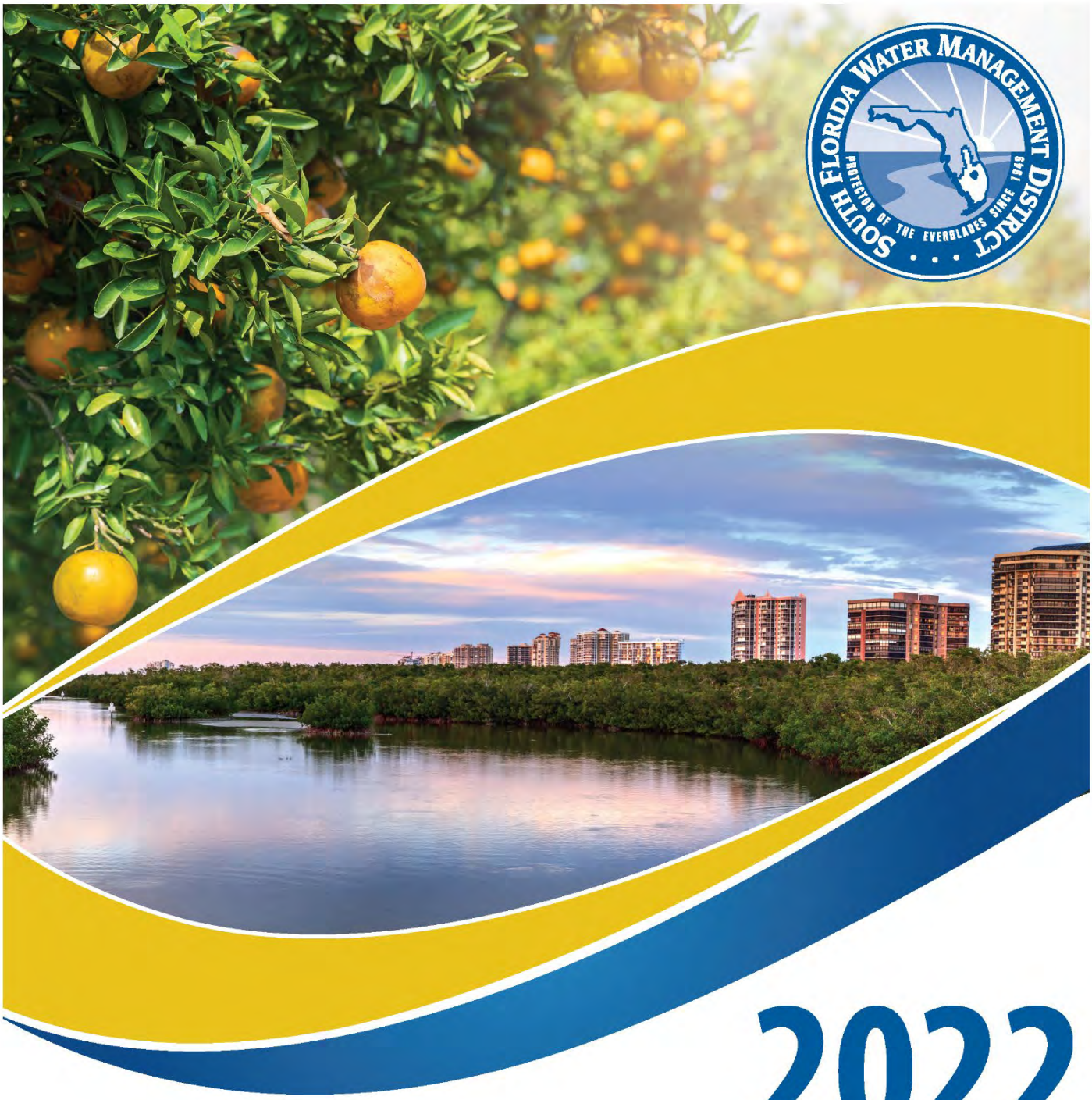
CIP #	Lee County Project Name / LWCWSP Project Name	Description	Project Status	Total CIP Budget	Estimated Completion Date
200633	North Lee County WTP Expansion to 15 MGD	Expand the existing North Lee County Treatment Plant from 10 MGD to 15 MGD treatment capacity. The expansion will utilize a reverse osmosis treatment system.	~~Planning~~ Construction	$50,300,000	2025
207619	North Lee County Wellfield Expansion to 15 MGD, Phase IIIA	Design, permitting, land/easement acquisition and construction of six additional Lower Hawthorn Wells and required transmission main to provide the necessary raw water source for the North Lee County Water Treatment Plant expansion to 15 MGD.	Construction	$23,531,307	2024
207619	North Lee County Wellfield Expansion to 15 MGD, Phase IIIB	Design, permitting, land/easement acquisition and construction of six additional Lower Hawthorn Wells and required transmission main to provide the necessary raw water source for the North Lee County Water Treatment Plant expansion to 15 MGD.	Design	$27,889,632	2025/2026
200749	Green Meadows WTP~~ – Floridian Wells 10F, 11F, 12F, and 13F~~	Construct 12 new wells (6 SSA & 6 LHA) to supplement existing under performing wells and provide redundance.	Design	$35,000,000	~~2026~~ 2027
200779	Corkscrew Feasibility Study ~~Wellfeild Expansion~~	Analysis for potential plant and source water expansion. Installation of additional source water wells to provide redundancy and resiliency.	Planning	$500,000	~~2023~~ 2024
200784	Pinewoods Wellfield - 3 Well Expansion	Three wells to provide reliable capacity and allow expansion farther south into Kiker Preserve.	Planning	$7,750,000	~~2026~~ 2028

ALTERNATIVE WATER SUPPLY PROJECTS

~~200616~~	~~Fiesta Village Reuse Main Upgrade~~	~~Upgrade the reuse main from Fiesta Village WWTP to Fort Myers Beach Reuse System~~	~~Construction~~	~~$5,777,500~~	~~2022~~
207467	Southeast WRF	Design, permitting, and construction of a new 6 MGD water reclamation facility to address growth in the Southeast area of the county.	Planning/ Design	~~$109,962,452~~ $163,148,281	2028
200723	Three Oaks WRF Expansion	Design/Build project to expand the plant capacity by ~~2~~ 3 MGD for a total of ~~8~~ 9 MGD. The expansion is to accommodate growth in the service area.	Design/Build	$44,200,000	2024
~~207460~~	~~Gateway WRF Expansion 3MGD to 6MGD~~	~~Design, permitting, and construction of 3MGD expansion to the Gateway WRF to accommodate growth~~	~~Design/Build~~	~~$25,000,000~~	~~2032~~

ATTACHMENT 2

2022 Lower West Coast Water Supply Plan Update



2022

LOWER WEST COAST

WATER SUPPLY PLAN UPDATE

PLANNING DOCUMENT/APPENDICES

Cover Photos

Front Top: Florida Oranges
Front Bottom: Clam Pass River, Naples, Florida
Back: Merritt Pump Station (S-488), Picayune Strand Restoration Project

Acknowledgments

The South Florida Water Management District (SFWMD) recognizes and thanks the regional water supply workshop participants for their contributions, comments, advice, information, and assistance throughout the development of this *2022 Lower West Coast Water Supply Plan Update.*

Furthermore, the SFWMD expresses appreciation to all staff who contributed to the development and production of this plan update.

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Executive Summary

The South Florida Water Management District's (SFWMD or District) strategic goal for its water supply plans is to identify sufficient water supply sources and projects to meet existing and future reasonable-beneficial uses during 1-in-10-year drought conditions while sustaining water resources and related natural systems. This *2022 Lower West Coast Water Supply Plan Update* (2022 LWC Plan Update) is the fifth update to the 1994 Lower West Coast Water Supply Plan, which previously was updated in 2000, 2006, 2012, and 2017. This plan update is consistent with the water supply planning requirements of Chapter 373, Florida Statutes (F.S.), and presents population and water demand projections through 2045, a review of water supply issues and evaluations, and a list of water source options. It also examines local and regional water supply efforts and describes water resource and water supply development projects completed since the 2017 plan update.

This 2022 LWC Plan Update was developed in an open, public forum (**Chapter 1**). Meetings and workshops were held with water users, local and tribal governments, utilities, agricultural industry and environmental representatives, other stakeholders, and the general public to solicit input, provide information about planning results, and receive comments on draft sections. Due to the COVID-19 pandemic, the SFWMD held three virtual workshops for this water supply plan update.

The LWC Planning Area includes all of Lee County, most of Collier County, and portions of Charlotte, Glades, Hendry, and Monroe counties and the Seminole Tribe of Florida Immokalee Reservation. The LWC Planning Area covers more than 5,100 square miles and generally reflects the drainage patterns of the Caloosahatchee River Basin to the north and Big Cypress National Preserve to the south. The northern area of the Caloosahatchee River Basin also is the general jurisdictional boundary between the SFWMD and the Southwest Florida Water Management District in Charlotte County. The eastern boundary of the LWC Planning Area is along the western edge of the historic Everglades watershed, dividing the Big Cypress and Lake Okeechobee drainage basins. The southern end of the LWC Planning Area encompasses a coastal portion of Everglades National Park and ends just north of Shark River Slough.

Climate change and sea level rise are issues of concern, especially in coastal regions. South Florida is particularly vulnerable to potential changes in climate and sea level because of its location, regional variability in climate, hydrology, geology, low topography, natural resources, and dense population in coastal areas. To plan and prepare for regional climate change and sea level rise, the SFWMD is conducting research and computer modeling to better predict and reduce uncertainties, analyzing vulnerabilities in the current water management system, and developing effective adaptation strategies for the future. Coordination with other resource management entities, agencies, and local governments is vital to ensuring a common approach and shared information moving forward.

DEMAND ESTIMATES AND PROJECTIONS

As described in **Chapter 2** and **Appendix A**, the LWC Planning Area is home to nearly 1,200,000 people and supports a large agricultural industry. The permanent population is projected to exceed 1,600,000 people by 2045, an approximately 37% increase from the 2020 base year estimate for this plan update. Approximately two-thirds of the LWC Planning Area's permanent population resides in Lee County. Details about Public Supply (PS) utilities, including the populations within their service areas, are provided in **Appendix B**.

Agriculture is a substantial part of the regional economy. Agricultural irrigated acres are projected to increase modestly by 5%, from 291,765 acres in 2020 to 307,062 acres in 2045. Citrus is the dominant crop, covering more than 118,000 acres. Sugarcane also is a dominant crop in the region, accounting for more than 88,000 acres in 2020 and is expected to decrease by 2,000 acres in 2045. Average water demands for the Agriculture (AG) use category are projected to increase approximately 5%, from an average total water use of 592.02 million gallons per day (mgd) in 2020 to 621.40 mgd in 2045 (**Table ES-1**).

AG is projected to remain the largest water use category in the LWC Planning Area, accounting for approximately 53% of the total 2045 projected demand. Landscape/Recreational (L/R) is the second largest water use category, representing 25% of the total 2045 projected demand. PS is the third largest water use category, representing 16% of the total 2045 projected demand. Domestic Self-Supply (DSS), Commercial/Industrial/Institutional (CII), and Power Generation (PG) collectively account for approximately 7% of the total 2045 projected demand. In the LWC Planning Area, the overall demands are projected to increase by approximately 16% from 2020 to 2045. The total demand projection for 2045 in this 2022 LWC Plan Update is 3% less than the estimated 2040 demand projected in the 2017 LWC Plan Update.

Table ES-1. Estimated (2020) and projected (2045) gross water demands (in mgd) under average rainfall conditions in the LWC Planning Area by use category.

Water Use Category	2020	2045	Percent Change	Percent of Projected 2045 Total
Public Supply	138.70	186.82	35%	16%
Domestic Self-Supply	24.27	31.66	30%	3%
Agriculture	592.02	621.40	5%	53%
Commercial/Industrial/Institutional	37.73	48.23	28%	4%
Landscape/Recreational	219.17	289.23	32%	25%
Power Generation	1.54	2.03	32%	0.2%
LWC Planning Area Total	**1,013.43**	**1,179.37**	**16%**	**100%**

LWC = Lower West Coast; mgd = million gallons per day.

DEMAND MANAGEMENT: WATER CONSERVATION

Water conservation by all water use categories continues to be a priority to meet future water needs. Conservation programs often are among the lowest-cost solutions to meet future demands and can reduce costs over the long term if properly planned and implemented (**Chapter 3**). Conservation efforts in the LWC Planning Area have effectively lowered the net (finished) water per capita use rate for PS over the past two decades, from 178 gallons per capita per day in 2000 to approximately 123 gallons per capita per day in 2020. Analyses suggest that water users in the LWC Planning Area can collectively save an additional 43 mgd by 2045 if various urban and agricultural conservation options are implemented.

NATURAL SYSTEMS AND RESOURCE PROTECTION

Natural surface water systems in the LWC Planning Area include the Caloosahatchee River Estuary, Lake Trafford, Corkscrew Regional Ecosystem Watershed, Big Cypress Swamp, Picayune Strand State Forest, southern Charlotte Harbor, Estero Bay, Naples Bay, Ten Thousand Islands National Wildlife Refuge, Rookery Bay National Estuarine Research Reserve, and the Fakahatchee Estuary, among others. Natural systems are protected and addressed through regulatory mechanisms, restoration projects, and water resource development projects.

In the LWC Planning Area, minimum flows and minimum water levels (MFLs) with their associated recovery and prevention strategies have been adopted for the LWC aquifers, Lake Okeechobee, and the Caloosahatchee River (**Chapter 4**, **Appendix C**). The MFL recovery strategy for Lake Okeechobee affects portions of the LWC Planning Area but is described in the Lower East Coast water supply plan updates (last updated in 2018). A restricted allocation area has also been established for the Lake Okeechobee Service Area as part of the Lake Okeechobee MFL recovery strategy. Water reservations, another resource protection regulatory mechanism, have been adopted for the C-43 West Basin Storage Reservoir, the Fakahatchee Estuary, and the Picayune Strand.

Large ecosystem restoration projects are under way in the LWC Planning Area (**Chapter 7**) that are vital to improving and maintaining the viability of the region's water resources, including elements identified in the Caloosahatchee River MFL recovery strategy. The Comprehensive Everglades Restoration Plan (CERP), a partnership between the United States Army Corps of Engineers (USACE) and SFWMD, is a critical component of ecosystem restoration and water supply. CERP includes numerous capital projects needed to protect and restore natural systems and increase water availability, including the C-43 West Basin Storage Reservoir, Picayune Strand Restoration Project, and Lake Okeechobee Watershed Restoration Project. Although the Lake Okeechobee Watershed Restoration Project is not within the LWC Planning Area boundary, it does affect the region's water resources (i.e., the C-43 Canal and the Caloosahatchee River and Estuary). The project aims to increase storage capacity in the watershed, resulting in improved lake levels; improve the quantity and timing of discharges to estuaries; restore wetlands; and improve water supply for existing legal users.

WATER SOURCE OPTIONS

Water users in the LWC Planning Area rely on surface water, groundwater (fresh and brackish), and reclaimed water (**Chapter 5**) to meet urban and agricultural demands. Surface water from canals and lakes, and fresh groundwater from the surficial aquifer system (SAS) and intermediate aquifer system (IAS) are considered traditional water sources. Alternative water supply sources include brackish groundwater from the IAS and Floridan aquifer system (FAS), reclaimed water, seawater, and excess surface water and groundwater captured and stored in aquifer storage and recovery (ASR) wells, reservoirs, and other storage features. Use of alternative water supplies is an integral part of the current and future water supply strategy.

PS utilities within the LWC Planning Area rely on groundwater from the SAS and IAS and brackish groundwater from the IAS and FAS. Groundwater sources can meet 2045 PS demands; however, increases in fresh groundwater allocations must meet the SFWMD's water use permitting resource protection criteria. Of the 24 PS utilities in the LWC Planning Area, two utilities will need to construct new projects to meet their projected 2045 demands. However, 9 utilities have proposed 18 new projects through 2045. These new projects will increase water supply capacity, reliability, and distribution primarily through source diversification, changes in treatment technology, expanded use of the FAS, and extension of reclaimed water lines.

Fresh groundwater from the SAS and IAS supplies 100% of the estimated demand for DSS in the LWC Planning Area. Although DSS demand is expected to increase by 30% over the planning horizon, groundwater from the SAS can continue to meet the 2045 DSS demands in most areas. However, there are concentrated DSS withdrawals that have depressed IAS groundwater levels locally in northern Cape Coral (Mid-Hawthorn aquifer) and Lehigh Acres (Sandstone aquifer) towards established MFLs. The District is coordinating with Lee County, Cape Coral, and local utilities to identify potential solutions to protect the water resources for all stakeholders.

AG users rely primarily on surface water to meet their demands. Groundwater from the SAS and IAS is utilized to a much lesser extent and to a very small extent brackish groundwater. The FAS is used primarily for freeze protection or emergency backup supply due to the brackish water quality that typically requires blending with fresh water prior to its use for irrigation. A small increase in AG demands is expected over the planning horizon; therefore, existing surface and groundwater water sources can continue to meet 2045 AG demands.

L/R users, including golf courses, rely on surface water, fresh groundwater, and reclaimed water in nearly equal volumes and to a very small extent brackish groundwater. Increases in L/R irrigation demands are expected to be met primarily through the expansion of reclaimed water systems.

Increases in demands for the CII category through 2045 are expected to continue to be met primarily by fresh groundwater and surface water. PG demands will continue to be met primarily by surface water, fresh groundwater, and brackish groundwater, with use of reclaimed water when available. **Table ES-2** summarizes the variety of water source options that are typically used in the LWC Planning Area by water use category.

Table ES-2. Typical water source options for the water use categories in the LWC Planning Area.

Water Use Category	Fresh Surface Water	Fresh Groundwater	Brackish Groundwater	Reclaimed Water
Public Supply		✓	✓	
Domestic Self-Supply		✓		
Agriculture	✓	✓	✓	
Commercial/Industrial/Institutional	✓	✓		✓
Landscape/Recreational	✓	✓	✓	✓
Power Generation	✓	✓	✓	✓

Surface Water

Surface water supply sources in the LWC Planning Area include Lake Okeechobee and the C-43 Canal as well as county and water control district canals, lakes, reservoirs, and on-site ponds. Water availability from Lake Okeechobee and the C-43 Canal is limited due to the implementation of restricted allocation area rules. AG is the largest user of surface water in the LWC Planning Area. In 2020, approximately 52% of AG demands were met with surface water, and this percentage is expected to remain the same through 2045. Surface water is used primarily for AG and to a lesser extent L/R and CII uses. Based on demand projections, surface water sources appear sufficient to meet the projected 2045 demands.

Fresh Groundwater

The SAS and to a lesser extent the IAS are the primary sources of fresh groundwater in the LWC Planning Area and are used by all water use categories. Large-scale use of the SAS and IAS is limited by rate of groundwater recharge, potential impacts on wetlands, proximity to contamination sources, potential impacts to existing legal users, and the potential for saltwater intrusion. However, new small-scale uses of the SAS and IAS are viable in many locations. In general, saltwater interface mapping of the region indicates little to no appreciable movement of the saltwater interface in the SAS and IAS from 2009 to 2019 (**Chapter 6**, **Appendix D**). PS, DSS, and AG are the largest users of fresh groundwater from the SAS and IAS. Water availability from the SAS and IAS will be determined on an application-by-application basis, considering the quantities required, local resource conditions, existing legal users, and viability of other supply options. In 2020, fresh groundwater from the SAS and IAS accounted for approximately 45% of PS use and 100% of DSS use in the LWC Planning Area. SAS and IAS use for PS is projected to increase minimally by 2045, as utilities maximize their permitted allocations from these sources. Most PS utilities are expanding their use of the FAS to meet demand increases and have proposed projects to meet future growth (**Chapter 8**). DSS use of fresh groundwater from the IAS has created localized areas of low groundwater elevations in Cape Coral and Lehigh Acres, which will require local solutions to reduce aquifer stress in these areas.

Current and future SAS and IAS demands were simulated using the SFWMD's Lower West Coast Surficial and Intermediate Aquifer Systems Model to assess the potential impacts of withdrawals on water levels and the viability of the source through the planning horizon. The model results indicate no large-scale changes in water levels and harm to the water resources are expected for most of the model domain through 2045. Modeling results are provided in **Appendix D**.

Brackish Groundwater

Brackish groundwater from the IAS and FAS is used primarily by PS utilities and to a very small extent by AG and L/R. There are currently 11 PS utilities utilizing brackish groundwater treating it via reverse osmosis and have a combined treatment capacity of 138.17 mgd. In 2020, FAS water met 52% of PS demand. Current and future FAS demands were simulated using the SFWMD's West Coast Floridan Model to assess the potential impacts of withdrawals on water levels, water quality, and the viability of the source through the planning horizon. The model results indicate no large-scale changes in water levels or water quality in the FAS are expected for most of the model domain through 2045. Modeling results are provided in **Appendix D**. Review of historical chloride data and model results indicates properly managed FAS wellfields can meet projected demands through 2045.

Current water level and water quality data for the FAS are discussed in **Chapter 6**. Review and analyses of FAS data indicate there have been no substantial regional changes; however, some local changes in water quality have been observed, which may be the result of localized pumping stresses or hydrologic conditions. FAS users may need to spread out withdrawal facilities or reduce individual well pumping rates to mitigate water quality changes. These areas should continue to be monitored through a coordinated effort with utilities and other FAS stakeholders.

Reclaimed Water

Use of reclaimed water is an important component of managing water supplies in the LWC Planning Area. In 2020, 39 existing wastewater treatment facilities provided all or a portion of their treated wastewater for reuse (**Appendix E**). In total, these facilities generated 85 mgd of reclaimed water, primarily for irrigation of golf courses, parks, schools, and residences. However, 23 mgd of potentially reusable water was disposed, mainly through deep well injection. Wastewater flows are projected to increase to 170 mgd by 2045. Many utilities have constructed the required treatment facilities to produce reclaimed water for public access irrigation in anticipation of increased reclaimed water demand in the future. Reclaimed water pipelines are proposed to be extended as new development occurs, substantially increasing the volume of reuse by 2045.

Water Storage

Capturing surface water and groundwater during wet conditions for use during dry conditions increases the amount of available water. Water storage options include ASR wells and reservoirs, which are considered alternative water supplies. As of 2022, there are 18 operating ASR wells in the LWC Planning Area. Several test ASR wells have been constructed at other locations, but at this time are inactive or in various stages of planning. The SFWMD has previously constructed an ASR exploratory well at Moore Haven, and up to 55 ASR wells are planned as components of the Lake Okeechobee Watershed Restoration Project.

Regional reservoirs (e.g., C-43) associated with large ecosystem restoration projects (**Chapter 7**) will attenuate stormwater, provide water quality treatment, store excess surface water, and enhance surface water availability for the estuary during the dry season. On a smaller scale, local agricultural reservoirs can store recycled irrigation water and/or collect stormwater runoff.

FUTURE DIRECTION

Chapter 9 contains guidance to help focus future efforts in the region to meet projected water needs. Some of the key suggestions to regional stakeholders, including the SFWMD, utilities, local and tribal governments, agricultural interests, and environmental groups, are as follows:

- Continue implementation of water conservation programs throughout the LWC Planning Area to increase water use efficiency and reduce the amount of water needed to meet future demands.
- Continue implementation of the Caloosahatchee River and Lake Okeechobee MFL recovery strategies, and review and update the strategies, as appropriate, in conjunction with future water supply plan updates.
- Identify wells critical to long-term monitoring and modeling to ensure they are constructed, maintained, or replaced, as necessary.
- Continue mapping the saltwater interface and identify areas of concern that might require enhanced monitoring or changes in wellfield operations.
- Continue characterizing, monitoring, and designing adaptation solutions in response to climate change and sea level rise impacts to water supply.
- Design new FAS wellfields to maximize withdrawals while minimizing water level and water quality changes. This likely will require a combination of additional wells with greater spacing between wells, lower-capacity wells, and continued refinement of wellfield operational plans.
- Continue supporting ecosystem restoration efforts, including CERP.
- Continue development of alternative water supplies, including maximizing the use of reclaimed water.
- Develop regional and local reservoirs and other storage systems (e.g., ASR systems), where possible, to increase surface water availability for environmental, agricultural, and urban water supply needs.
- Coordinate with local governments and utilities in the Cape Coral and Lehigh Acres areas to develop solutions to reduce stress on the Mid-Hawthorn and Sandstone aquifers, respectively.

CONCLUSIONS

Building on the findings and conclusions of previous LWC water supply plan updates, this 2022 LWC Plan Update assesses water supply demand and available sources for the LWC Planning Area through 2045. This plan update concludes that future water needs of the region can be met through the planning horizon with appropriate management, conservation, and implementation of projects identified herein (**Chapter 9**). Meeting future water needs through 2045 depends on the following:

- Construction of potable water supply development projects by two PS utilities (Ave Maria and Florida Governmental Utility Authority – Lehigh Acres);

- Implementation of the CERP C-43 West Basin Storage Reservoir, Picayune Strand Restoration Project, and other ecosystem restoration projects;
- Coordination between the SFWMD and appropriate local governments to identify long-term sustainable water supply solutions in DSS demand areas that are currently or projected to experience aquifer stress; and
- Completion of repairs to the Herbert Hoover Dike by the USACE and implementation of the new Lake Okeechobee System Operating Manual.

Successful implementation of this 2022 LWC Plan Update requires coordination and collaboration with local and tribal governments, utilities, agricultural interests, and other stakeholders. This partnering should ensure that water resources can continue to be prudently managed and available to meet future demands while also protecting natural systems.

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Appendix A: Water Demand Projections

Appendix B: Public Supply Utility Summaries

Appendix C: MFLs and Recovery and Prevention Strategies

Appendix D: Groundwater Monitoring and Analyses

Appendix E: Wastewater Treatment Facilities

Acronyms and Abbreviations

AFSIRS	Agricultural Field-Scale Irrigation Requirements Simulation
AG	Agriculture
APPZ	Avon Park permeable zone
ASR	aquifer storage and recovery
AWS	alternative water supply
BEBR	Bureau of Economic and Business Research
BMAP	basin management action plan
BMP	best management practice
CERP	Comprehensive Everglades Restoration Plan
CFP	Cooperative Funding Program
cfs	cubic feet per second
CII	Commercial/Industrial/Institutional
District	South Florida Water Management District
DSS	Domestic Self-Supply
ENP	Everglades National Park
EQIP	Environmental Quality Incentives Program
F.A.C.	Florida Administrative Code
F.S.	Florida Statutes
FAS	Floridan aquifer system
FAWN	Florida Automated Weather Network
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FEB	flow equalization basin
FPL	Florida Power & Light
FSAID	Florida Statewide Agricultural Irrigation Demand
FY	Fiscal Year
gpcd	gallons per capita per day
HVAC	heating, ventilation, and air conditioning
IAS	intermediate aquifer system
L/R	Landscape/Recreational
LFA	Lower Floridan aquifer

LOSA	Lake Okeechobee Service Area
LOSOM	Lake Okeechobee System Operating Manual
LOWPP	Lake Okeechobee Watershed Protection Plan
LOWRP	Lake Okeechobee Watershed Restoration Project
LWC	Lower West Coast
LWCSIM	Lower West Coast Surficial and Intermediate Aquifer Systems Model
MDL	maximum developable limit
MFL	minimum flow and minimum water level
MIL	mobile irrigation lab
mg/L	milligrams per liter
mgd	million gallons per day
NEEPP	Northern Everglades and Estuaries Protection Program
NGVD29	National Geodetic Vertical Datum of 1929
PCUR	per capita use rate
PG	Power Generation
PS	Public Supply
RAA	restricted allocation area
RFGW	Regional Floridan Groundwater (monitoring program)
RO	reverse osmosis
SAS	surficial aquifer system
SFWMD	South Florida Water Management District
UF/IFAS	University of Florida Institute of Food and Agricultural Sciences
UFA	Upper Floridan aquifer
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
WCFM	West Coast Floridan Model
WPP	watershed protection plan
WTP	water treatment plant
WWTF	wastewater treatment facility

1

Introduction

TOPICS

- 2022 LWC Plan Update
- Goal and Objectives
- Legal Authority and Requirements
- Seminole Tribe of Florida
- Regional and Local Planning Linkage
- Plan Development Process
- Progress Since the 2017 LWC Plan Update

The South Florida Water Management District (SFWMD or District) develops and updates regional water supply plans to address current and future water needs while protecting central and southern Florida's water resources. This *2022 Lower West Coast Water Supply Plan Update* (2022 LWC Plan Update) assesses existing and projected water demands as well as water sources to meet those demands through 2045.

The LWC Planning Area includes all of Lee County, most of Collier County, and portions of Charlotte, Glades, Hendry, and Monroe counties and the Seminole Tribe of Florida Immokalee Reservation (**Figure 1-1**). The portions of the Big Cypress National Preserve and Monroe County within the LWC Planning Area have no permanent residents. The 2022 LWC Plan Update presents population estimates and associated water demands and projections (**Chapter 2**), water resource and water supply development projects (**Chapters 7** and **8**, respectively), and related water supply planning information for the 2020 to 2045 planning horizon. Designed to be a planning guide for local and tribal governments, utilities, agricultural operations, and other water users, the 2022 LWC Plan Update provides a framework for local and regional water supply planning and management decisions in the LWC Planning Area.

The LWC Planning Area covers more than 5,100 square miles and generally reflects the drainage patterns of the Caloosahatchee River Basin to the north and Big Cypress National Preserve to the south. The northern area of the Caloosahatchee River Basin is also the general jurisdictional boundary between the SFWMD and the Southwest Florida Water Management District in Charlotte County. The eastern boundary is along the western edge of the historic Everglades watershed, dividing the Big Cypress and Lake Okeechobee drainage basins. Lake Okeechobee borders four water supply planning areas and is formally included in the Lower East Coast Water Supply Plan. The southern end of the LWC Planning Area encompasses a coastal portion of Everglades National Park and ends just north of Shark River Slough. There are also extensive natural systems, including the Caloosahatchee River Estuary, Okaloacoochee Slough State Forest, Lake Trafford, Corkscrew Regional Ecosystem Watershed, Big Cypress Swamp, Picayune Strand State Forest, southern Charlotte Harbor, Estero Bay, Naples Bay, Ten Thousand Islands National Wildlife Refuge, J. N. "Ding" Darling National Wildlife Refuge, Rookery Bay National Estuarine Research Reserve, and Fakahatchee Strand Preserve State Park **(Figure 1-1)**.

Figure 1-1. LWC Water Supply Planning Area.

The primary sources of fresh water throughout the LWC Planning Area are surface water and groundwater from shallow aquifers. To a much lesser extent, reclaimed water also is used for nonpotable uses like irrigation. Major surface water resources include Lake Okeechobee, the Caloosahatchee River, and their hydraulically connected water bodies. The availability of surface water in the LWC Planning Area is limited, primarily due to water resource protection criteria (**Chapter 4**). Groundwater resources in the LWC Planning Area include the surficial, intermediate, and Floridan aquifer systems (SAS, IAS, and FAS). Further information about water source options is provided in **Chapter 5**.

2022 LWC PLAN UPDATE

The 2022 LWC Plan Update reflects the changes experienced in the LWC Planning Area since 2017, and their effect on water use and updates to projected water demands from 2040 to 2045. The 2022 LWC Plan Update consists of two documents: the planning document with appendices, and the *Support Document for the 2021-2024 Water Supply Plan Updates* (2021-2024 Support Document; SFWMD 2021). The planning document with appendices focuses on the LWC Planning Area. The 2021-2024 Support Document discusses aspects common to four of the SFWMD regional planning areas, including the legal authority and requirements for water supply planning. The Upper Kissimmee Basin is not included in the 2021-2024 Support Document because it is part of the Central Florida Water Initiative, which has its own support documents.

GOAL AND OBJECTIVES

The goal of the 2022 LWC Plan Update is to identify sufficient water supply sources and future projects to meet existing and future reasonable-beneficial uses during 1-in-10-year drought conditions through 2045 while sustaining water resources and natural systems. The objectives of the 2017 LWC Plan Update were reviewed and updated to develop the following objectives for this 2022 LWC Plan Update:

1. **Water Supply** – Quantify sufficient volumes of water and water supply projects to meet reasonable-beneficial consumptive uses projected through 2045 under 1-in-10-year drought conditions.

2. **Natural Systems** – Protect natural systems and water resources from harm due to water use, including declining water levels and the harmful movement of saline water.

3. **Water Conservation and Alternative Source Development** – Encourage water conservation measures to improve water use efficiency. Continue to encourage development of the FAS as an alternative water supply (AWS) and monitor the aquifers to enhance understanding of the relationships among water use, water levels, and water quality. Develop water storage options, including aquifer storage and recovery (ASR) systems and reservoirs, and promote projects that increase the supply and use of reclaimed water.

4. **Linkage with Local and Tribal Governments** – Provide information to support local government Comprehensive Plans. Promote compatibility of the 2022 LWC Plan Update with local and tribal government land use decisions.

5. **Compatibility and Linkage with Other Efforts** – Achieve compatibility and integration with the following planning-related activities:
    - Other state and federal water resource initiatives in the LWC Planning Area
    - Existing and proposed environmental projects
    - Development and modifications to operating schedules for regional projects (e.g., Caloosahatchee River [C-43] West Basin Storage Reservoir) and regional systems (e.g., Lake Okeechobee)
    - Water use permitting process, minimum flow and minimum water level (MFL) criteria, water reservations, and restricted allocation areas (RAAs)

LEGAL AUTHORITY AND REQUIREMENTS

The legal authority and requirements for water supply planning are included in Chapters 163, 187, 373, and 403, Florida Statutes (F.S.). In accordance with Florida's Water Protection and Sustainability Program, regional water supply plans and local government Comprehensive Plans must ensure that adequate potable water facilities are constructed and concurrently available to meet the demands of new development. The water supply planning region identified in this plan shall be considered a Water Resource Caution Area under Section 403.064, F.S., and affected parties may challenge the designation pursuant to Section 120.569, F.S.

In addition to water supply planning, the SFWMD is required by statute to provide updates for a variety of resource development, restoration, and monitoring programs implemented within the District's boundaries. Such updates are provided in the annual publication of the *South Florida Environmental Report*, which is referenced as needed in this plan update.

SEMINOLE TRIBE OF FLORIDA IMMOKALEE RESERVATION

The Seminole Tribe of Florida is a federally recognized Indian Tribe organized pursuant to Section 16 of the Indian Reorganization Act of 1934 and recognized by the State of Florida pursuant to Chapter 285, F.S. The Seminole Tribe of Florida's Immokalee Reservation encompasses 600 acres within the central portion of the LWC Planning Area (**Figure 1-1**). The reservation has a population of fewer than 1,000 permanent residents.

REGIONAL AND LOCAL PLANNING LINKAGE

The SFWMD's regional water supply planning process is closely coordinated and linked to the local water supply planning of municipal/county governments and utilities. Coordination and collaboration among all water supply planning entities is needed throughout the regional water supply plan development and approval process. Included in the coordination process is the review of Sector Plans, which are long-term plans for a geographic area of at least 5,000 acres. Within the LWC Planning area, there are two adopted plans located within western Hendry County: the Rodina Sector Plan and the Southwest Hendry County Sector Plan.

While this 2022 LWC Plan Update addresses regional and Districtwide water supply issues, local governments are required to plan for their water and wastewater needs (as well as

other infrastructure and public service elements) through their Comprehensive Plans. Local Comprehensive Plans also include Water Supply Facilities Work Plans (Work Plans), which are required by statute. In addition, local governments are required by statute to update their Work Plans and adopt revisions to their Comprehensive Plans within 18 months following approval of this 2022 LWC Plan Update. Revisions may include population projections, established planning periods, existing and future water supply development projects, intergovernmental coordination activities, conservation and reuse measures, and the capital improvements element. More information on Comprehensive Plan and Work Plan requirements is provided in the 2021-2024 Support Document (SFWMD 2021).

To assist local governments in updating their Comprehensive Plans and Work Plans, the SFWMD has developed technical assistance tools and informational documents, which are available on the SFWMD webpage (https://www.sfwmd.gov/doing-business-with-us/work-plans). Additional information about developing a Work Plan is available from the Florida Department of Economic Opportunity webpage (https://www.floridajobs.org/community-planning-and-development/programs/community-planning-table-of-contents/water-supply-planning).

PLAN DEVELOPMENT PROCESS

This 2022 LWC Plan Update describes how anticipated water supply needs will be met in the LWC Planning Area through 2045. The planning process used to develop this 2022 LWC Plan Update is outlined below.

PLAN DEVELOPMENT PROCESS			
1	2	3	4
Planning and Assessment	**Data Collection, Analyses, and Issue Identification**	**Evaluation of Water Resources and Water Source Options**	**Identification of Water Resource and Water Supply Development Projects**
The process incorporated public participation and coordination with local stakeholders, including water supply utilities, agricultural operations, nongovernmental environmental groups, local and tribal governments, the Florida Department of Environmental Protection, the Florida Department of Agriculture and Consumer Services, and other appropriate state and federal agencies. A review of previous planning efforts in the region and documentation of activities since the approval of the 2017 LWC Plan Update were key starting points.	Using the 2017 LWC Plan Update as a foundation, developing this plan update involved collecting the latest information on current and projected population and water demands (**Chapter 2**), water conservation (**Chapter 3**), water resource protection (**Chapter 4**), water source options (**Chapter 5**), and water resource analyses (**Chapter 6**).	This phase of the planning process involved reviewing existing monitoring data and updated regional modeling used for evaluation of water resources to identify issues. Where projected demands exceed available supplies, water supply project options were identified, including alternative water supplies and water conservation.	Where resource conditions warranted, water resource development projects were identified (**Chapter 7**). Water supply development projects intended to meet water needs over the planning horizon were identified, compiled, and evaluated by the SFWMD with input from stakeholders, the public, and other agencies. The SFWMD also considers water supply projects in local government Work Plans, Tribal Work Plans, and adopted Sector Plans, which are required to identify needed water supplies and available water sources pursuant to Section 163.3245(3)(a)2., F.S. Additionally, the projects were screened for permitting feasibility (**Chapter 8**).

Public Participation

Public participation is a key component of the water supply plan development process to ensure the plan addresses the issues and concerns of stakeholders and that the direction and projects are appropriate for future water needs. The SFWMD held three virtual stakeholder workshops for this water supply plan update. Stakeholders representing a variety of interests in the region, such as agriculture, industry, environment, utilities, local government planning departments, tribal representatives, and state and federal agencies as well as the general public, were invited to attend the workshops. The workshops provided participants with an opportunity to review and comment on projected demands, water supply issues, the condition of regional water resources, water source options, groundwater modeling, and other key aspects of the water supply plan update.

Individual meetings were held throughout the planning process with public supply utilities, the Seminole Tribe of Florida, other planning agencies, local government planning departments, and agricultural representatives to discuss water demand projections and coordinate planning efforts. During meetings with the region's major utilities and local governments, population and demand estimates and projections were reviewed and verified, and the condition of regional water resources and AWS development efforts were discussed. Additionally, presentations were made to the District's Governing Board and the Big Cypress Basin Governing Board, providing overviews of the plan update and soliciting comments. Following the public comment period, the final version of the plan update was brought to the District's Governing Board for consideration of approval.

PROGRESS SINCE THE 2017 LWC PLAN UPDATE

Since the 2017 LWC Plan Update, the following activities and programs in the LWC Planning Area are supporting the sustainability of the region's water resources, water supply, and natural systems.

Modeling and Hydrologic Studies

- **FAS Monitoring Network** – The SFWMD maintains and updates a network of 106 FAS monitor wells, 18 of which are within the LWC Planning Area. Water level data from the monitor wells are evaluated to help manage use of the FAS as a water supply source. In addition, water quality sampling and analyses are conducted periodically to observe any trends that might signal overuse of the resource.
- **Lower West Coast Surficial and Intermediate Aquifer Systems Model** – The Lower West Coast Surficial and Intermediate Aquifer Systems Model (LWCSIM) was completed and simulations to evaluate changes in water levels in the SAS and IAS for the 2014 and 2040 withdrawal scenarios were completed during 2020.
- **West Coast Floridan Model** – The West Coast Floridan Model (WCFM) was updated and simulations to identify potential changes in water quality, flows, and water levels in the FAS for the 2014 and 2040 withdrawal scenarios were conducted during 2020. **Chapter 6** provides information about both modeling efforts for this plan update.
- **Hydrogeologic Studies** – Between 2017 and 2020, the SFWMD and its partners completed the following hydrogeologic investigations in the LWC Planning Area:

- Aquifer performance testing of the Sandstone aquifer (Smith 2017)
- Geochemistry of the Upper Floridan aquifer and Avon Park permeable zone (Geddes et al. 2018)
- Groundwater chemistry of the Lower Floridan aquifer – upper permeable zone in Central and South Florida (Geddes et al. 2020)

- **Updated Delineation of the Saltwater Interface in Collier and Lee Counties** – The SFWMD reviewed water quality data from Collier and Lee counties and updated maps to compare the 2009, 2014, and 2019 extent of saltwater intrusion within the SAS and IAS (Shaw and Zamorano 2020). See **Chapter 6** for more details.

Water Supply Studies

- **Annual Estimated Water Use Reports** – The SFWMD prepared annual reports that summarize estimated use (based on reported withdrawals) for public supply, domestic self-supply, commercial/industrial, agriculture, landscape/recreational, and power generation. A copy of the annual reports can be found at https://www.sfwmd.gov/our-work/water-supply.

- **2022 Water Supply Cost Estimation Study** – The SFWMD funded an engineering evaluation of the capital and operational costs of various water supply facilities including groundwater wellfields, surface facilities, water treatment processes, storage, piping and distribution facilities, and other ancillary components. It is anticipated that the study report will be available in 2022.

Water Storage, Construction, and Restoration Projects

- **Herbert Hoover Dike/Lake Okeechobee** – In 2007, the United States Army Corps of Engineers (USACE) designated the Herbert Hoover Dike as a Class I risk, the highest risk for dam failure. Of the 32 culverts slated to be replaced, removed, or abandoned, 27 have been completed and the remaining 5 are under construction. The Dam Safety Modification Study identified 56.3 miles of the dam as needing improvement, of which 40 miles (71%) have been completed. Construction of all works are currently scheduled for completion by the end of 2022.

Herbert Hoover Dike

- **Lake Okeechobee Watershed Restoration Project** – Part of the Comprehensive Everglades Restoration Plan (CERP), the purpose of the Lake Okeechobee Watershed Restoration Project is to improve the ecology of Lake Okeechobee, decrease regulatory releases to the St. Lucie and Caloosahatchee estuaries, restore freshwater wetlands in the watershed, and improve water supply for existing legal users. The project team prepared a Final Integrated Project Implementation Report and Environmental Impact Statement that was released in August 2020 for public review. A Final Chief's Report by the USACE Chief of Engineers and congressional authorization are pending for the project. The recommended plan includes construction of up to 55 ASR wells located in clusters throughout the Lake Okeechobee watershed. To date, the Florida State Legislature appropriated $100 million ($50 million in Fiscal Year [FY] 2020 and $50 million in FY2021) to the SFWMD for the design, engineering, and construction of the specific project components designed to achieve the greatest reductions in harmful discharges to the St. Lucie and Caloosahatchee estuaries.
- **Picayune Strand Restoration Project** – Part of CERP, the purpose of the Picayune Strand Restoration Project is to restore and enhance wetlands in the Picayune Strand State Forest and adjacent public lands by reducing overdrainage, and to improve the water quality of coastal estuaries by moderating the large salinity fluctuations caused by point discharge of fresh water from the Faka Union Canal. Over 55,000 acres of wetland and upland habitat will be restored or enhanced for fish and wildlife resources, including threatened and endangered species. The Merritt Pump Station was completed in April 2016, Faka Union Pump Station in January 2017, and Miller Pump Station in May 2018. Plugging of the upper 3 miles of the Faka Union Canal was completed in May 2021. The Southwest Protection Feature levee will provide flood protection for existing agricultural and residential properties with an anticipated completion date of 2023.
- **Caloosahatchee River (C-43) West Basin Storage Reservoir** – Part of CERP, the purpose of the Caloosahatchee River (C-43) West Basin Storage Reservoir is to improve timing and quantity of water deliveries to the Caloosahatchee Estuary, capture stormwater runoff and Lake Okeechobee releases, and meet the MFL established for the Caloosahatchee Estuary. The project team completed the Package 1 Preload and Demolition in August 2017 to remove all existing agricultural facilities and consolidate the foundation beneath the surface to prevent settling. The Package 2 Irrigation Pump Station (S-476) was completed in April 2019. This pump station replaces the need for local drainage district pump stations. The Package 3 Inflow Pump Station (S-470) and the Package 4 Civil Works (dam embankment and associated structures) are currently under construction.
- **C-43 Water Quality Feasibility Study** – The Caloosahatchee Reservoir Water Quality Feasibility Study provides options for water quality improvement opportunities for water leaving the Caloosahatchee Reservoir. After extensive public and stakeholder engagement, Phase 1 of the study is complete and identifies four water quality treatment opportunities. Phase 2 is under way and includes siting of the possible alternatives to determine cost and compatibility with other infrastructure.

- **Caloosahatchee MFL Criteria and Recovery Strategy Revisions** – In December 2019, the MFL for the Caloosahatchee River was modified to be a 30-day moving average flow of 457 cubic feet per second (cfs) at control structure S-79 (Section 40E-8.221, Florida Administrative Code [F.A.C.]). The MFL recovery strategy includes several components and is fully described in **Appendix C**. Two components involve construction of the C-43 Reservoir and implementation of a research and monitoring plan. Construction of the C-43 Reservoir began in 2015 and is scheduled to be completed in 2024. Water to be stored in the reservoir has been protected with a water reservation. The research and monitoring plan is meant to document ecological responses of indicators before and after operation of the C-43 Reservoir to determine the benefits of additional future freshwater inflows from the reservoir.
- **Lake Hicpochee Storage and Hydrologic Enhancement Project** – The Lake Hicpochee Storage and Hydrologic Enhancement Project captures water from the C-19 Canal that discharges into the C-43 Canal. The project holds water in shallow storage and redistributes it into Lake Hicpochee to reduce harmful discharges to the Caloosahatchee Estuary.
- **Southern Corkscrew Regional Ecosystem Watershed (CREW)** – The State of Florida and SFWMD have partnered with other government agencies and conservation organizations to acquire 45,000 acres of the vast CREW. The Southern CREW hydrologic enhancement project consists of a 4,150-acre mosaic of wet prairies, native uplands, freshwater marsh, hydric pine flatwoods, and cypress strand wetlands. The project goal was to restore historical sheetflow and reduce excessive freshwater discharges which include nutrients and pollutants to Estero Bay during the rainy season. Construction of the Southern CREW project was completed in April 2018. The SFWMD has led this restoration effort. Based on the vegetation and hydrologic monitoring efforts to date, a trend of appropriate wetland vegetation recruitment has been observed, and it is anticipated that as a result of the hydrologic enhancements, further increases in native wetland vegetation will follow.

Alternative Water Supply and Water Conservation Cost-Share Funding

As part of the regional water supply plans' water resource development component (**Chapter 7**), and to assist local water users in implementation of the water supply development component (**Chapter 8**), the SFWMD periodically provides funding assistance to public water suppliers, local governments, special districts, homeowners' associations, water users, and other public and private organizations for AWS and water conservation projects that are consistent with the SFWMD's core mission. In 2019, the Florida Department of Environmental Protection and SFWMD initiated annual funding for the construction and implementation of AWS and water conservation projects to qualified applicants through the AWS Funding Program.

- **Alternative Water Supply** – From FY2017 through FY2021, the SFWMD provided AWS project funding for seven projects that were completed or are under construction in the LWC Planning Area, generating 9.87 million gallons per day (mgd) of additional water capacity.
- **Water Conservation** – From FY2017 through FY2021, the SFWMD provided funding for three water conservation projects that were completed or are being implemented in the LWC Planning Area. The projects are estimated to save 0.08 mgd.

Big Cypress Basin Initiatives

The Big Cypress Basin Board has oversight responsibilities for operation and maintenance of a network of 143 miles of primary canals and 36 water control structures. Big Cypress Basin facilities are operated in coordination with local governments. A 5-year strategic plan was prepared by the Big Cypress Basin in 2018, which included capital improvements to water management infrastructure, water supply, environmental, and flood control components. Within the past 5 years, numerous improvements to the system infrastructure, flood control components, and operational modifications have taken place.

REFERENCES

Geddes, E., S. Coonts, and R. Carroll. 2020. *Groundwater Chemistry of the Lower Floridan Aquifer – Upper Permeable Zone in Central and South Florida*. Technical Publication WS-57. South Florida Water Management District, West Palm Beach, FL. December 2020.

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2

Demand Estimates and Projections

This chapter summarizes the water demand estimates and projections for the Lower West Coast (LWC) Planning Area of the South Florida Water Management District (SFWMD or District) through the planning horizon (2020 to 2045). Estimates and projections are presented by water use category and were developed in coordination with various stakeholder groups, including agriculture, utilities, industry, local and tribal governments, and other interested parties. A detailed discussion of the data collection and analysis methodology is provided in **Appendix A**.

TOPICS

- Water Demand
- Water Use Categories
- Population Estimates and Projections
- Public Supply
- Domestic Self-Supply
- Agriculture
- Commercial/Industrial/ Institutional
- Landscape/Recreational
- Power Generation
- Summary of Demand Estimates
- Demand Projections in Perspective

Water demands in the LWC Planning Area are driven by agricultural irrigation, followed by irrigation for landscape and recreation, and then potable water use provided by utilities. Irrigated agricultural acreage and production are projected to remain relatively stable with a slight increase. Citrus and sugarcane continue to be the two largest commodities. Acreages of all crops are projected to have small increases with the exception of sugarcane, sod, and potatoes. Starting in early 2020, the COVID-19 pandemic has had significant impacts on the economy, particularly on businesses and tourism. However, residential development has expanded at a robust rate in Collier and Lee counties.

WATER DEMAND

Water demands can be described and analyzed in two ways: gross demand and net demand. Gross demand is the volume of water withdrawn or diverted from a groundwater or surface water source. This definition serves as the basis for water allocations established through water use permits issued by the SFWMD. Further information on water use permitting is provided in the *Support Document for the 2021-2024 Water Supply Plan Updates* (2021-2024 Support Document; SFWMD 2021). Net demand refers to the volume of water delivered to end users after accounting for treatment losses and delivery system inefficiencies. For Public Supply (PS) and Domestic Self-Supply (DSS), demands commonly are referred to as raw and finished demands rather than gross and net demands, respectively. In this *2022 Lower West Coast Water Supply Plan Update* (2022 LWC Plan Update), gross demand is equal to net demand for all water use categories except PS.

This 2022 LWC Plan Update presents demands for average rainfall and 1-in-10-year drought conditions (**Appendix A**). Section 373.709, Florida Statutes (F.S.), states the level-of-certainty planning goal associated with identifying water demands contained in water supply plans shall be based on meeting demands during 1-in-10-year drought conditions for at least a 20-year period. Although not quantified in this plan, environmental demands are addressed through resource protection criteria (**Chapter 4**).

INFO ⓘ

Average Rainfall and 1-in-10-Year Drought

An **average rainfall year** is defined as a year with a rainfall amount that has a 50% probability of being exceeded in any other year.

A **1-in-10-year drought** is defined as a year in which below normal rainfall occurs, with a 90% probability of being exceeded in any other year. It has an expected return frequency of once in 10 years.

WATER USE CATEGORIES

Water demands for this 2022 LWC Plan Update are estimated in 5-year increments for the six water use categories listed below, which were established by the Florida Department of Environmental Protection (FDEP) in coordination with the state's water management districts. The water use category names and acronyms have been updated for this plan to align with other water supply planning efforts across the state.

- **Public Supply (PS)** – Potable water supplied by water treatment plants with a current allocation of 0.10 million gallons per day (mgd) or greater.
- **Domestic Self-Supply (DSS)** – Potable water used by households served by small utilities (less than 0.10 mgd) or self-supplied by private wells.
- **Agriculture (AG)** – Self-supplied water used for commercial crop irrigation, greenhouses, nurseries, livestock watering, pasture irrigation, and aquaculture.
- **Commercial/Industrial/Institutional (CII)** – Self-supplied water associated with the production of goods or provision of services by commercial, industrial, or institutional establishments.

- **Landscape/Recreational (L/R)** – Self-supplied and reclaimed water used to irrigate golf courses, sports fields, parks, cemeteries, and large common areas such as land managed by homeowners' associations and commercial developments.
- **Power Generation (PG)** – Self-supplied and reclaimed water used for cooling, potable, and process water by power generation facilities.

Table 2-1 presents estimated (2020) and projected (2045) average gross water demands, by water use category, in the LWC Planning Area for this water supply plan update. AG accounts for the majority of current and projected demands, followed by PS, L/R, CII, DSS, and PG. An overall increase in total demand is projected through the planning horizon.

Table 2-1. Estimated (2020) and projected (2045) average gross water demands (in mgd) for the LWC Planning Area by use category.

Water Use Category	2020	2045
Public Supply	138.70	186.82
Domestic Self-Supply	24.27	31.66
Agriculture	592.02	621.40
Commercial/Industrial/Institutional	37.73	48.23
Landscape/Recreational	219.17	289.23
Power Generation	1.54	2.03
LWC Planning Area Total	**1,013.43**	**1,179.37**

LWC = Lower West Coast; mgd = million gallons per day.

POPULATION ESTIMATES AND PROJECTIONS

Population estimates and projections were used to develop demands for all water use categories except AG and PG. Developing population estimates and projections required multiple sources of information, including county-level data from the University of Florida's Bureau of Economic and Business Research (BEBR; Rayer and Wang 2021), consistent with Section 373.709(2)(a), F.S., data from the 2020 Decennial Census (United States Census Bureau 2020), and data from local government Comprehensive Plans. Additionally, data were reviewed from two adopted Sector Plans within Hendry County. **Appendix A** provides further details on the development of population estimates and projections. Draft results were presented to the region's larger PS utilities to ensure accuracy and obtain agreement with final 2045 population projections in the plan update.

> **NOTE**
>
> All population estimates and projections are for permanent residents, as defined by the United States Census Bureau. However, the per capita use rate, which is used to calculate water demands, reflects use by seasonal residents as well.

In 2020, the estimated population within the LWC Planning Area was 1,188,599 permanent residents (**Table 2-2**). BEBR projections indicate the LWC Planning Area population will grow to 1,628,546 permanent residents in 2045, an increase of approximately 37%. Nearly two-thirds of the LWC Planning Area population resides in Lee County, while Collier County accounts for approximately one-third, and this trend is expected to continue. As explained in

Appendix A, BEBR medium projections were used for all counties to develop detailed population projections for PS utilities and county DSS areas (Rayer and Wang 2021).

Table 2-2. Permanent resident population served by PS and DSS in the LWC Planning Area in 2020 and 2045.

County	2020 Population			2045 Population		
	PS	DSS	**Total**	PS	DSS	**Total**
Charlotte*	3,891	1,746	**5,637**	15,840	2,910	**18,750**
Collier[a]	314,633	72,817	**387,450**	431,984	87,016	**519,000**
Glades*	4,906	4,484	**9,390**	5,942	5,029	**10,971**
Hendry*	27,551	8,078	**35,629**	28,934	12,391	**41,325**
Lee	645,114	105,379	**750,493**	889,064	149,436	**1,038,500**
LWC Planning Area Total	**996,095**	**192,504**	**1,188,599**	**1,371,765**	**256,781**	**1,628,546**

DSS = Domestic Self-Supply; LWC = Lower West Coast; PS = Public Supply.

* Values listed are only for the area within the LWC Planning Area boundary.

[a] The Seminole Tribe of Florida is a sovereign Indian Tribe and an independent Tribal Government separate from Collier County. However, for discussion purposes, information relating to the Seminole Tribe of Florida Immokalee Reservation is included in the calculations for Collier County.

PUBLIC SUPPLY

The PS category includes potable water supplied by water treatment plants with a current allocation of 0.10 mgd or greater and is the third largest water use category in the LWC Planning Area. Developing PS demand projections was a multistep process that included updating PS utility service areas and estimating DSS populations, calculating per capita use rates (PCURs), and projecting future water needs.

NOTE

Perceived discrepancies in table totals are due to rounding.

Per Capita Use Rates

For each PS utility, a net (finished) water PCUR was developed using past population estimates and finished water data reported to the FDEP. The PCUR for each utility is a 5-year (2016 through 2020) average, calculated by dividing annual net (finished) water volume by the corresponding service area population for each year. For PS demand projections, PCURs were assumed to remain constant through 2045. To calculate projected gross (raw) demands, the treatment efficiency for each utility, based on treatment process type(s) expected in 2045, was applied as a raw-to-finished ratio. Any demand reductions due to historical conservation practices were implicitly factored into the projections by using the 5-year average PCUR. Future water conservation savings (**Chapter 3**) were not factored into the demand projections used in this plan update due to water savings uncertainties. PS service area and water treatment plant maps are provided in **Appendix A**. Utility profiles containing population and finished water use data and projections as well as permitted allocations are provided in **Appendix B**.

PS Demand Estimates and Projections

Tables 2-3 and **2-4** present PS gross (raw) and net (finished) water demands, respectively, in 5-year increments by county. The results indicate PS gross (raw) water demands will increase approximately 35%, from 138.70 mgd in 2020 to 186.82 mgd in 2045 under average rainfall conditions. Calculation of 1-in-10-year demand increase is based only on the outdoor portion of PS use, and the methodology is explained in **Appendix A**.

Table 2-3. PS gross (raw) water demands in the LWC Planning Area by county.

County	Gross (Raw) Demand – Average Rainfall Conditions (mgd)						2045 1-in-10-Year Demand
	2020	2025	2030	2035	2040	2045	
Charlotte*	0.37	0.49	0.65	0.88	1.20	1.66	1.74
Collier[a]	58.58	62.97	67.32	71.41	75.17	78.73	84.66
Glades*	0.82	0.87	0.91	0.94	0.97	0.99	1.05
Hendry*	3.71	3.75	3.79	3.82	3.85	3.87	4.10
Lee	75.22	81.17	87.38	91.91	96.73	101.56	106.64
LWC Planning Area Total	**138.70**	**149.25**	**160.05**	**168.97**	**177.93**	**186.82**	**198.20**

LWC = Lower West Coast; mgd = million gallons per day; PS = Public Supply.
* Values listed are only for the area within the LWC Planning Area boundary.
[a] The Seminole Tribe of Florida is a sovereign Indian Tribe and an independent Tribal Government separate from Collier County. However, for discussion purposes, information relating to the Seminole Tribe of Florida Immokalee Reservation is included in the calculations for Collier County.

Table 2-4. PS net (finished) water demands in the LWC Planning Area by county.

County	Net (Finished) Demand – Average Rainfall Conditions (mgd)						2045 1-in-10-Year Demand
	2020	2025	2030	2035	2040	2045	
Charlotte*	0.31	0.40	0.53	0.71	0.96	1.32	1.39
Collier[a]	52.34	56.20	60.06	63.67	66.96	70.08	75.68
Glades*	0.69	0.72	0.76	0.78	0.81	0.83	0.88
Hendry*	2.65	2.68	2.71	2.73	2.75	2.77	2.94
Lee	65.08	70.40	75.88	79.86	84.04	88.25	92.66
LWC Planning Area Total	**121.06**	**130.39**	**139.93**	**147.75**	**155.54**	**163.25**	**173.55**

LWC = Lower West Coast; mgd = million gallons per day; PS = Public Supply.
* Values listed are only for the area within the LWC Planning Area boundary.
[a] The Seminole Tribe of Florida is a sovereign Indian Tribe and an independent Tribal Government separate from Collier County. However, for discussion purposes, information relating to the Seminole Tribe of Florida Immokalee Reservation is included in the calculations for Collier County.

DOMESTIC SELF-SUPPLY

The DSS category includes potable water used by households that are served by small utilities with current allocations less than 0.10 mgd or that are self-supplied by private wells. Permanent resident populations within DSS areas were developed simultaneously with the PS population estimates and projections. All permanent residents outside of PS utility service area boundaries were considered DSS population. Population projection methodology and results are further described in **Appendix A**.

Table 2-5 contains the LWC Planning Area's DSS demand estimates and projections under average rainfall conditions. The average PCUR of PS utilities in the county were used to calculate demands. For DSS demands, the raw to finished water ratio is assumed to be 1.00. Therefore, no distinction is made between gross (raw) and net (finished) water demands. Average DSS demands in 2020 were 24.27 mgd for 192,504 permanent residents (**Table 2-2**). DSS demands are expected to increase 30%, to 31.66 mgd for 256,781 residents in 2045. This increase can be attributed to high anticipated growth in DSS areas without expansion of PS utility service within those areas.

Table 2-5. DSS gross (raw) water demands in the LWC Planning Area by county.

County	Gross (Raw) Demand – Average Rainfall Conditions (mgd)						2045 1-in-10-Year Demand
	2020	2025	2030	2035	2040	2045	
Charlotte*	0.15	0.19	0.22	0.24	0.24	0.25	0.26
Collier[a]	12.09	13.73	14.42	14.69	14.69	14.44	15.60
Glades*	0.61	0.64	0.66	0.67	0.68	0.69	0.73
Hendry*	0.78	0.90	1.00	1.07	1.13	1.19	1.26
Lee	10.64	13.14	13.81	15.09	15.38	15.09	15.85
LWC Planning Area Total	**24.27**	**28.60**	**30.10**	**31.76**	**32.12**	**31.66**	**33.70**

DSS = Domestic Self-Supply; LWC = Lower West Coast; mgd = million gallons per day.

* Values listed are only for the area within the LWC Planning Area boundary.

[a] The Seminole Tribe of Florida is a sovereign Indian Tribe and an independent Tribal Government separate from Collier County. However, for discussion purposes, information relating to the Seminole Tribe of Florida Immokalee Reservation is included in the calculations for Collier County.

AGRICULTURE

The AG category includes self-supplied water used for commercial crop irrigation, greenhouses, nurseries, livestock watering, pasture irrigation, and aquaculture. AG is the largest water use category in the LWC Planning Area, accounting for over 60% of the region's total estimated water demand in 2020. Agricultural production in the LWC Planning Area is of regional significance, with 291,765 acres under irrigation (**Figure 2-1**).

Agricultural acreage data published by the Florida Department of Agriculture and Consumer Services (FDACS 2021) were used to determine water demands for this 2022 LWC Plan Update. Pursuant to Section 373.709(2)(a), F.S., water management districts are required to consider FDACS water demand projections. Any adjustments or deviations from the projections published by FDACS, "…must be fully described, and the original data must be presented along with the adjusted data." A detailed description of the analyses and adjustments is provided in **Appendix A**.

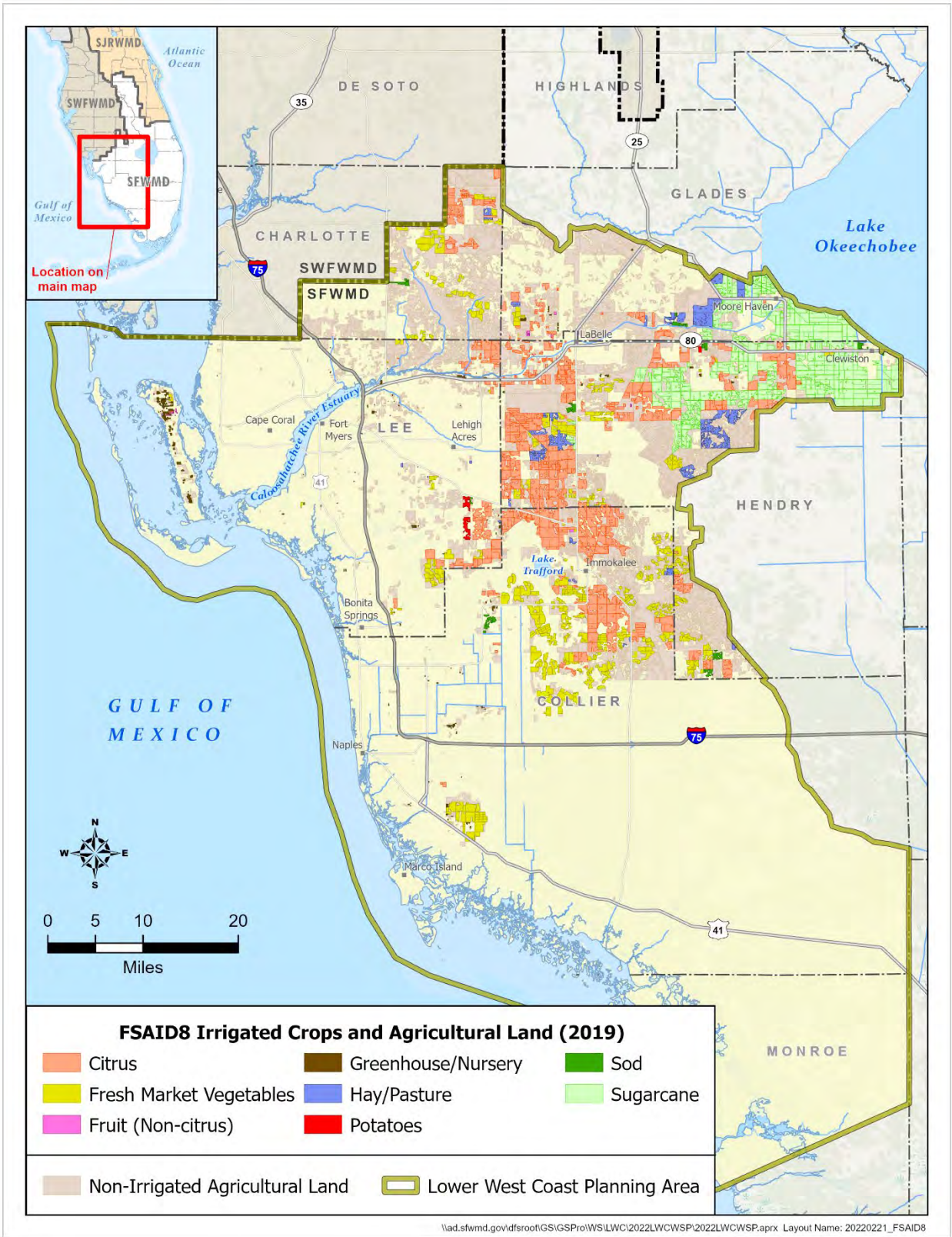

Figure 2-1. Agricultural irrigated land in the LWC Planning Area (Data from FDACS 2021).

Agricultural water demand was determined using the Agricultural Field-Scale Irrigation Requirements Simulation (AFSIRS) model (Smajstrla 1990). No distinction was made between gross and net water demands. The FDACS irrigated crop acres, soil types, growing seasons, and irrigation methods were used as input data for the AFSIRS model. AG demand estimates and projections are based on the commercially grown crop categories in **Table 2-6**, as generally developed by the FDEP and water management districts for use in water supply plans. Citrus and sugarcane are the predominant irrigated crops in the LWC Planning Area, currently encompassing 206,687 acres. Together, these two crop types account for more than half of the irrigated acreage and demand under average rainfall conditions. Irrigated fresh market vegetables, hay/pasture, greenhouse/nurseries, and sod are the next largest AG crop categories, with a combined 83,042 acres.

Table 2-6. AG irrigated acres and gross water demands (in mgd) in the LWC Planning Area by crop type.

Crop	2020			2045		
	Acres	Average Demand	1-in-10-Year Demand	Acres	Average Demand	1-in-10-Year Demand
Citrus	118,047	189.07	236.69	124,820	198.45	244.72
Sugarcane	88,640	224.19	236.79	86,706	219.22	247.17
Fresh Market Vegetables	60,251	122.06	143.24	62,961	128.83	150.87
Hay/Pasture	16,223	34.03	40.53	16,806	35.34	41.84
Greenhouse/Nursery	3,239	7.86	8.54	5,239	12.76	16.37
Sod	3,328	9.20	11.29	3,287	8.99	11.08
Potatoes	1,279	2.73	3.18	1,199	2.43	2.88
Field Crops	188	0.50	0.89	4,244	10.96	11.03
Fruits (excluding citrus)	570	0.81	1.81	1,800	2.85	3.89
LWC Planning Area Total	**291,765**	**590.45**	**693.06**	**307,062**	**619.83**	**729.85**

LWC = Lower West Coast; mgd = million gallons per day.

Total irrigated acres in the LWC Planning Area are projected to increase 5% by 2045. The majority of crops are projected to increase in acreage over the planning horizon, except for sugarcane, sod, and potatoes. The largest change in irrigated acreage and demand is expected to occur in the citrus industry. By 2045, sugarcane is expected to decrease by 1,934 acres, and average demands are projected to decrease by 4.97 mgd.

Gross AG demands under average rainfall conditions in the LWC Planning Area are projected to increase from 592.02 mgd in 2020 to 621.40 mgd in 2045 (**Table 2-7**). These totals include demands from livestock and aquaculture in addition to the demands for crop irrigation shown in **Table 2-6**. Demands for livestock and aquaculture in the LWC Planning Area in 2020 are estimated to be 1.13 mgd and 0.44 mgd, respectively, with demands remaining constant over the planning horizon.

INFO ⓘ

Examples of crop categories used in this report include the following:

Fresh Market Vegetables:
- Tomatoes
- Green beans
- Peppers
- Melons

Fruits (excluding citrus):
- Mangoes
- Strawberries
- Blueberries
- Grapes

Field Crops:
- Corn
- Corn silage

Table 2-7. AG gross water demands for all agricultural acreage, livestock, and aquaculture in the LWC Planning Area by county.

County	Gross Demand– Average Rainfall Conditions (mgd)						2045 1-in-10-Year Demand
	2020	2025	2030	2035	2040	2045	
Charlotte*	31.88	31.88	32.06	32.48	32.75	33.07	39.68
Collier	133.13	131.33	130.57	128.66	127.95	126.39	150.46
Glades*	98.95	95.87	100.14	107.75	113.97	120.49	141.88
Hendry*	294.54	295.40	296.18	299.36	304.14	311.02	360.25
Lee	33.52	33.14	32.76	32.18	31.23	30.43	39.16
LWC Planning Area Total	**592.02**	**587.62**	**591.72**	**600.44**	**610.04**	**621.40**	**731.42**

AG = Agriculture; LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

COMMERCIAL/INDUSTRIAL/INSTITUTIONAL

The CII water use category includes water demands associated with commercial and industrial operations for processing, manufacturing, and technical needs such as concrete, citrus processing, and mining operations. CII demands only include self-supplied users and do not include commercial or industrial users that receive water from PS utilities; those users are included in the PS category. All CII demand estimates and projections are presumed to be the same for average rainfall and 1-in-10-year drought conditions, and withdrawal demand is assumed to be equal to user demand. Therefore, no distinction is made between gross and net water demands. Growth within the CII category is expected to be driven by regional population growth. Estimated CII demands for 2020 were 37.73 mgd, with projected growth resulting in demands of 48.23 mgd in 2045 (**Table 2-8**).

Table 2-8. CII gross water demands in the LWC Planning Area by county.

County	Gross Demand (mgd)					
	2020	2025	2030	2035	2040	2045
Charlotte*	0.07	0.08	0.08	0.09	0.09	0.09
Collier	7.52	8.19	8.76	9.29	9.75	10.14
Glades*	13.76	14.45	15.03	15.48	15.94	16.26
Hendry*	4.59	4.82	5.02	5.17	5.27	5.38
Lee	11.79	13.09	14.14	14.98	15.73	16.36
LWC Planning Area Total	**37.73**	**40.63**	**43.03**	**45.01**	**46.78**	**48.23**

CII = Commercial/Industrial/Institutional; LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

LANDSCAPE/RECREATIONAL

L/R is the second largest water use category in the LWC Planning Area, encompassing irrigation of golf courses and other landscaped areas such as parks, sports fields, and common areas of residential developments. L/R demands are met with the use of groundwater, surface water, and reclaimed water. L/R acreages reflect only the acres under water use permits and do not include acres irrigated solely with reclaimed water that do not have a water use permit

for a supplemental or backup supply. Details regarding development of the L/R demands are provided in **Appendix A**.

Within the L/R category, 22,476 permitted acres were attributed to landscape irrigation. These landscaped areas are expected to grow 34% to 30,378 acres by 2045, which is approximately the same growth rate as the local population through 2045. In 2020, there were 128 golf courses irrigating 13,367 acres under water use permits in the LWC Planning Area (SFWMD 2022), and this is projected to increase by 130 acres by 2045.

Under average rainfall conditions, total estimated L/R gross water demands are projected to increase from 219.17 mgd in 2020 to 289.23 mgd in 2045 (**Table 2-9**). Groundwater and surface water supply sources met approximately 64% of the 2020 L/R water demands, with reclaimed water supplementing the remaining 36%. The ratio of reclaimed water to groundwater/surface water used to meet future landscape demands is assumed to remain constant. Golf course acreage is projected to remain relatively stable over the planning period and, as a result, water demand for golf is held relatively constant over the planning horizon, with a slight increase in Charlotte County. See **Chapter 5** for a discussion of reclaimed water as an alternative water supply source.

Table 2-9. L/R gross irrigation demands under average rainfall conditions in the LWC Planning Area (including reclaimed water).

Land Use	Demand – Average Rainfall Conditions (mgd)						2045 1-in-10-Year Demand
	2020	2025	2030	2035	2040	2045	
Charlotte County*							
Landscape	2.24	2.39	2.51	2.62	2.71	2.80	3.53
Golf	0.44	0.44	0.49	0.49	0.49	0.49	0.64
Charlotte County Total	**2.68**	**2.83**	**3.00**	**3.11**	**3.20**	**3.29**	**4.17**
Collier County							
Landscape	44.34	52.00	58.29	64.06	69.53	74.51	93.88
Golf	40.46	40.46	40.46	40.46	40.46	40.46	52.60
Collier County Total	**84.80**	**92.46**	**98.75**	**104.52**	**109.99**	**114.97**	**146.48**
Glades County*							
Landscape	0.13	0.14	0.15	0.15	0.15	0.15	0.19
Golf	0.05	0.05	0.05	0.05	0.05	0.05	0.07
Glades County Total	**0.18**	**0.19**	**0.20**	**0.20**	**0.20**	**0.20**	**0.25**
Hendry County*							
Landscape	0.64	0.67	0.70	0.72	0.73	0.74	0.93
Golf	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hendry County Total	**0.64**	**0.67**	**0.70**	**0.72**	**0.73**	**0.74**	**0.93**
Lee County							
Landscape	100.75	112.55	120.87	128.13	134.53	139.91	176.29
Golf	30.12	30.12	30.12	30.12	30.12	30.12	39.16
Lee County Total	**130.87**	**142.67**	**150.99**	**158.25**	**164.65**	**170.03**	**215.44**
LWC Planning Area Total							
Landscape	148.10	167.75	182.52	195.68	207.65	218.11	274.82
Golf	71.07	71.07	71.12	71.12	71.12	71.12	92.47
LWC Planning Area Total	**219.17**	**238.82**	**253.64**	**266.80**	**278.77**	**289.23**	**367.29**

L/R = Landscape Recreational; LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

POWER GENERATION

Demands under the PG category include use of groundwater, fresh surface water, or reclaimed water by thermoelectric power generation facilities. PG demands do not include the use of brackish surface water and cooling water returned to its withdrawal source, or seawater. Demands under average rainfall and 1-in-10-year drought conditions are assumed to be equal in the PG category; no distinction is made between gross and net water demands.

There are two power generation plants currently operating in the LWC Planning Area that are addressed in this plan update: Florida Power & Light (FPL) Fort Myers facility and the Lee County Solid Waste Energy Recovery Facility. In addition, FPL continues to expand its solar facilities throughout the LWC Planning Area; however, these facilities are photovoltaic systems and do not use water.

The FPL Fort Myers facility mainly uses brackish surface water from the Caloosahatchee River Estuary for its cooling tower technology as a one-time pass-through and is returned to the river. As a result, this is not considered as part of the demands, only the groundwater portion is considered. Groundwater is used for makeup water for steam generators, inlet spray coolers, and other industrial uses. For the planning period 2020 to 2045, the FPL Fort Myers facility is estimated to have a constant PG demand of 0.53 mgd. This demand is based on the average daily use in 2020 from groundwater sources.

The Lee County Solid Waste Energy Recovery Facility relies entirely on reclaimed water provided by the City of Fort Myers and is anticipated to continue relying on reclaimed water through the planning horizon. In 2020, 1.01 mgd of reclaimed water was supplied to this facility, and demands are anticipated to increase to 1.50 mgd by 2045. PG demands are expected to increase slightly from 2020 to 2045 (**Table 2-10**). More information on the development of PG estimates and projections is provided in **Appendix A**.

Table 2-10. Average gross water demands for PG in the LWC Planning Area between 2020 and 2045.

Facilities	Gross Demand (mgd)					
	2020	2025	2030	2035	2040	2045
FPL – Fort Myers	0.53	0.53	0.53	0.53	0.53	0.53
Lee County Solid Waste	1.01	1.08	1.16	1.50	1.50	1.50
LWC Planning Area Total	**1.54**	**1.61**	**1.69**	**2.03**	**2.03**	**2.03**

LWC = Lower West Coast; mgd = million gallons per day; PG = Power Generation.

SUMMARY OF DEMAND ESTIMATES

Total gross water demands under average rainfall conditions in the LWC Planning Area are projected to be 1,179.37 mgd by 2045, a 16% increase from 2020 demands (1,013.43 mgd). Demands under 1-in-10-year drought conditions are approximately 17% higher than those for average rainfall conditions in 2045.

Table 2-11 provides 5-year incremental summaries of gross demands for all water use categories in the LWC Planning Area under average rainfall and 1-in-10-year drought conditions. Gross demands under average rainfall conditions are used to demonstrate projected trends, including the following key highlights:

- PS and DSS gross demands combined are expected to increase 34%, from 162.97 mgd in 2020 to 218.48 mgd in 2045. PS will remain the third largest water use category in the LWC Planning Area.
- AG gross demands are projected to increase modestly from 592.02 mgd in 2020 to 621.40 mgd in 2045. AG will remain the largest water use category in the LWC Planning Area.
- CII gross demands are projected to increase 10.50 mgd over the planning period. The projected demand growth is related to regional population growth.
- L/R gross demands are projected to increase by 70.06 mgd by 2045. L/R will remain the second largest water use category in the LWC Planning Area.
- PG gross demands are projected to experience a slight increase over the planning period with 2.03 mgd expected in 2045.

Table 2-11. Summary of gross water demands under average rainfall and 1-in-10-year drought conditions in the LWC Planning Area by water use category.

Water Use Category	2020	2025	2030	2035	2040	2045
Demand – Average Rainfall Conditions (mgd)						
PS	138.70	149.25	160.05	168.97	177.93	186.82
DSS	24.27	28.60	30.10	31.76	32.12	31.66
AG	592.02	587.62	591.71	600.43	610.04	621.40
CII	37.73	40.63	43.03	45.01	46.78	48.23
L/R	219.17	238.82	253.64	266.80	278.77	289.23
PG	1.54	1.61	1.69	2.03	2.03	2.03
LWC Planning Area Total	**1,013.43**	**1,046.53**	**1,080.22**	**1,115.00**	**1,147.67**	**1,179.37**
Demand – 1-in-10-Year Drought Conditions (mgd)						
PS	147.22	158.38	169.83	179.29	188.79	198.20
DSS	25.86	30.46	32.06	33.80	34.19	33.70
AG	700.18	694.63	701.90	714.11	723.30	731.42
CII	37.73	40.63	43.03	45.01	46.78	48.23
L/R	279.01	303.76	322.45	339.03	354.11	367.29
PG	1.54	1.61	1.69	2.03	2.03	2.03
LWC Planning Area Total	**1,191.54**	**1,229.47**	**1,270.96**	**1,313.27**	**1,349.20**	**1,380.87**

AG = Agriculture; CII = Commercial/Industrial/Institutional; DSS = Domestic Self-Supply; L/R = Landscape Recreational; LWC = Lower West Coast; mgd = million gallons per day; PG = Power Generation; PS = Public Supply.

DEMAND PROJECTIONS IN PERSPECTIVE

Demand projections presented in this 2022 LWC Plan Update are based on the best available information. **Table 2-12** shows the 2040 average gross demands projected in the previous 2017 LWC Plan Update compared to the 2045 demands projected in this 2022 LWC Plan Update. The projections reflect trends, economic circumstances, and industry intentions that change over time, including a revised methodology of projection computations. Like any predictive tool based on past assumptions, there is uncertainty and a margin for error. The total demand projection for 2045 in this 2022 LWC Plan Update is 3% less than the estimated 2040 demand projected in the 2017 LWC Plan Update.

Table 2-12. Comparison of gross water demands under average rainfall conditions at the end of respective planning horizons in the 2017 LWC Plan Update and this 2022 LWC Plan Update.

Water Use Category	2017 LWC Plan Update	2022 LWC Plan Update	Percent Difference
	2040 Demand (mgd)	2045 Demand (mgd)	
Public Supply	199.88	186.82	-7%
Domestic Self-Supply	33.18	31.66	-5%
Agriculture	678.83	621.40	-8%
Commercial/Industrial/Institutional	29.07	48.23	66%
Landscape/Recreational	254.32	289.23	14%
Power Generation	15.40	2.03	-86%
LWC Planning Area Total	**1,210.68**	**1,179.37**	**-3%**

LWC = Lower West Coast; mgd = million gallons per day.

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3

Demand Management: Water Conservation

Demand management through water conservation is an important element of water supply planning and entails reducing the quantity of water required to meet demands through water use efficiency improvements and the prevention or reduction of unnecessary uses or losses of water. Water conservation contributes to the sustainability of water supply resources. Section 373.709(2), Florida Statutes (F.S.), requires that water conservation be considered when determining if the total capacity of the water supply development project options included in a water supply plan (**Chapter 8**) are greater than the increase in projected demands for the planning horizon (**Chapter 2**).

TOPICS

- Conservation Measures
- Conservation Programs
- Regulatory Initiatives
- Potential for Water Conservation Savings
- Conclusions

Conservation and efficiency measures should be maximized, regardless of the water source, before more costly water supply development options are implemented. Water conservation can reduce, defer, or eliminate the need to develop new water supply sources to meet current or future demands, which is comparable with expanding the existing water supply. Moreover, conservation and demand management have been shown to reduce costs to utilities and rate payers over the long term (Chesnutt et al. 2018, Feinglas et al. 2013). Improving water use efficiency can also reduce operational costs for most other users.

This chapter describes water conservation measures and programs and provides an estimate of potential water savings (demand reduction) achievable by 2045 in the Lower West Coast (LWC) Planning Area. Additional conservation information can be found in the *Support Document for the 2021-2024 Water Supply Plan Updates* (2021-2024 Support Document; SFWMD 2021), in the Comprehensive Water Conservation Program (SFWMD 2008), and on the SFWMD webpage (https://www.sfwmd.gov/conserve).

CONSERVATION MEASURES

The average per capita water use rate in the LWC Planning Area has decreased from about 177 gallons per capita per day (gpcd) in 2000 to about 123 gpcd in 2020 (**Figure 3-1**). However, more recently over the last 5 years, per capita water use has remained relatively stable, between approximately 123 gpcd and 127 gpcd. The leveling off of per capita water

use is thought to be mostly due to a reliance on passive water savings, which result from the introduction of water-efficient fixtures and appliances into the marketplace, replacing older devices with more water-efficient models. Federal, state, and local codes and standards foster the development and use of more efficient devices, increasing passive savings. However, depending solely on passive savings will delay or exclude substantial conservation savings potential. Therefore, additional conservation measures and programs are necessary to encourage the use of high-efficiency equipment or improved water use behaviors that yield water savings, including increased outreach, education, and messaging to water users. Local governments, utilities, and large water users are encouraged to research which types of programs would be most appropriate and cost-effective for their residents and specific user groups and to develop goal-based water conservation plans that include development of public education and messaging. Cost-share funding and other collaborative opportunities may be available to help implement conservation strategies and programs. The following subsections include a brief description of conservation measures that can be implemented for outdoor and indoor water use applications.

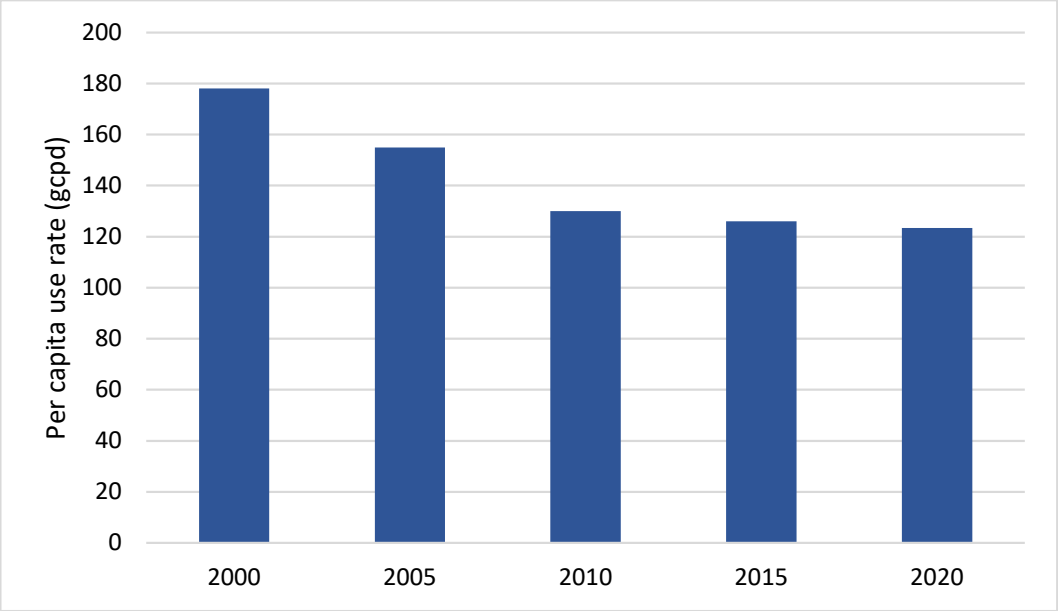

Figure 3-1. Net (finished) water per capita use rate (in gallons per capita per day) within the LWC Planning Area.

Outdoor Water Use (Irrigation)

A significant share of water used outdoors in the LWC Planning Area is for irrigation. Lawns and landscapes are irrigated by residential and commercial property owners, while irrigation of food and other commodity crops is practiced by agricultural water users. Many irrigation efficiency principles are common across these user groups; however, patterns and scales of use, system design, hardware and components, and operator knowledge can vary widely.

Agriculture

Many alternatives for improving irrigation delivery efficiency and conserving water in agricultural operations are available and should be considered for implementation when

economically feasible. Typically, agricultural water conservation measures fall under three categories: 1) converting from one irrigation method (or system type) to a more efficient one; 2) improving the precision irrigation management capabilities of the system; and 3) implementing best management practices (BMPs). Real-time information on soil moisture and weather conditions, along with remote operation to allow quick irrigation changes in response to changing weather, can help adjust when water is delivered to precisely meet crop needs. Hardware and technology that can improve system management, reduce water quantities used to meet crop needs, and minimize water losses include the following:

- Flowmeters
- Weather stations
- Soil moisture sensors
- Variable-frequency pump drives
- Automated control systems
- Best management practices (e.g., laser leveling, irrigation system maintenance)

Urban

In South Florida, where irrigation occurs year-round, the largest portion of water used by urban water users served by utilities often is for irrigation. Moreover, the United States Environmental Protection Agency estimates approximately 50% of water used outdoors is wasted due to inefficient watering methods and systems. Therefore, improvements to irrigation efficiency are considered a primary target for conserving water used by urban water users.

Irrigation efficiency improvements can be achieved at single- and multi-family residences, commercial and institutional properties, recreational areas (e.g., parks, athletic fields, golf courses), and other landscaped areas (e.g., roadway medians) by replacing outdated irrigation systems and timers. Automatic controllers should be tested and shown to meet the United States Environmental Protection Agency's WaterSense program specifications for water efficiency and performance. More information on the WaterSense program and labeled irrigation controllers is available at https://www.epa.gov/watersense. All automatic lawn and landscape irrigation systems must be properly equipped with technology that inhibits or interrupts the system's operation during periods of sufficient rainfall (Section 373.62, F.S.).

Golf courses typically are irrigated with a high degree of efficiency. However, opportunities to improve efficiency may exist using many of the same types of hardware and technology as described above. Additional practices for efficient golf course water use can be found in *Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses* published by the Golf Course Superintendents Association of America (2021) for golf course managers https://www.gcsaa.org/environment/bmp-planning-guide.

Indoor Water Use

Another area of potential conservation savings is indoor water use in single- and multi-family residences and commercial/institutional buildings (e.g., office buildings, restaurants, movie theaters, long-term care facilities, hospitals). Potential measures include detecting and repairing water leaks and replacing older, inefficient plumbing fixtures (e.g., toilets, urinals, faucets, showerheads) with models that have been tested and shown to meet the WaterSense program specifications for water efficiency and performance. Older, inefficient appliances can be replaced with water-efficient models that have received the ENERGY STAR label. For more information on the ENERGY STAR program and to find labeled products, visit https://www.energystar.gov.

Common water efficiency improvement measures for commercial and industrial users are outlined in the SFWMD's (2013) *Water Efficiency Audit Guide*, which is discussed in greater detail in the 2021-2024 Support Document (SFWMD 2021). Measures for improving water efficiency in nonresidential settings may be applicable to specific operations or facilities such as autoclaves in hospitals; pre-rinse spray valves, food steamers, and waste grinders in restaurants; heating, ventilation, and air conditioning (HVAC) system efficiency upgrades; converting water-based cooling devices to air-based; and water reuse/recycling in industrial operations. Other applicable measures may exist for specific industrial processes.

CONSERVATION PROGRAMS

Conservation programs help educate water users and facilitate adoption of effective water conservation measures (e.g., specific actions or hardware that improve water use efficiency). Utilities and local governments are the primary entities that develop and implement conservation programs. Other regional and state agencies may also assume a leadership role in promoting and providing cost-share funding for water conservation. Utilities and local governments are encouraged to analyze their service areas and jurisdictions to determine potential user groups and programs that may be most suitable for them. The following subsections contain brief descriptions of established conservation programs that may be applicable to different water use categories.

Education, Outreach, and Marketing

Although water savings attributed to education, outreach, and marketing campaigns are difficult to quantify, such campaigns are essential to reducing water use and instilling a lasting conservation ethic in businesses and communities. Developing a conservation ethic and educating water users enable people to know why conservation is important and necessary, what conservation measures are available, and how they can implement them. Campaigns usually are conducted by regional/local agencies or utilities and are designed to reach specific user groups (e.g., residents, schools, commercial properties), providing consistent and regular messaging.

The SFWMD maintains its commitment to water conservation education through distributing educational materials, conducting speaking engagements, and utilizing social media platforms to raise awareness about the necessity of saving water.

Cost-Share Funding Programs

SFWMD Cooperative Funding Program

The Water Conservation component of the SFWMD Cooperative Funding Program (CFP) seeks to support projects that improve water use efficiency and conservation. The CFP provides financial incentives to local governments and utilities, homeowners' associations, commercial entities, and agricultural operations to implement technology and hardware-based water conservation projects. Historically, funding for the CFP has come from both ad valorem taxes and the Florida Legislature through the Florida Department of Environmental Protection. CFP funding is considered annually during the SFWMD's budget development process. Since the 2017 LWC Plan Update, the SFWMD has provided approximately $3 million in water conservation funding for 60 projects Districtwide. Over the same period (Fiscal Year [FY] 2017 through FY2021), 3 water conservation projects were funded in the LWC Planning Area for a total of $40,000 and 0.08 million gallons per day (mgd) of water saved. Currently funded projects are listed in **Chapter 8**. The CFP is expected to continue although future funding levels are uncertain. The District's Governing Board has instituted that beginning in FY2023, local governments must have an adopted year-round irrigation ordinance that fully comports with the SFWMD's Mandatory Year-Round Landscape Irrigation Conservation Measures Rule (Chapter 40E-24, Florida Administrative Code [F.A.C.]) in order to be eligible for alternative water supply or water conservation funding through the CFP. Additional information regarding the CFP can be found on the SFWMD's webpage (https://www.sfwmd.gov/doing-business-with-us/coop-funding).

SUCCESS STORY

Bonita Springs Utilities received $10,000 (total project cost $25,000) to fund a high-efficiency toilet rebate program that issued 251 rebates targeting older homes in its service area saving over 1.5 million gallons per year of potable water. The cost per 1,000 gallons saved was less than $0.90.

Environmental Quality Incentives Program

The Environmental Quality Incentives Program (EQIP), implemented through the United States Department of Agriculture – Natural Resources Conservation Service, promotes agricultural production and environmental quality. Financial and technical assistance is offered to participants to address natural resource concerns and deliver environmental benefits such as improved water and air quality, conserved groundwater and surface water, reduced soil erosion and sedimentation, and improved or created wildlife habitat. From FY2017 through FY2021, EQIP has provided $469,770 in funding for irrigation projects covering a total of 378 acres. EQIP is expected to continue although future funding levels are uncertain.

Certification and Recognition Programs

There are several national and statewide certification and recognition programs that direct builders, property owners, and building managers toward meeting environmentally friendly standards. Such programs include the Florida Green Building Coalition's green certification programs, the Florida Department of Environmental Protection's Green Lodging Program, the United States Green Building Council's Leadership in Energy and Environmental Design (LEED), and the Green Building Initiative's Green Globes Certification. These holistic programs typically include criteria affecting water use, energy efficiency, climate-adaptive landscaping, sustainable building material, site selection, indoor environmental quality, and greenhouse gas emissions.

INFO ⓘ

Florida-Friendly Landscaping means using low-maintenance plants and environmentally sustainable landscaping practices to conserve water, reduce pollution and erosion, and create wildlife habitat.

With respect to growing development and finite water resources, there are single-focus programs that target water use efficiency. These programs often are less expensive for builders and property managers than holistic ones. Two single-focus programs endorsed by all Florida water management districts are Florida Water Star and Florida-Friendly Landscaping Recognition. More information on these programs can be found on their individual program webpages and on the SFWMD's water conservation webpage (https://www.sfwmd.gov/conserve).

Other Programs

Agricultural Best Management Practices Program

The Florida Department of Agriculture and Consumer Services (FDACS) develops and adopts agricultural BMPs by rule for different types of agricultural operations. As of March 2022, there are 534,966 acres within the LWC Planning Area enrolled in the FDACS BMP program. All agricultural water users are encouraged to enroll in the FDACS BMP program and also to learn about the FDACS Agricultural-Environmental Leadership Award which recognizes environmentally innovative farming practices. Local governments and agencies should consider promoting these programs to agricultural operations.

Agricultural Mobile Irrigation Labs

The FDACS Mobile Irrigation Lab (MIL) program performs free evaluations of irrigation system efficiency on agricultural lands and makes recommendations for physical and operational improvements. Such recommendations may include modification of irrigation systems and equipment, alteration of irrigation scheduling, and other aspects of system management. Of the eight MILs operating in Florida, one (the Lower West Coast MIL) serves Charlotte, Collier, Glades, Hendry, and Lee counties.

Florida Automated Weather Network

The Florida Automated Weather Network (FAWN), operated by the University of Florida – Institute of Food and Agricultural Sciences (UF/IFAS), provides weather information throughout the state at 15-minute intervals. FAWN management tools provide decision support functions to growers using historical and real-time weather data and crop modeling technology to help with short- and long-term planning, thereby maximizing the efficiency of irrigation practices (UF/IFAS 2022). Currently, there are three FAWN stations (Palmdale, Clewiston, and Immokalee) supported by the SFWMD in the LWC Planning Area. Additional information for these stations is available at http://www.fawn.ifas.ufl.edu.

REGULATORY INITIATIVES

Regulations are useful tools to assist in the implementation of better practices and more efficient devices. The SFWMD requires that water conservation measures and programs be considered for users with water use permits. For a proposed use of water to be deemed reasonable-beneficial, water users requiring a permit must include a water conservation plan in the permit application. Section 2.3.2 of the *Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District* (SFWMD 2022) includes specific water conservation requirements for various water use categories.

The SFWMD's Mandatory Year-Round Landscape Irrigation Conservation Measures Rule (Chapter 40E-24, F.A.C.) was adopted to help protect South Florida's water resources by addressing landscape irrigation (the largest area of residential water use and greatest potential for viable water use reduction). In short, the rule limits landscape irrigation to 2 or 3 days per week, depending on location and local circumstances, and contains provisions for new landscaping and other situations that require a deviation from the rule requirements.

Adoption of local ordinances that comport with Chapter 40E-24, F.A.C. and associated outreach and education to residents, is crucial to reducing landscape irrigation water use. When local governments implement irrigation ordinances, it demonstrates a commitment to water resource protection through conservation.

To assist local governments in adopting such an ordinance, the SFWMD has created a model ordinance, a model code, and several customizable outreach materials designed to educate residents on their local irrigation ordinance. As of March 2022, 11 of 17 local governments within the LWC Planning Area had adopted a year-round irrigation ordinance. **Table 3-1** presents the list of governments in the LWC Planning Area and their ordinance adoption status. Additional information and example documents for local implementation are available on the SFWMD's webpage (https://www.sfwmd.gov/conserve).

Table 3-1. List of local governments in the LWC Planning Area and their irrigation ordinance adoption status.

Local Governments in the LWC Planning Area	Adopted Irrigation Ordinance	
	YES	NO
Bonita Springs, City of	×	
Cape Coral, City of	×	
Charlotte County*	×	
Clewiston, City of		×
Collier County	×	
Estero, Village of	×	
Everglades, City of	×	
Ft. Myers, City of	×	
Ft. Myers Beach, Town of		×
Glades County		×
Hendry County		×
LaBelle, City of		×
Lee County	×	
Marco Island, City of	×	
Moore Haven, City of		×
Naples, City of	×	
Sanibel, City of	×	

*Charlotte County follows the Southwest Florida Water Management District's irrigation restrictions.

POTENTIAL FOR WATER CONSERVATION SAVINGS

Potential conservation water savings for the LWC Planning Area were estimated for the following water use categories: Agriculture (AG), Public Supply (PS), Domestic Self-Supply (DSS), and Landscape/Recreational (L/R). For the Commercial/Industrial/Institutional (CII) and Power Generation (PG) water use categories, potential water savings were estimated only for potable indoor water use, which was assumed to be provided by a PS utility. Therefore, those potential savings are accounted for under PS. The methods used to estimate the savings for each category are discussed in each subsection.

Agriculture

AG is the largest water use category in the LWC Planning Area, accounting for 62% (592 mgd) of the total demand in 2020 and is expected to rise to 621 mgd in 2045. In addition, irrigated AG acreage is projected to increase approximately 5% (from 291,765 acres in 2020 to 307,062 acres in 2045), suggesting that AG will continue to be the largest water use sector.

As discussed in **Chapter 2** and **Appendix A**, the annual Florida Statewide Agricultural Irrigation Demand (FSAID) report published by FDACS includes 20-year estimates and projections of agricultural acreage and water demands. Estimated efficiency improvement (i.e., conservation estimate) is one of the parameters calculated by the FSAID model, and the spatially based data that contribute to the water demand estimates and projections are available by water management district planning area. The potential AG conservation savings within the LWC Planning Area were determined using the FSAID geodatabase (https://www.fdacs.gov/Agriculture-Industry/Water/Agricultural-Water-Supply-Planning). The methodology for calculating the potential AG conservation savings is more fully described in Appendix E of the FSAID VIII report (FDACS 2021), but generally is based on estimated historical use determined from the United States Department of Agriculture's Farm and Ranch Irrigation Surveys and actual water savings data from MILs. The projected conservation savings are based primarily on irrigation system changes, changes in scheduling, and sensor-based automation.

The total savings calculated by the FSAID model for any given year depends on the crops produced, the acreage of each crop, and the irrigation systems employed, as projected to exist in that year. Because these variables change over the planning horizon (2020 to 2045), projected savings also change and may be nonlinear. The estimated conservation potential for the AG water use category in the LWC Planning Area in 2045 is 15.64 mgd.

Landscape/Recreational

The L/R use category is the second largest and includes irrigation of landscaped areas such as parks, athletic fields, roadway medians, commercial spaces, large private residential properties, and golf courses. Because their demands are estimated in different ways, golf course potential water savings are discussed separately from other permitted landscape irrigation.

There are approximately 3,717 active landscape irrigation water use permits in the LWC Planning Area. Landscape irrigation is projected to use a total of 289 mgd in 2045. To estimate the potential water conservation savings for landscaped areas, a variety of irrigation efficiency measures were applied to 30% of the permits over the planning horizon, yielding a 7% savings. Assuming an average per permit use for each county, the estimated conservation potential for landscape irrigation in 2045 is 8.31 mgd.

Golf Courses

There are 128 active water use permits in the LWC Planning Area (58 in Collier County, 69 in Lee County, and 1 in Glades County) for golf course irrigation. Indoor potable water use at golf courses is assumed to be provided by a PS utility. There are no active golf course permits in the portions of Charlotte and Hendry counties within the LWC Planning Area boundary.

Irrigation demands for golf courses in the LWC Planning Area are projected to decrease by 13% as acreage devoted to golf courses is projected to go from 13,367 acres in 2020 to 13,170 acres in 2045. Most golf courses are irrigated with a high degree of efficiency. According to a 2019 statewide survey of Florida Golf Course Superintendents Association members, 55% of golf courses use advanced irrigation controllers (Irwin and Wanvestraut 2020). A conservation program would therefore aim to affect the golf courses not yet using advanced irrigation controllers.

To estimate the potential water conservation savings for golf courses, a variety of irrigation efficiency measures were applied to 30% of the 128 permitted golf courses over the planning horizon, yielding a 10% savings. Assuming an average per permit use for each county, the estimated conservation potential for golf courses in 2045 is 4.40 mgd and combined with the potential savings for landscape irrigation (8.31 mgd) is a total savings of 12.71 mgd for the L/R use category.

Public Supply and Domestic Self-Supply

PS is the third largest water use category in the LWC Planning Area and is projected to increase through the planning horizon. PS accounted for an estimated 121 mgd of finished water demand in 2020 and 163 mgd in 2045 projected demands (**Chapter 2**). DSS is estimated to have demands of 24 mgd in 2020 and projected to have 32 mgd in 2045. Historical conservation efforts in PS are reflected in the per capita use rate, which has declined approximately 30% between 2000 and 2020. This decline likely is the result of new construction using higher-efficiency fixtures and/or designed for more efficient water use, the SFWMD's Mandatory Year-Round Landscape Irrigation Conservation Measures Rule (Chapter 40E-24, F.A.C.), conservation rate structures, public education, and other conservation factors. Local and tribal governments are encouraged to conduct educational outreach to promote and incentivize water conservation among DSS users.

Estimates of active and passive water conservation potential for each county in the LWC Planning Area were made for residential and nonresidential users (in both PS service areas and DSS areas) using the Alliance for Water Efficiency Conservation Tracking Tool (AWE Tool), Version 4.0 (AWE 2021). The AWE Tool calculates active water savings for

user-selected conservation measures based on the number of measures implemented annually over the planning horizon, and the per unit savings and service lives of each measure. Passive savings are generated by the AWE Tool based on natural replacement of toilets, showerheads, and water-using appliances at the end of their service lives, whose current or future minimum efficiency is dictated by national, state, or local code requirements. Baseline data include Florida Department of Revenue parcel information, University of Florida Bureau of Economic and Business Research household data and population projections, and Florida Department of Environmental Protection finished water monthly operating reports (as used in this plan update for demand projections; **Appendix A**). Conservation potential for DSS was analyzed with PS users and extracted in proportion to its percentage of the total population in each county.

For this 2022 LWC Plan Update, seven frequently implemented measures were selected and quantified to generate the potential water savings for PS and DSS. Conservation measures included in the estimates for residential users supplied by PS utilities and DSS users were limited to the following measures: high-efficiency toilets, showerheads, clothes washers, irrigation audits, landscape evaluations, advanced irrigation controllers, and water use audits. For many types of permit holders, including CII and PG, indoor potable water use often is provided by a PS utility. Conservation measures for nonresidential users served by PS utilities included high-efficiency toilets and urinals.

For all measures, the conservation (demand reduction) estimate assumes a participation rate of 30% of the total annual potential implementations for each applicable measure. This assumption means 30% of all possible implementations would be accomplished over the planning horizon (2020 to 2045), which is thought to be an achievable participation rate for most conservation measures. The combined estimated conservation potential by PS and DSS (active and passive savings) in the LWC Planning Area in 2045 is 16.46 mgd.

Commercial/Industrial/Institutional

For CII permit holders, indoor potable water use is assumed to be provided by a PS utility. Therefore, conservation savings estimates were captured during the PS analysis by the measures targeting nonresidential users (i.e., high-efficiency restroom fixtures and HVAC efficiency improvement measures). CII permitted water use was not analyzed for conservation potential as those uses were assumed to be process-specific and, therefore, difficult to estimate within the scope of a regional analysis.

Power Generation

PG facilities use large quantities of water for cooling, but most of the water is returned to the source from which it was obtained. As a result, there are minimal efficiency gains to be had from the cooling process. Potential savings for PG were not estimated as part of this analysis. As with the CII use category, indoor potable water use at PG facilities is assumed to be provided by a PS utility. Therefore, conservation savings estimates were captured during the PS analysis in the AWE Tool by the measures specifically targeting nonresidential users (i.e., high-efficiency restroom fixtures and HVAC efficiency measures).

CONCLUSIONS

Table 3-2 summarizes potential water savings for the LWC Planning Area in all use categories using common water conservation measures. Greater conservation savings may be possible if additional measures are implemented or if increased participation rates are realized. Participation rates can be influenced by ineffective marketing and high implementation costs. The estimates presented in this report are conservative and not intended to represent the full conservation potential utilizing all measures available. Studies have found adoption of demand-side water conservation is highly variable (Rasoulkhani et al. 2018). A comprehensive list of conservation measures and applicable water use categories can be found in the *Support Document for the 2021-2024 Water Supply Plan Updates* (2021-2024 Support Document; SFWMD 2021).

Table 3-2. Potential water saved (in mgd) in the LWC Planning Area based on demand reduction estimates achievable by 2045.

Use Category	County					2045 Total by Sector
	Charlotte[a]	Collier	Glades	Hendry	Lee	
Agriculture	1.35	5.51	2.02	4.72	2.04	15.64
Landscape/Recreational[b]	0.17	5.25	0.02	0.06	7.21	12.71
Public Supply[c]	0.05	3.62	0.10	0.27	8.37	12.39
Domestic Self-Supply[c]	0.07	2.45	0.08	0.11	1.34	4.07
LWC Planning Area Total	**1.70**	**14.80**	**2.21**	**5.17**	**19.63**	**44.81**

mgd = million gallons per day; LWC = Lower West Coast.

[a] Values listed are only for the area within the LWC Planning Area boundary. There is only one public supply utility located in the portion of Charlotte County within the LWC Planning Area.

[b] Includes golf and landscape/recreational savings.

[c] Includes passive savings.

Regional and local agencies should conduct thorough analyses of their service areas, allocate adequate funding to assist individual users to make the necessary investments in conservation, and reduce the need for more costly projects in the future. Cities and utilities should consider the use of conservation planning tools. A robust public outreach and education component is critical to the success of all conservation programs. Finally, District staff are available to assist conservation program developers with technical support, collaborative program implementation, ordinance review, and long-term demand management planning.

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4

Water Resource Protection

This chapter provides an overview and update of protections afforded to water resources within the Lower West Coast (LWC) Planning Area through statutory and regulatory criteria. The ability to meet the water demands described in **Chapter 2** largely depends on the future availability of water resources. Understanding the relationship among projected water demands, water sources, and limitations imposed on withdrawals is critical to water supply planning.

TOPICS

- Water Resource Protection Standards
- Regulatory Protection of Water Resources
- Summary of Water Resource Protection

Past analyses indicated groundwater from the surficial and intermediate aquifers as well as surface water from Lake Okeechobee and canals were insufficient to meet the growing needs of the LWC Planning Area during 1-in-10-year drought conditions. Potential impacts on wetlands, the possibility of exacerbating saltwater intrusion, and other factors limit the use of these water bodies as water sources. In 2003, the South Florida Water Management District (SFWMD or District) adopted maximum developable limit criteria for surficial and intermediate aquifers within the LWC Planning Area. Additionally, restricted allocation area (RAA) rules were adopted for the Lower East Coast Everglades Waterbodies in 2007 and for the Lake Okeechobee Basin (Lake Okeechobee and Lake Okeechobee Service Area) in 2008 to address lower lake management levels and storage under the United States Army Corps of Engineers' (USACE's) Lake Okeechobee Regulation Schedule (LORS2008).

NOTE

MFLs and recovery strategies for Lake Okeechobee and the Everglades affect portions of the LWC Planning Area but are included in the Lower East Coast water supply plan updates.

To further protect water resources in the LWC Planning Area, minimum flows and minimum water levels (MFLs) were adopted in 2001 for the Caloosahatchee River, LWC Aquifers, Lake Okeechobee, and the Everglades (**Figure 4-1**). In addition, water reservations for the protection of fish and wildlife were adopted for Picayune Strand and Fakahatchee Estuary in 2009 and the Caloosahatchee River (C-43) West Basin Storage Reservoir in 2014.

This chapter discusses water use permitting criteria as well as MFLs, water reservations, and RAAs adopted in the LWC Planning Area. Further information about permitting and other resource protections, including those related to Comprehensive Everglades Restoration Plan (CERP) projects, is provided in the *Support Document for the 2021-2024 Water Supply Plan Updates* (2021-2024 Support Document; SFWMD 2021). Water resource development

projects that provide additional water, including projects supporting MFLs, water reservations, and RAAs, are discussed in **Chapter 7**.

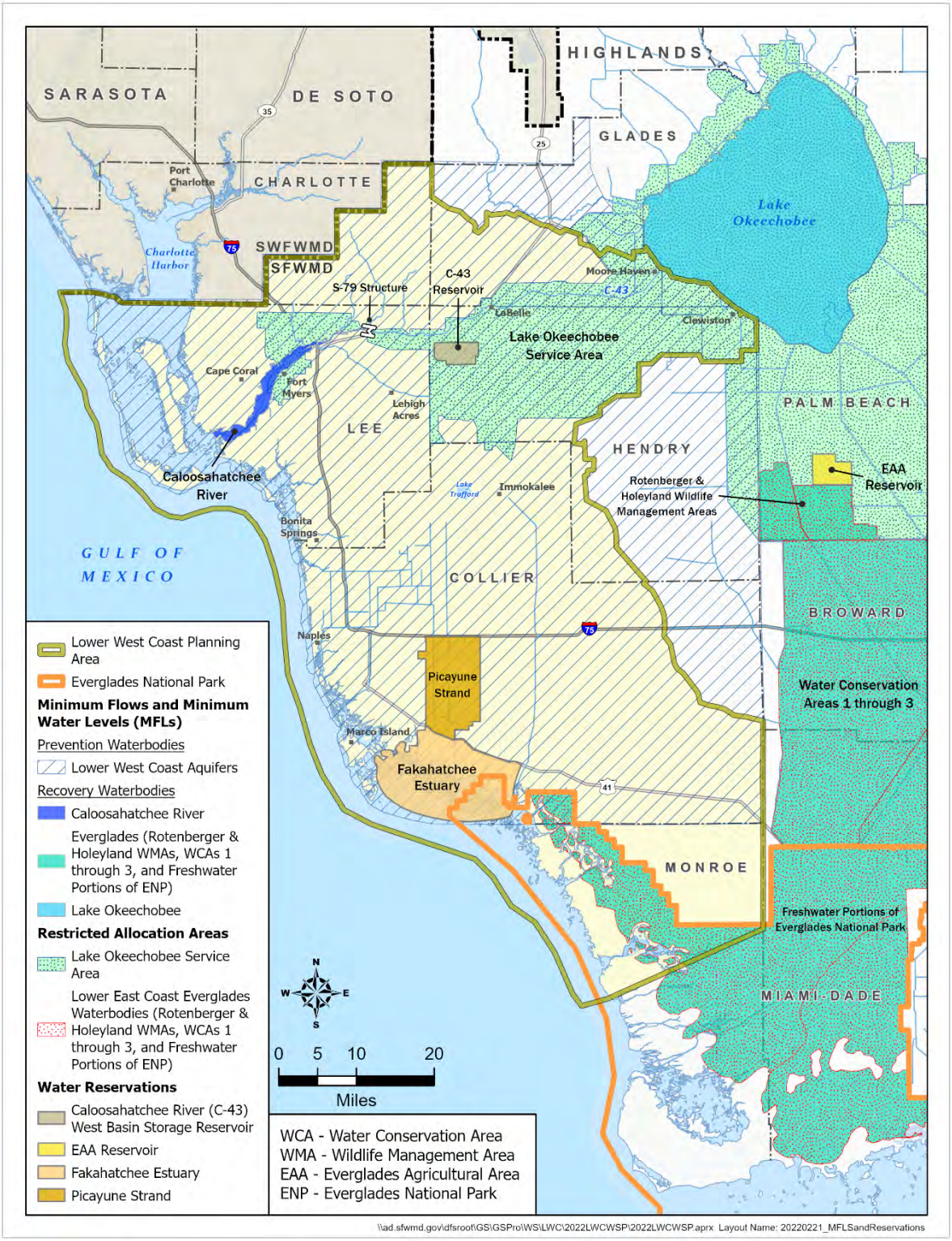

Figure 4-1. Adopted minimum flows and minimum water levels, water reservations, and restricted allocation areas in the LWC Planning Area.

WATER RESOURCE PROTECTION STANDARDS

The intent of Chapter 373, Florida Statutes (F.S.), is to promote the availability of sufficient water for all existing and future reasonable-beneficial uses and natural systems pursuant to Section 373.016(3)(d), F.S. The SFWMD developed water resource protection standards, consistent with legislative direction, that are implemented to prevent various levels of harm (no harm, harm, significant harm, and serious harm). Each standard plays a role in achieving sustainable water resources. For instance, programs regulating surface water management and water use permitting must prevent harm to water resources, including related natural systems. **Figure 4-2** represents the conceptual relationship among water resource protection tools and standards, observed impacts, and water shortage severity. A more detailed discussion of resource protection tools, including water use permitting and water shortage rules, and definitions of the protection standards can be found in the 2021-2024 Support Document (SFWMD 2021).

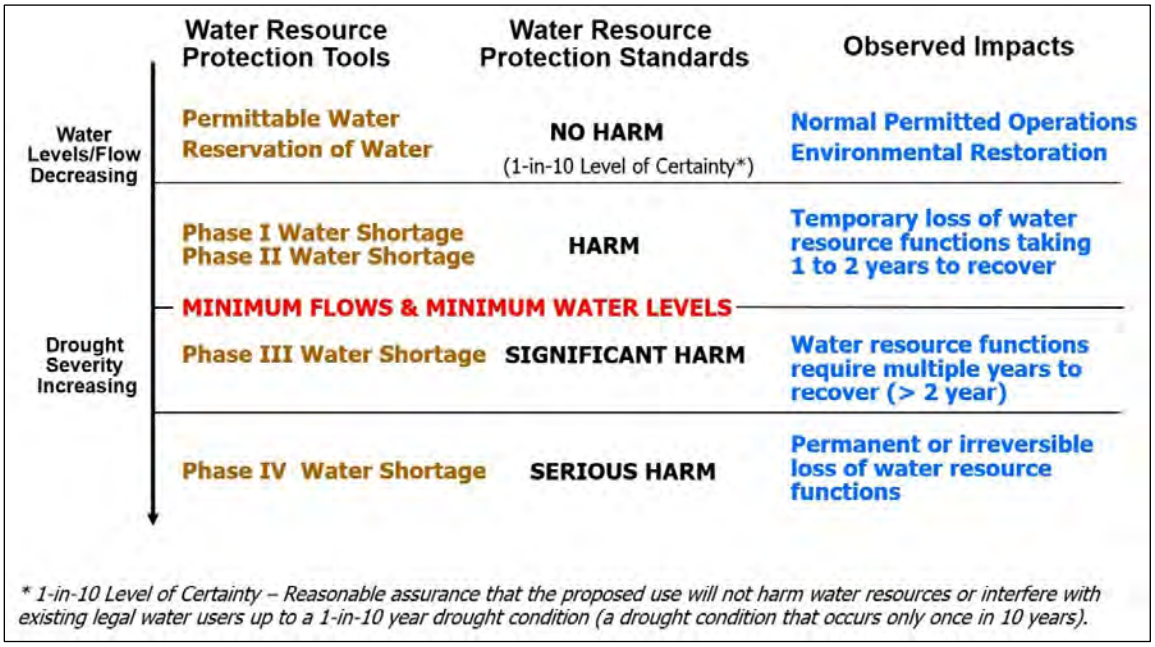

Figure 4-2. Conceptual relationship among water resource protection standards at various levels of water resource harm (Modified from Rule 40E-8.421, F.A.C.).

REGULATORY PROTECTION OF WATER RESOURCES

Water Use Permitting

Unless exempt by statute or identified in the Water Rights Compact of 1987, the right to use water is authorized by permit, which allows for the use of water for reasonable-beneficial uses while protecting natural systems from harm. Water use permit applicants must provide reasonable assurances that the proposed water use 1) is reasonable-beneficial, 2) will not interfere with any existing legal use of water, and 3) is consistent with the public interest as required by Section 373.223(1), F.S. The proposed water use must comply with the water resource protection criteria (see Rule 40E-2.301, Florida Administrative Code [F.A.C.], and the *Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District* [Applicant's Handbook; SFWMD 2022]), including 1) implementation criteria for regulatory components of an adopted MFL recovery or prevention strategy, 2) implementation criteria for water reservations, and 3) RAA criteria. Additional information about water use permitting can be found in the 2021-2024 Support Document (SFWMD 2021).

INFO ⓘ

The Seminole Tribe of Florida has surface water entitlement pursuant to the 1987 Water Rights Compact among the Seminole Tribe of Florida, the State of Florida, and the SFWMD (Public Law 100-228, 101 Statute 1566, and Chapter 87-292, Laws of Florida, as codified in Section 285.165, F.S.).

Minimum Flows and Minimum Water Levels

MFL criteria are minimum flows or minimum water levels at which water resources, or the ecology of the area, would experience significant harm from further withdrawals. MFL criteria are applied individually to affected water bodies and define the minimum flow or minimum water level for surface water bodies, or minimum water level for groundwater in aquifers. Adopted MFLs in the SFWMD are contained in Chapter 40E-8, F.A.C. The SFWMD adopts a recovery or prevention strategy when an MFL is initially adopted (Rule 40E-8.421, F.A.C.) and, if needed, when an MFL is reevaluated or revised. The SFWMD fulfills its statutory obligation to identify key water bodies for which MFLs should be developed or reevaluated by providing a Priority Water Body List and Schedule in Chapter 3 of the annual updates to the *South Florida Environmental Report – Volume II* per Section 373.042(3), F.S. Detailed information about MFLs, including descriptions of recovery and prevention strategies, is provided in the 2021-2024 Support Document (SFWMD 2021). Additional information about MFLs can be found on the SFWMD webpage (http://www.sfwmd.gov/mfls) and in Chapter 40E-8, F.A.C.

Within the LWC Planning Area, MFLs have been adopted for the Caloosahatchee River and LWC Aquifers (**Figure 4-1**). Brief summaries of the MFLs are provided here; additional information, including recovery and prevention strategies, can be found in **Appendix C**. The Lake Okeechobee and Everglades MFLs and their associated recovery strategies affect portions of the LWC Planning Area but are included in the Lower East Coast water supply plan updates.

Caloosahatchee River

The SFWMD adopted an MFL for the Caloosahatchee River in 2001 in accordance with Subsection 40E-8.221(2), F.A.C. A recovery strategy was adopted simultaneously with MFL adoption. The original MFL criterion for the Caloosahatchee River was a minimum mean monthly flow of 300 cubic feet per second (cfs) at the S-79 structure, which, at the time of MFL adoption, was determined necessary to maintain a balanced and healthy salinity regime in order to prevent an MFL exceedance (when the MFL is not met) and sustain submerged aquatic vegetation in the Caloosahatchee River Estuary. The MFL was reevaluated between 2013 and 2019. The result of that reevaluation was a change in the criterion in 2019 to a 30-day moving average flow of 457 cfs at the S-79 structure. Additional details about the MFL, the reevaluation, and the revised recovery strategy are provided in **Appendix C**.

Caloosahatchee River

Lower West Coast Aquifers

The LWC Aquifers MFL includes the Lower Tamiami, Sandstone, and Mid-Hawthorn aquifers. In 2001, the SFWMD adopted an MFL specifying the minimum water levels for the LWC Aquifers must equal the elevation of the structural top of the aquifers (Rule 40E-8.331, F.A.C.). A prevention strategy was adopted simultaneously with MFL adoption. Additional information about the MFL and a description of the prevention strategy are provided in **Appendix C**.

Water Reservations

Water reservations in the SFWMD are adopted by rule in Chapter 40E-10, F.A.C. A water reservation sets aside a volume of water for the protection of fish and wildlife or public health and safety (Section 373.223, F.S.). Reserved volumes of water are unavailable for allocation to consumptive uses. However, any unreserved volumes of water may be certified by the District's Governing Board as available and allocated to consumptive uses. Water reservations do not 1) prevent the use of unreserved water or water allocated in consumptive use permits, 2) establish operating regimes, 3) drought-proof natural systems, 4) ensure wildlife proliferation, or 5) improve water quality.

Water reservations are developed based on existing water availability or in consideration of future water supplies made available by water resource development projects (**Chapter 7**). Regional water supply plans must list water resource development projects that support water supply development for existing and future uses and natural systems, including those in adopted water reservations (Section 373.709, F.S.). Additionally, water use permit applicants must provide reasonable assurance that their proposed use of water will not withdraw water that is reserved for the protection of fish and wildlife or public health and safety.

Water reservations may be used to protect water for CERP projects prior to their construction, as required by the Water Resources Development Act of 2000 and Section 373.470(3)(c), F.S. Additionally, a water reservation may be a component of an MFL recovery or prevention strategy. Further information about water reservations, including their role in CERP implementation, is provided in the 2021-2024 Support Document (SFWMD 2021).

Water reservations have been adopted in the LWC Planning Area for the Caloosahatchee River (C-43) West Basin Storage Reservoir (2014), Picayune Strand (2009), and Fakahatchee Estuary (2009) (**Figure 4-1**). Information about all water reservations adopted throughout the District can be found on the SFWMD webpage (http://www.sfwmd.gov/reservations) and in Chapter 40E-10, F.A.C.

Caloosahatchee River (C-43) West Basin Storage Reservoir

CERP identifies restoration of the Caloosahatchee River Estuary as an integral step in achieving systemwide benefits in the South Florida ecosystem. Promoting a balanced and healthy salinity regime in the Caloosahatchee River Estuary is essential for maintaining the ecological integrity and associated economic benefits of this unique habitat on Florida's southwest coast.

In 2014, the SFWMD adopted a water reservation rule pursuant to Subsection 40E-10.041(3), F.A.C., for the Caloosahatchee River (C-43) West Basin Storage Reservoir, a CERP project being constructed through an SFWMD/USACE cost-share agreement to support the USACE's efforts to restore the Caloosahatchee River Estuary. The reservoir and water reservation rule serve as key components of the recovery strategy for the Caloosahatchee River MFL. It is a prospective reservation, meaning the water will be protected when the reservoir is built and operational. The water reservation reserves from consumptive use all water contained within and released from the reservoir, which will cover 10,700 acres and provide 170,000 acre-feet of water storage when completed (for further details, including a site map, see **Chapter 7**). Capture, storage, and release of surface water runoff and a portion of Lake Okeechobee regulatory releases will reduce the freshwater flows to the Caloosahatchee River Estuary during wet periods and help maintain a desirable minimum flow of fresh water to the estuary during dry periods. Moderating flows in this manner is anticipated to achieve a more balanced salinity regime in the Caloosahatchee River Estuary. Site preparation for the reservoir and construction began in 2015. Construction is expected to be completed in 2024, followed by 2 years of operational testing and monitoring.

Picayune Strand

Picayune Strand is located in the southwestern corner of Florida between Alligator Alley (Interstate 75) and Tamiami Trail (U.S. 41), and north of Fakahatchee Estuary in the Ten Thousand Islands and the Everglades (**Figure 4-3**). Picayune Strand occupies a 55,000-acre area that was disturbed by partial development in the 1960s, including construction of canals, levees, and roads, that altered the natural hydrology of the site.

The CERP Picayune Strand Restoration Project was developed to restore and protect native wetlands and uplands in Picayune Strand (**Figure 4-4**). Substantial progress has been made towards restoring the site's hydrology, and project construction is anticipated to be completed in 2025 (**Chapter 7**). The project will also improve freshwater flows to the southern coastal wetlands of the Ten Thousand Islands region collectively known as

Fakahatchee Estuary. When complete, the project will support a more natural fire regime, increase aquifer recharge, provide manatee refugia, and maintain existing levels of flood protection.

The Picayune Strand water reservation was adopted in 2009 to support the Picayune Strand Restoration Project and to protect fish and wildlife per Subsection 40E-10.041(1), F.A.C. The water reservation includes all surface water contained within Picayune Strand; all surface water flowing into Picayune Strand simulated at weirs Miller2 (Miller Canal), FU3 (Faka Union Canal), and Lucky LA (Merritt Canal) (**Figure 4-5**); and all groundwater in the water table and unconfined portions of the Lower Tamiami aquifer underlying Picayune Strand.

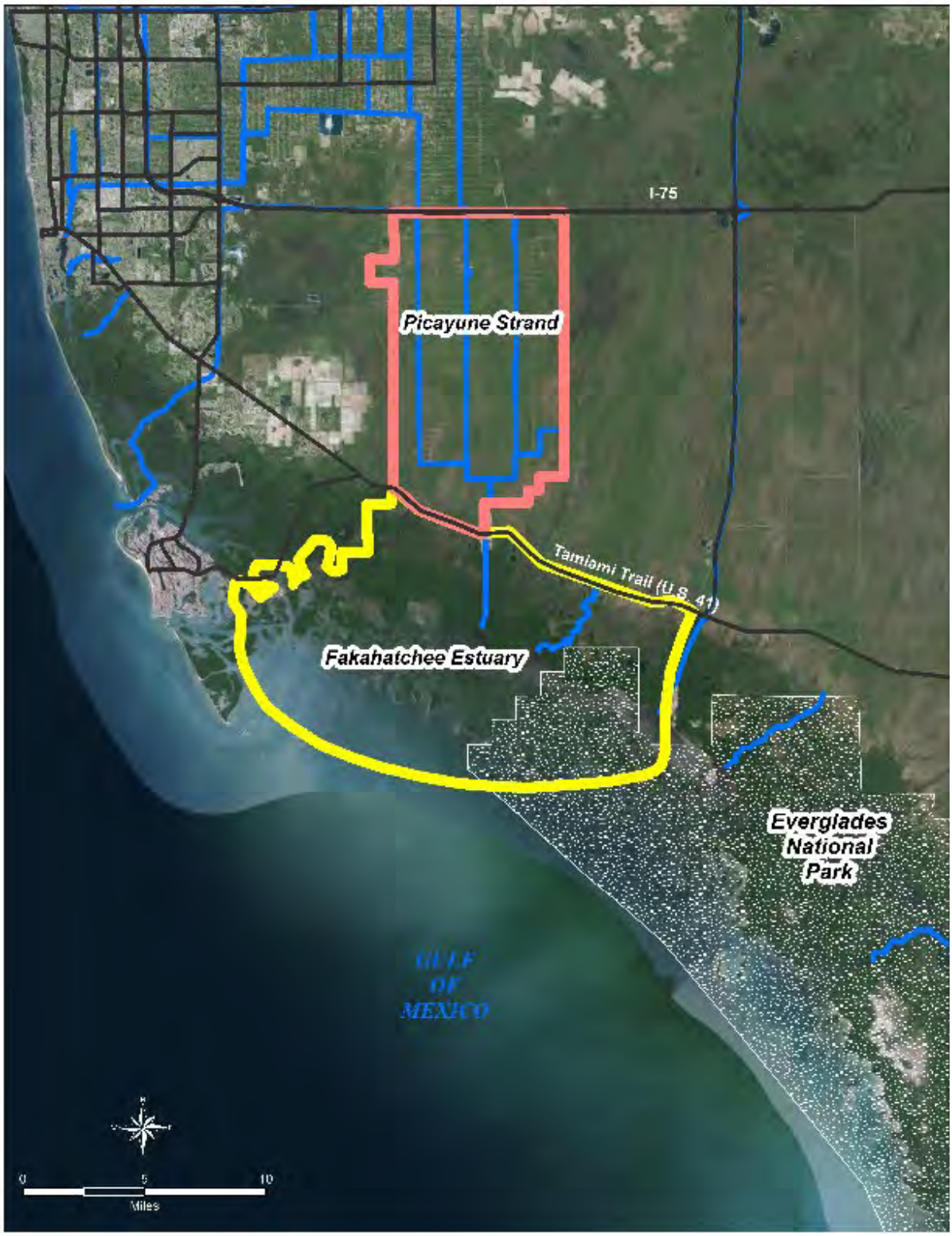

Figure 4-3. Location of Picayune Strand and Fakahatchee Estuary water reservations.

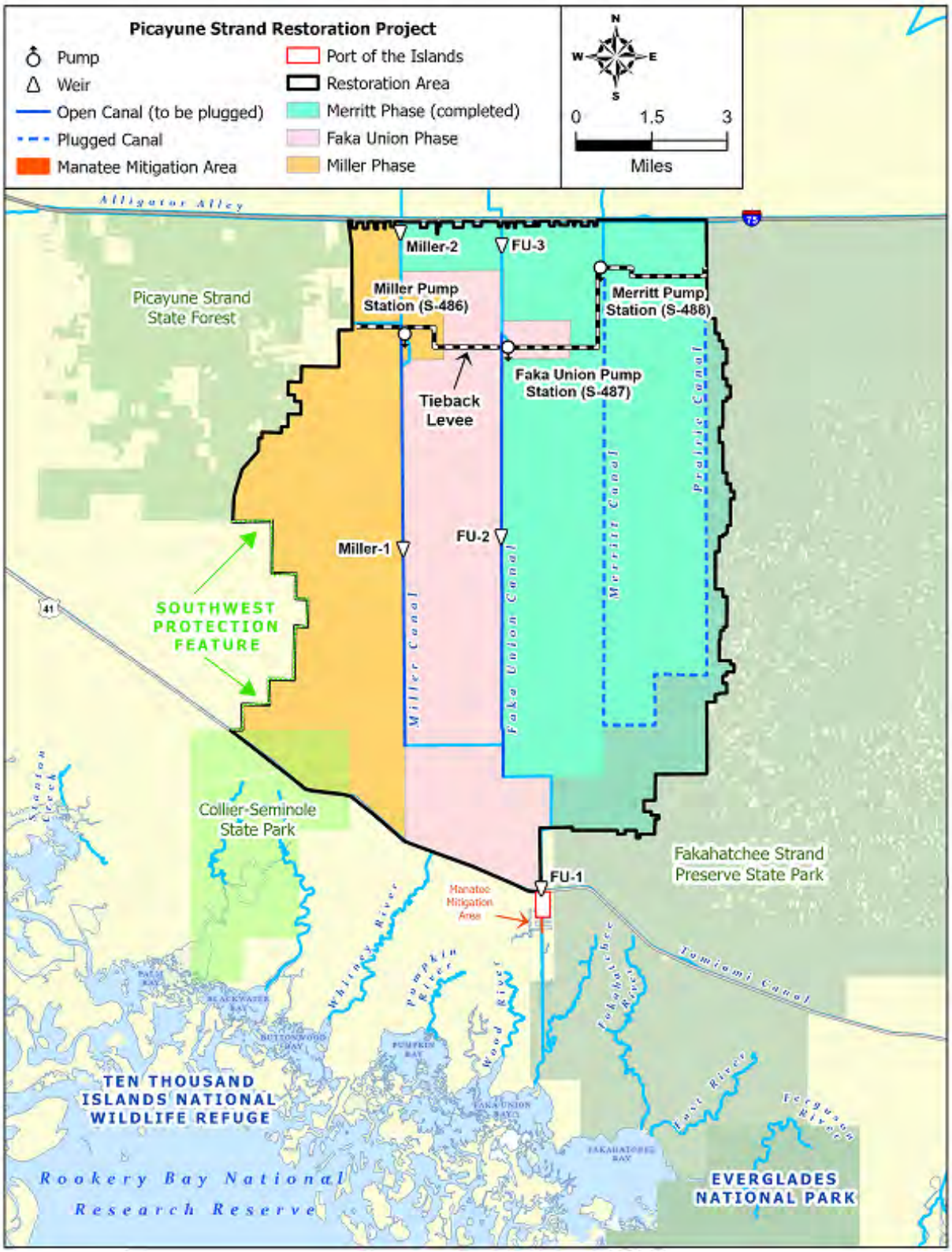

Figure 4-4. Comprehensive Everglades Restoration Plan (CERP) Picayune Strand Restoration Project site (From USACE 2021).

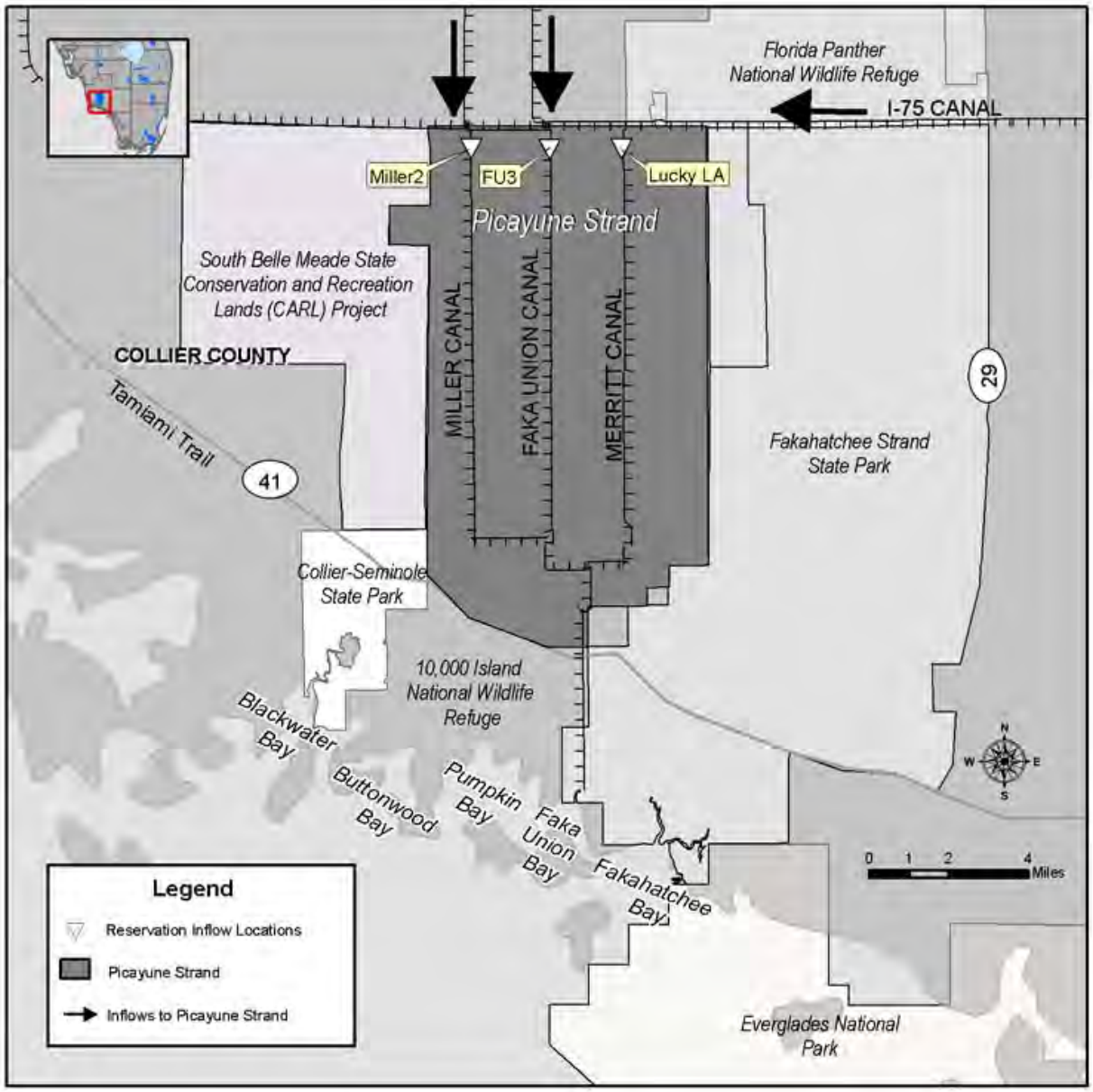

Figure 4-5. Historical water inflow locations into Picayune Strand from Miller, Faka Union, and Merritt canals.

Fakahatchee Estuary

Subsection 40E-10.021(1), F.A.C., defines Fakahatchee Estuary as the area within the Ten Thousand Islands region including the river/bay systems known as Blackwater River/Blackwater Bay, Whitney River/Buttonwood Bay, Pumpkin River/Pumpkin Bay, Wood River, Little Wood River, Faka Union Canal/Faka Union Bay, and Fakahatchee Bay (**Figure 4-5**). Covering almost 100,000 acres, Fakahatchee Estuary is part of the largest expanse of mangrove forest in North America and is home to a rich diversity of native wildlife, including several endangered species (United States Fish and Wildlife Service 2017).

In 2009, a water reservation for Fakahatchee Estuary was adopted pursuant to Subsection 40E-10.041(2), F.A.C., simultaneously with adoption of the Picayune Strand water reservation. The reservation protects water made available to the Fakahatchee Estuary through the Picayune Strand Restoration Project, which has a main objective to improve flows to the southern coastal estuaries. The Fakahatchee Estuary water reservation rule identifies and reserves from consumptive use the water needed to protect fish and wildlife in the estuary. The water reserved for Fakahatchee Estuary includes all surface water flowing into Fakahatchee Estuary simulated at weir FU1 (Faka Union Canal) and transects Miller@41, FU@41, Merrit@41, and Fakahatchee@41 (**Figure 4-6**) as well as all groundwater in the water table and unconfined portions of the Lower Tamiami aquifer underlying Fakahatchee Estuary.

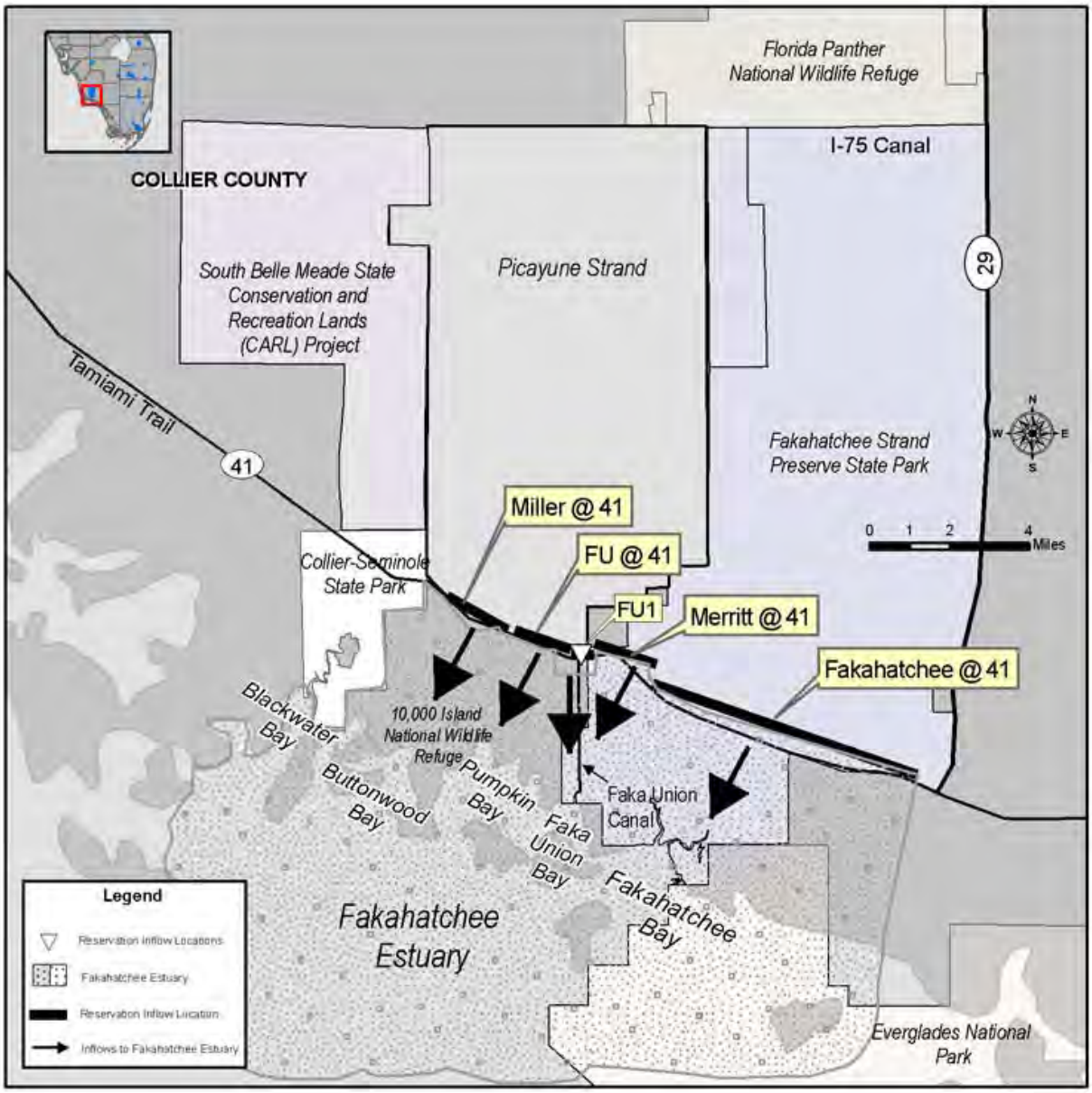

Figure 4-6. Historical inflow locations into Fakahatchee Estuary from Picayune Strand.

Restricted Allocation Areas

RAAs are defined geographic areas where use of specific water supply sources (e.g., lakes, wetlands, canals, aquifers) is restricted due to concerns regarding water availability. RAA criteria are listed in Section 3.2.1 of the Applicant's Handbook (SFWMD 2022), which is incorporated by reference in Rule 40E-2.091, F.A.C. Water allocations beyond the criteria listed in the Applicant's Handbook are restricted or prohibited. RAAs are adopted for a variety of reasons, including 1) where there is insufficient water to meet the projected needs of a region, 2) to protect water for natural systems and future restoration projects (e.g., CERP), or 3) as part of MFL recovery or prevention strategies.

Two RAAs extend into the LWC Planning Area (**Figure 4-1**): 1) Lower East Coast Everglades Waterbodies (Section 3.2.1.E of the Applicant's Handbook [SFWMD 2022]), adopted in 2007; and 2) Lake Okeechobee and Lake Okeechobee Service Area (Section 3.2.1.F of the Applicant's Handbook [SFWMD 2022]), adopted in 2008. The Lower East Coast Everglades Waterbodies RAA was adopted as part of the Everglades MFL recovery strategy, and the Lake Okeechobee and Lake Okeechobee Service Area RAA was adopted as part of the Lake Okeechobee MFL recovery strategy. These RAAs are discussed with their associated MFLs in the Lower East Coast water supply plan updates.

SUMMARY OF WATER RESOURCE PROTECTION

- The LWC Planning Area has the following resource protections in place:
  - Water use permitting criteria
  - MFLs for the Caloosahatchee River and LWC aquifers
  - Water reservations for the Caloosahatchee River (C-43) West Basin Storage Reservoir, Picayune Strand, and Fakahatchee Estuary
  - RAAs for the Lower East Coast Everglades Waterbodies and Lake Okeechobee and Lake Okeechobee Service Area
- MFL, water reservation, and RAA criteria continue to be implemented in the LWC Planning Area and have not been modified since the 2017 LWC Plan Update, except for the MFL and associated recovery strategy for the Caloosahatchee River, as discussed in **Appendix C**.
- Water shortage and water use permitting rules and criteria have not changed for the LWC Planning Area since the 2017 LWC Plan Update. Further information on water shortage management and water use permitting is available in the 2021-2024 Support Document (SFWMD 2021).

NAVIGATE

Detailed information about MFLs is available on the SFWMD webpage http://www.sfwmd.gov/mfls.

Detailed information about water reservations is available on the SFWMD webpage http://www.sfwmd.gov/reservations.

Detailed information about RAAs is available in the Applicant's Handbook (SFWMD 2022), which can be accessed through the SFWMD webpage http://www.sfwmd.gov/raas.

MFL, water reservation, and RAA status updates are provided annually in Chapter 3 of the *South Florida Environmental Report – Volume II*, available at http://www.sfwmd.gov/sfer.

Further information can be found in the 2021-2024 Support Document (SFWMD 2021) and **Appendix C**.

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5

Water Source Options

This chapter presents water source options that could be available through 2045 to accommodate urban and agricultural demands in the Lower West Coast (LWC) Planning Area while still meeting the needs of the natural system. Descriptions of the sources, current and projected uses, and factors that affect availability for water supply purposes are provided. **Chapter 6** presents the South Florida Water Management District's (SFWMD or District) analyses of the surface water and groundwater conditions in the region. Information about water treatment technologies and their related costs is provided in the *Support Document for the 2021-2024 Water Supply Plan Updates* (2021-2024 Support Document; SFWMD 2021).

TOPICS

- Surface Water
- Groundwater
- Reclaimed Water
- Water Storage
- Seawater
- Summary of Water Source Options

In the LWC Planning Area, fresh groundwater from the surficial aquifer system (SAS) and freshwater portions of the intermediate aquifer system (IAS) as well as surface water from canals and lakes are considered traditional water sources. Alternative water supply (AWS) or nontraditional water source options include brackish groundwater from the Floridan aquifer system (FAS) and brackish portions of the IAS, reclaimed water, water stored in aquifer storage and recovery (ASR) wells or in aboveground reservoirs, and seawater.

To meet water supply needs, water users primarily rely on fresh groundwater and surface water (**Figures 5-1** and **5-2**). However, withdrawals from these sources have approached sustainable limits because of aquifer productivity, environmental concerns, resource protection criteria, and regulatory limitations (**Chapter 4**). As a result, over the last two decades, brackish groundwater from the FAS and reclaimed water have become vital to urbanized areas to meet increased demands. Use of such AWS sources is an integral part of current and future water supply strategies in the LWC Planning Area. Most of the increased Public Supply (PS) demands will be met with proposed AWS projects using brackish groundwater. New surface water withdrawals are limited by restricted allocation area (RAA), minimum flow and minimum water level (MFL), and water reservation criteria. Groundwater withdrawals from the Water Table aquifer, Lower Tamiami aquifer, Sandstone aquifer, and Mid-Hawthorn aquifer are limited by resource constraints and MFL criteria (**Chapter 4**).

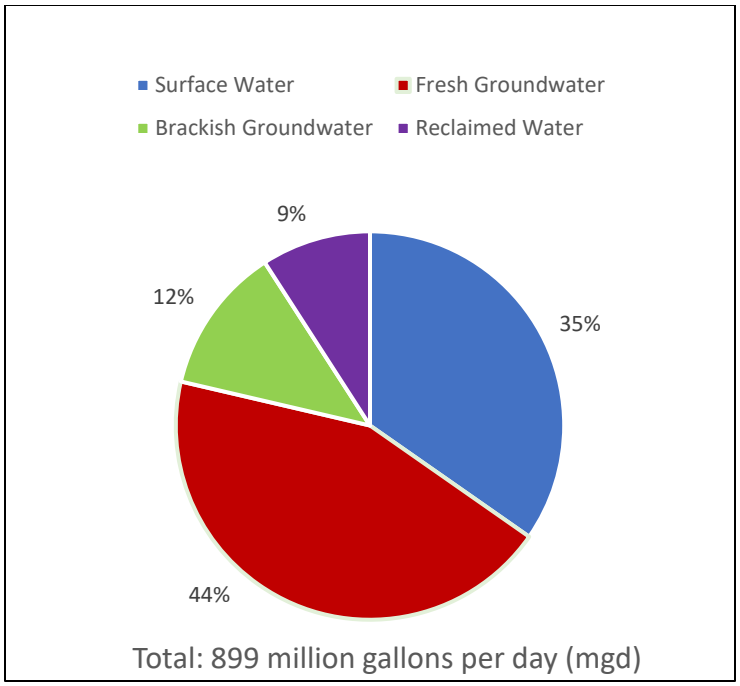

Figure 5-1. Water use percentage of the estimated total use of 899 mgd in the LWC Planning Area in 2020 by source (Data from SFWMD 2022).

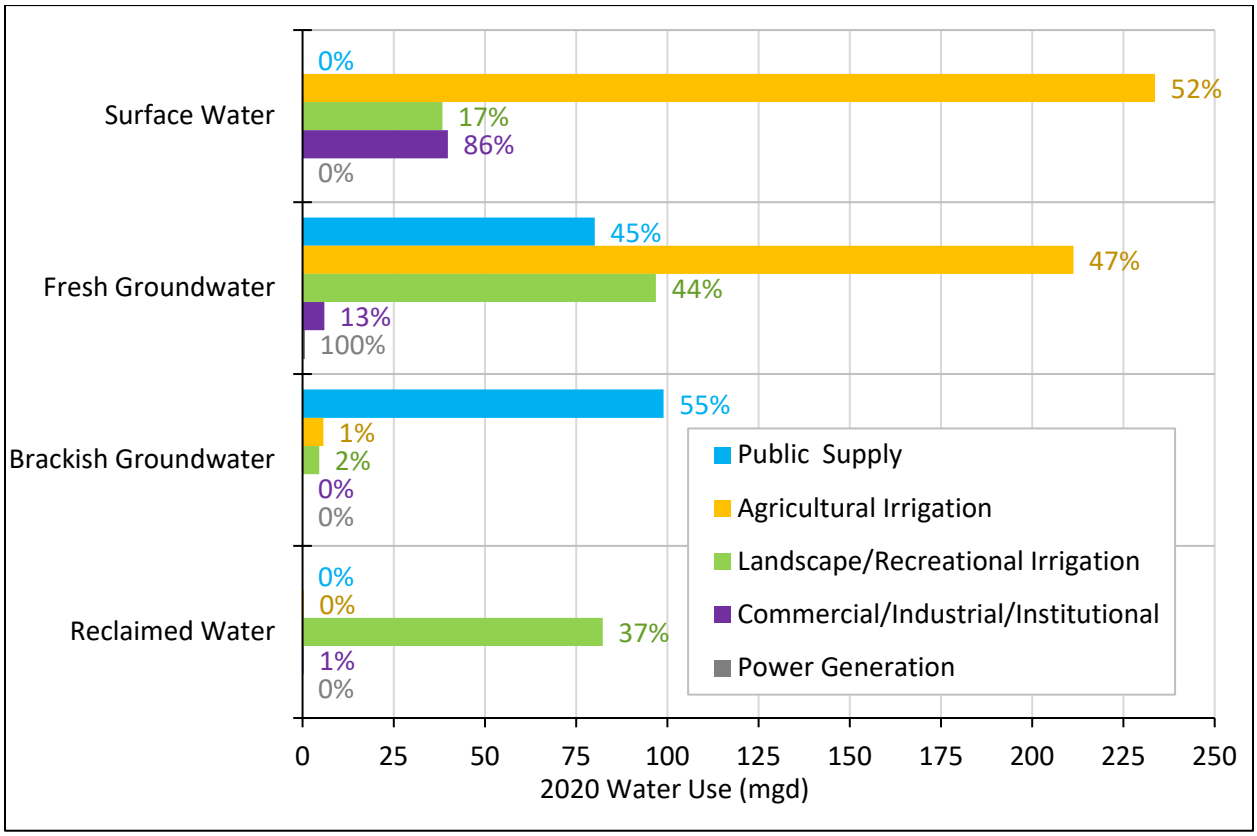

Figure 5-2. Estimated water use in the LWC Planning Area in 2020 by source and use type (Data from SFWMD 2022). (Notes: Fresh groundwater supplies 100% of Domestic Self-Supply demand. Percentages may not equal 100% due to rounding.)

SURFACE WATER

Surface water sources, primarily used for urban and agricultural irrigation, include rivers, canals, lakes, and reservoirs. Although the LWC Planning Area has multiple surface water sources, most are limited by regulatory protections (**Chapter 4**). A primary surface water source is Lake Okeechobee via the C-43 Canal and its connected canals as well as diversion and impoundment systems. The Cape Coral and Big Cypress Basin canal systems also provide surface water supply, and to a lesser extent, local irrigation needs are met using stormwater ponds.

Caloosahatchee River (C-43 Canal)/ Lake Okeechobee

The C-43 Canal was constructed as a navigable waterway and flood control outlet for Lake Okeechobee by straightening and deepening the freshwater portion of the Caloosahatchee River beginning in 1880. The C-43 Canal receives inflow from outside the basin via Lake Okeechobee, which is operated and maintained by the United States Army Corps of Engineers. Water is discharged from Lake Okeechobee to the C-43 Canal through the S-77 water control structure and then into the Caloosahatchee River Estuary downstream of the S-79 structure. The Caloosahatchee River Estuary covers approximately 26 miles west towards Shell Point. The C-43 Canal and Caloosahatchee River Estuary also receive surface water runoff from four subwatersheds (S-4, East Caloosahatchee, West Caloosahatchee, and Tidal Caloosahatchee) and a small amount of base groundwater flow from the SAS, in addition to the controlled discharges from Lake Okeechobee. The watershed includes creeks, wetland tributaries, canals, and drainage ditches that provide limited storage and allow conveyance of surface water. AG is the predominant user of surface water from the C-43 Canal and Lake Okeechobee, typically via connected canals and diversion and impoundment systems.

Water availability from Lake Okeechobee and its hydraulically connected water bodies is limited due to implementation of the 2008 Lake Okeechobee Regulation Schedule as well as SFWMD water use permit criteria. Concerns about the integrity of the Herbert Hoover Dike, which surrounds Lake Okeechobee, have resulted in a lowered lake regulation schedule that has reduced the level of certainty of permitted users within the Lake Okeechobee Service Area. Currently, all works associated with the Herbert Hoover Dike rehabilitation project are expected to be completed in 2022 along with a revised lake schedule and Lake Okeechobee System Operating Manual, expected to be completed by 2023.

Local Surface Water Sources

There are several water control districts, established under Chapter 298, Florida Statutes (F.S.), that are operated for flood control and water supply in the LWC Planning Area (**Figure 5-3**). Stormwater from the interconnected lakes and canals can be held within the water control district canal systems for irrigation. Some water control districts divert water from the C-43 Canal and Lake Okeechobee to maintain specific water levels within their boundaries. Water diversions into local canal networks are used primarily for AG irrigation purposes and, to a lesser extent, Landscape/Recreational (L/R) irrigation.

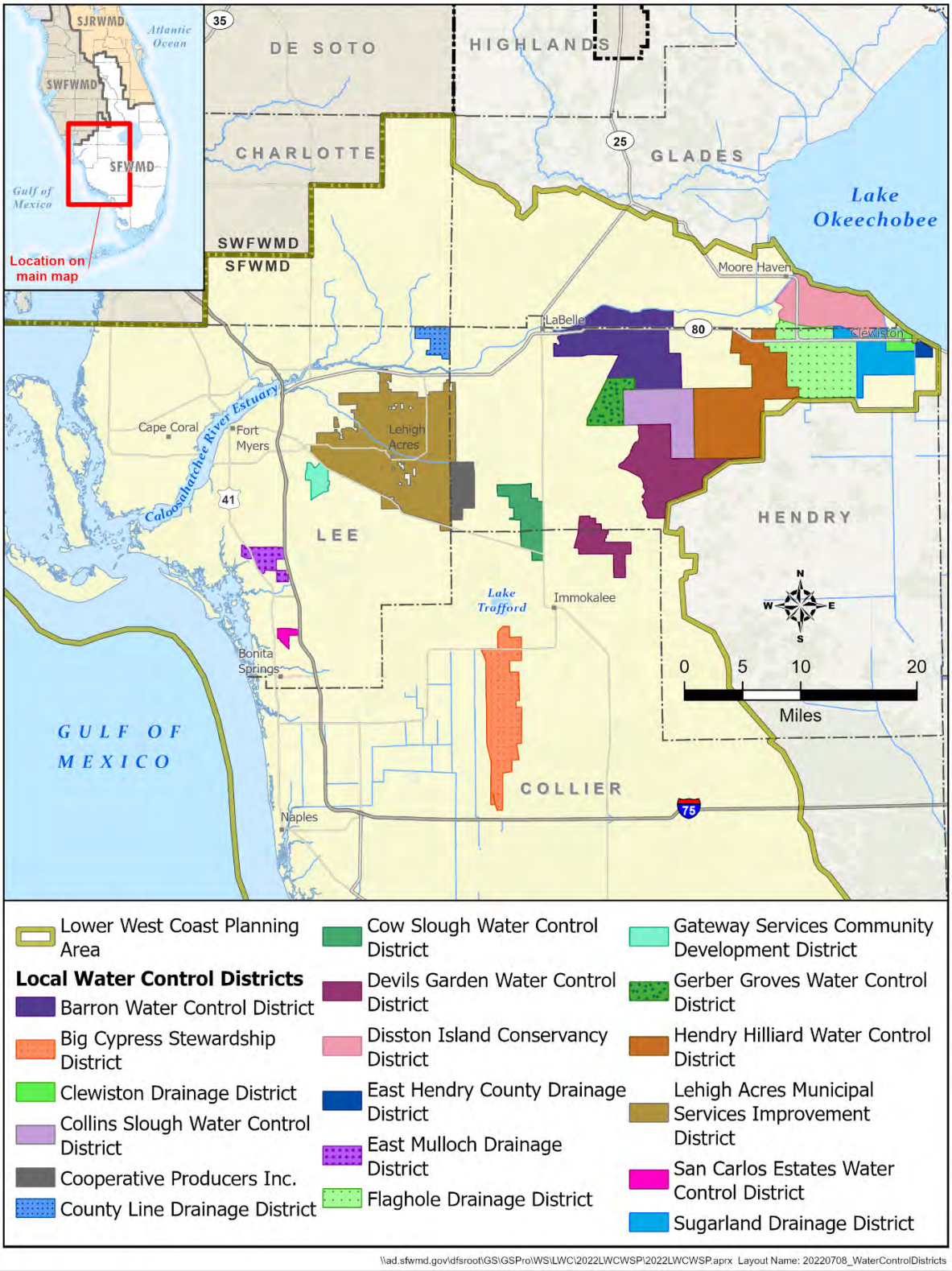

Figure 5-3. Water control districts in the LWC Planning Area.

Existing and Future Use of Surface Water

AG is the largest user of surface water in the LWC Planning Area. In 2020, approximately 52% of AG demands were met with surface water (**Figure 5-2**), and this percentage is expected to remain the same through 2045. However, irrigated agricultural acreage and associated demands are projected to increase approximately 5% from 2020 to 2045 (**Chapter 2**).

Approximately 17% of L/R demands in the LWC Planning Area, including golf courses, were met with surface water in 2020 (**Figure 5-2**). Withdrawals for L/R irrigation are primarily from on-site ponds or adjacent local canals. L/R use is expected to increase 34% by 2045; however, surface water withdrawals may decrease as new demands, and some existing demands, are met with reclaimed water. Permitted AG and L/R surface water irrigation withdrawal locations are shown in **Figure 5-4**, with L/R withdrawals typically from surface water management lakes in the western urban areas and AG withdrawals from surface water systems located primarily in the eastern rural portions of the LWC Planning Area.

In 2020, surface water was used to meet 86% of Commercial/Industrial/Institutional (CII) demands in the LWC Planning Area (**Figure 5-2**). CII demands will increase 28% by 2045, with most of the projected increase being supplied by fresh groundwater.

The Florida Power & Light (FPL) Fort Myers Power Plant withdraws water from the tidal portion of the Caloosahatchee Estuary, downstream of salinity control structure S-79. This is the only Power Generation (PG) facility using surface water for cooling water. No increase in surface water withdrawals for the PG use category is projected through 2045.

Surface water is used primarily for AG and to a lesser extent L/R, CII, and PG uses. Based on the revised demand projections for this plan update, which are 3% less than the previously projected 2040 demands, surface water sources appear sufficient to meet the projected 2045 demands.

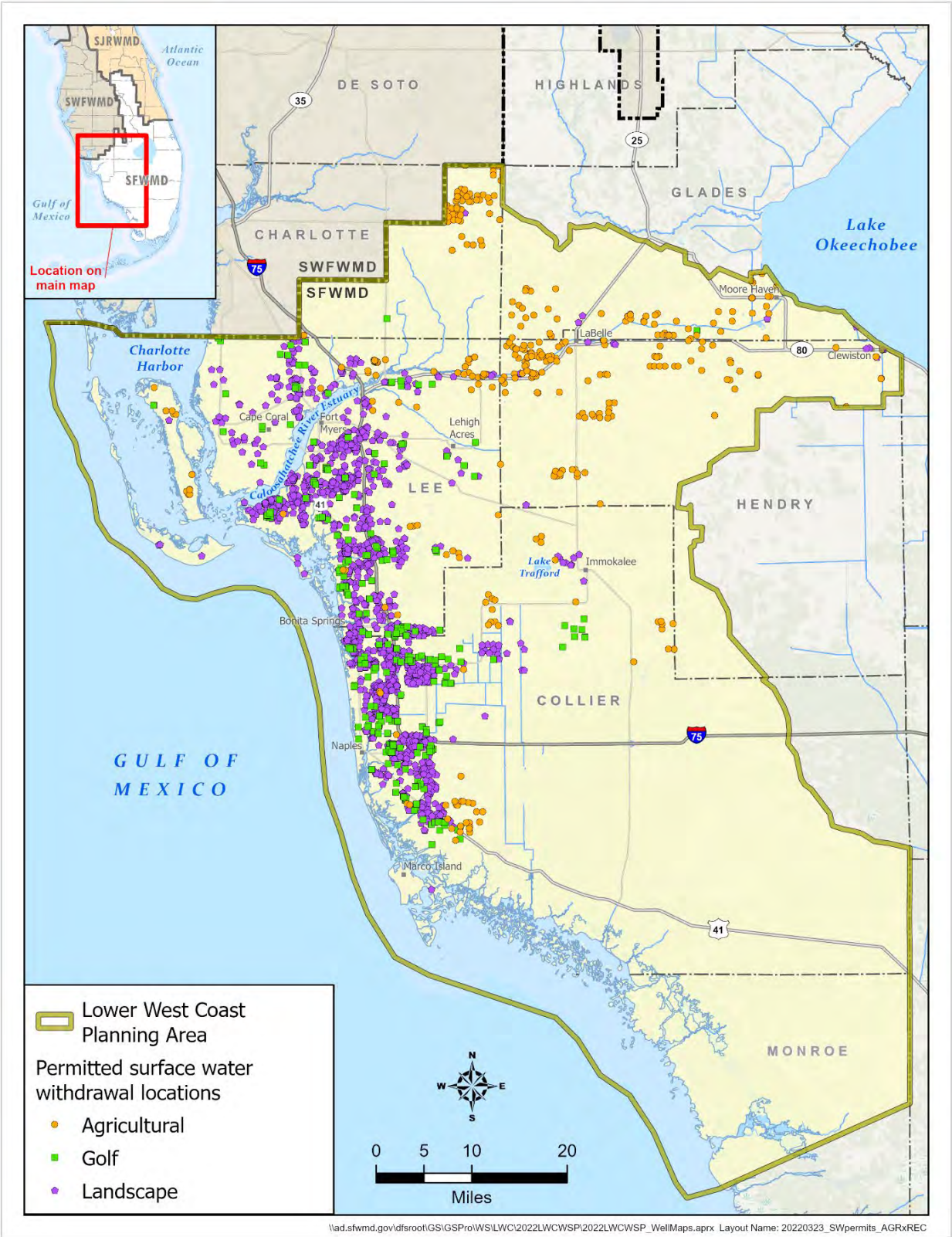

Figure 5-4. Permitted surface water withdrawal locations for irrigation within the LWC Planning Area.

GROUNDWATER

Groundwater is produced from three major aquifer systems in the LWC Planning Area: the SAS, IAS, and FAS (**Figure 5-5**). The SAS and portions of the IAS provide fresh groundwater, while other portions of the IAS and upper portion of the FAS provide brackish groundwater. For a detailed description of the geology within the LWC Planning Area, including mapping of the hydrostratigraphic unit, see Geddes et al. (2015).

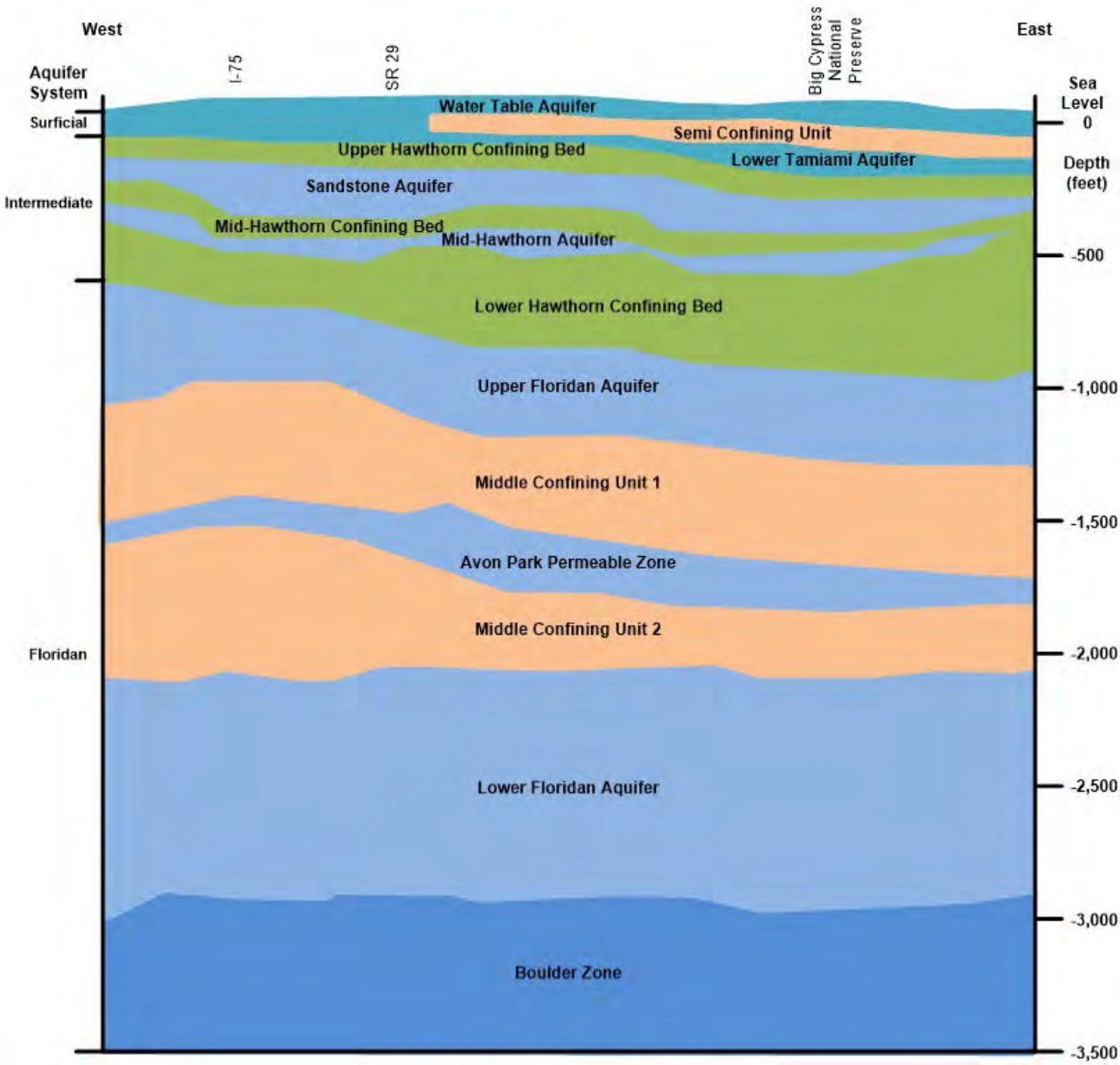

Figure 5-5. Generalized hydrogeologic cross section of the LWC Planning Area.

Fresh Groundwater

Surficial Aquifer System

In the LWC Planning Area, the SAS is composed of two water-bearing zones: the Water Table aquifer and the Lower Tamiami aquifer, which usually are separated by a semiconfining unit. The SAS is composed of solutioned limestone, sandstone, sand, shell, and clayey sand and is recharged by local rainfall and regional canals. Water availability from the SAS is limited by the rate of groundwater recharge, low aquifer productivity, potential wetland impacts, proximity to contamination sources, saltwater intrusion, and other existing legal users in the area. During droughts, low regional groundwater levels may cause inland movement of the saltwater interface in the SAS. In this case, water shortage restrictions may be declared by the District's Governing Board to conserve freshwater supplies and reduce the risk of saltwater intrusion.

The SAS produces fresh water from relatively shallow wells in most of the LWC Planning Area. Fresh groundwater has a chloride concentration less than 250 milligrams per liter (mg/L), which is a secondary drinking water standard (United States Environmental Protection Agency 2022). All water use categories rely on some fresh groundwater from the SAS, although AG predominantly uses surface water. Development of new SAS groundwater sources may be feasible in some areas; however, permitting new water supplies will depend on local resource conditions. **Figures 5-6** and **5-7** show the permitted withdrawal wells completed in the SAS.

Based on demand projections in this plan update, a combination of fresh and brackish groundwater (supplemented with surface water as described earlier) appears to be adequate to meet projected 2045 demands. Water availability from the SAS is further discussed in **Chapter 6** and in a groundwater modeling discussion within **Appendix D**.

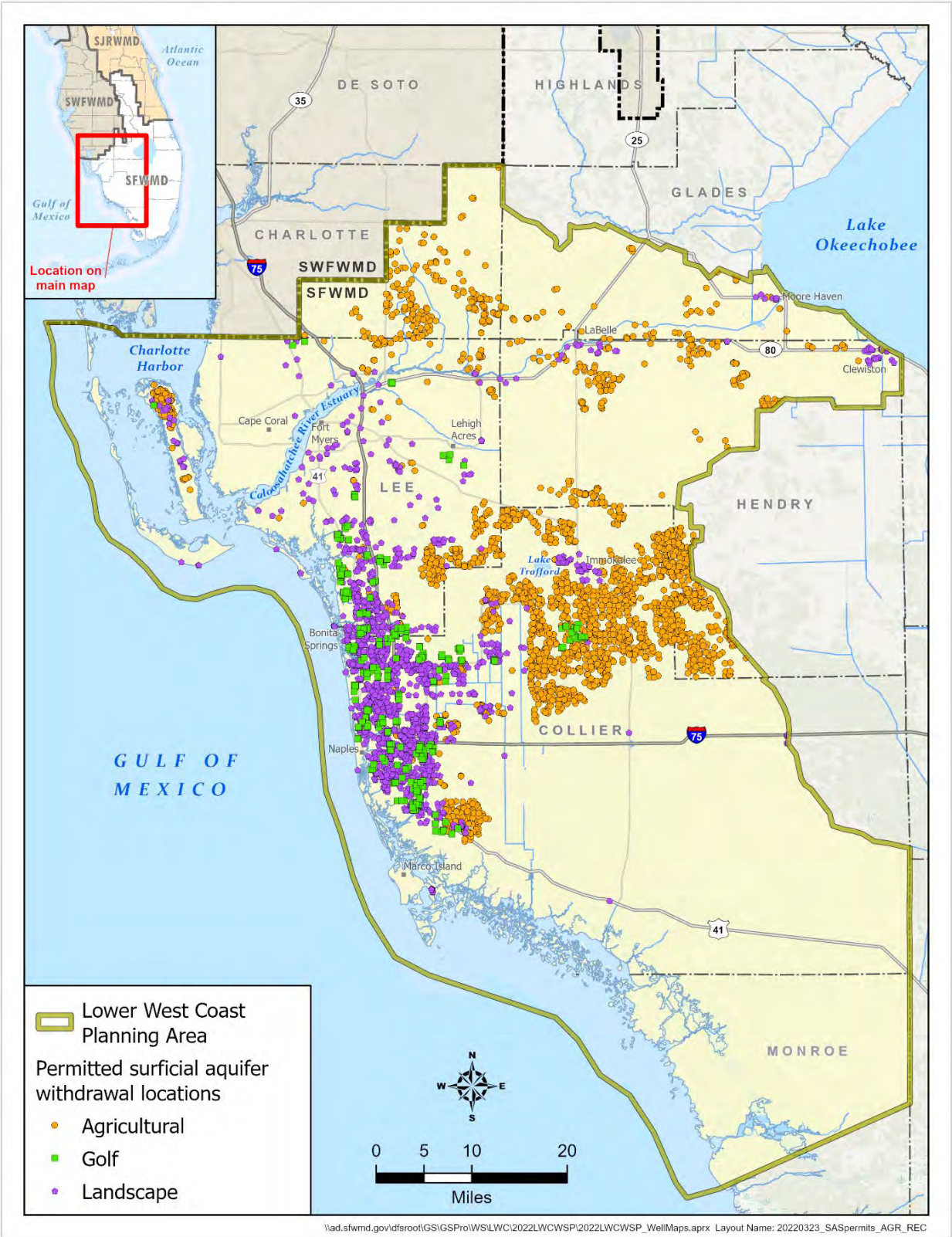

Figure 5-6. Permitted surficial aquifer system withdrawal locations for irrigation within the LWC Planning Area.

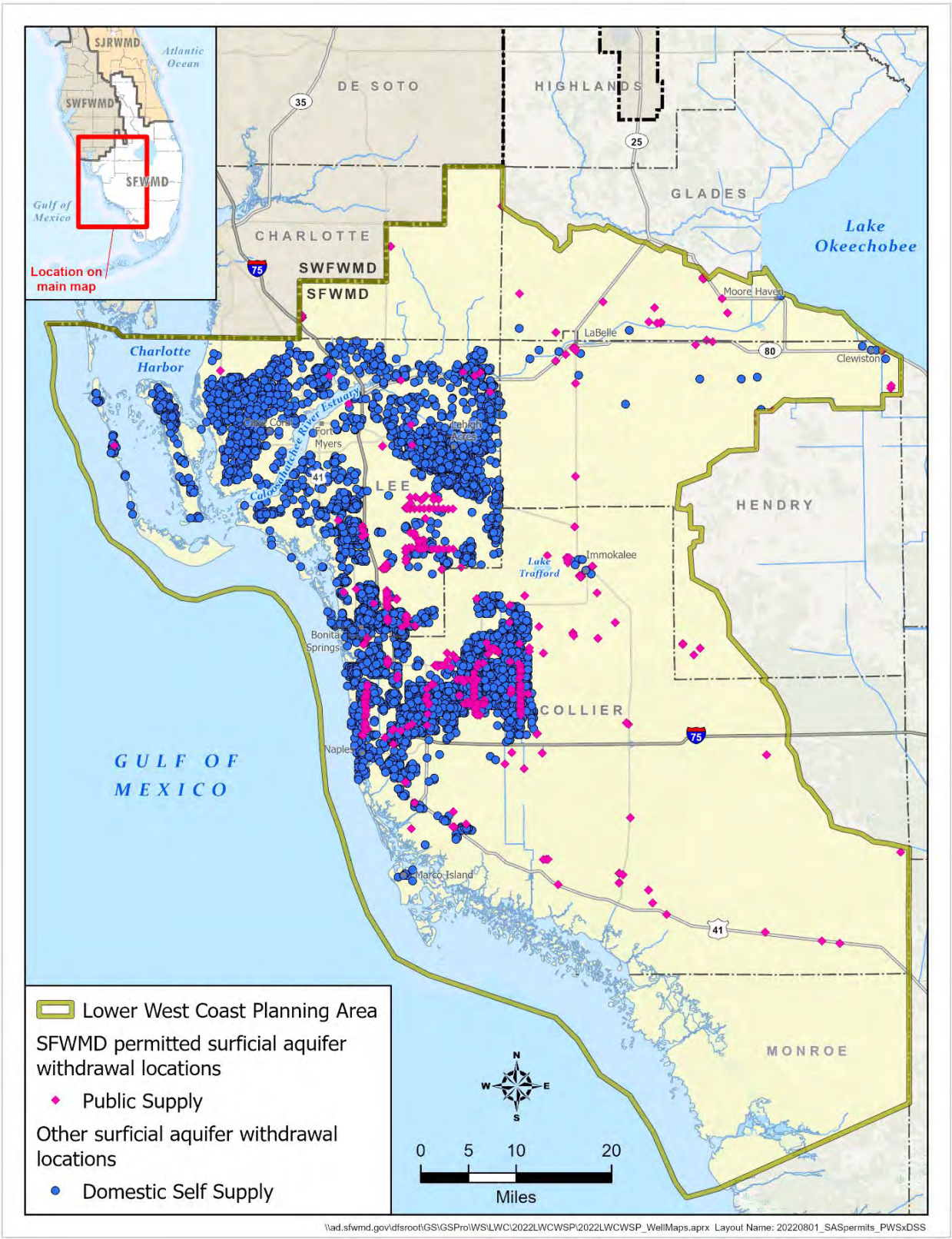

Figure 5-7. Permitted surficial aquifer system withdrawal locations for Public Supply and Domestic Self-Supply within the LWC Planning Area.

Intermediate Aquifer System

The IAS also is composed of two water-bearing zones: the Sandstone aquifer and the Mid-Hawthorn aquifer, which are separated by the Mid-Hawthorn confining unit. The Lower Hawthorn confining unit separates the IAS from the deeper FAS. The IAS is composed of relatively thin, discontinuous beds of sand, sandstone, and limestone that provide moderate quantities of water when present. Several confining sequences divide the water bearing units in this aquifer system. The IAS provides fresh groundwater throughout most of the region; however, there are locations that have been impacted by lateral saltwater intrusion from coastal seawater or by upward vertical intrusion from older or improperly constructed wells in the underlying brackish aquifers. In 2020, the IAS provided approximately 17% of water to the PS utilities in the LWC Planning Area. Permitted withdrawal locations from the IAS for AG, L/R, PS, and Domestic Self-Supply (DSS) are shown in **Figures 5-8** and **5-9**.

Sandstone Aquifer

The Sandstone aquifer typically occurs as two distinct permeable units, an upper clastic zone and a lower carbonate zone and is recharged by leakage downward through the upper confining unit and lateral recharge from the north. The Sandstone aquifer is composed of sandstone, sandy limestones, dolostones, and calcareous sands. These two units may be contiguous or separated by varying thicknesses of low-permeability silt and clay. The Sandstone aquifer is separated from the underlying Mid-Hawthorn aquifer by low-permeability clays and marls of the basal Peace River Formation, which is present throughout the LWC Planning Area. The Sandstone aquifer is used predominantly for AG and DSS. Intensive use of groundwater from the Sandstone aquifer in the Lehigh Acres area has resulted in a localized lowering of the groundwater level towards maximum developable limits (MDLs), as described in **Chapter 6** and **Appendix C**.

Mid-Hawthorn Aquifer

The Mid-Hawthorn aquifer, where present, is composed of limestone, phosphate, shell, and lime mud and is recharged by leakage downward from the overlying confining unit and laterally from areas north and outside the planning area. Where the Sandstone aquifer is absent or insignificant, the entire thickness of the Peace River Formation isolates the Mid-Hawthorn aquifer from the overlying SAS. The confinement from the underlying Lower Hawthorn producing zone consists of carbonate muds and terrigenous clays of the upper Arcadia Formation and is present throughout the LWC Planning Area. Use of the Mid-Hawthorn aquifer primarily occurs in the western part of the LWC Planning Area as a water supply source for DSS, L/R, and PS. Intensive DSS use of groundwater from the Mid-Hawthorn aquifer in northern Cape Coral has resulted in a localized lowering of the groundwater level towards MDLs, as described within **Chapter 6** and **Appendix C**.

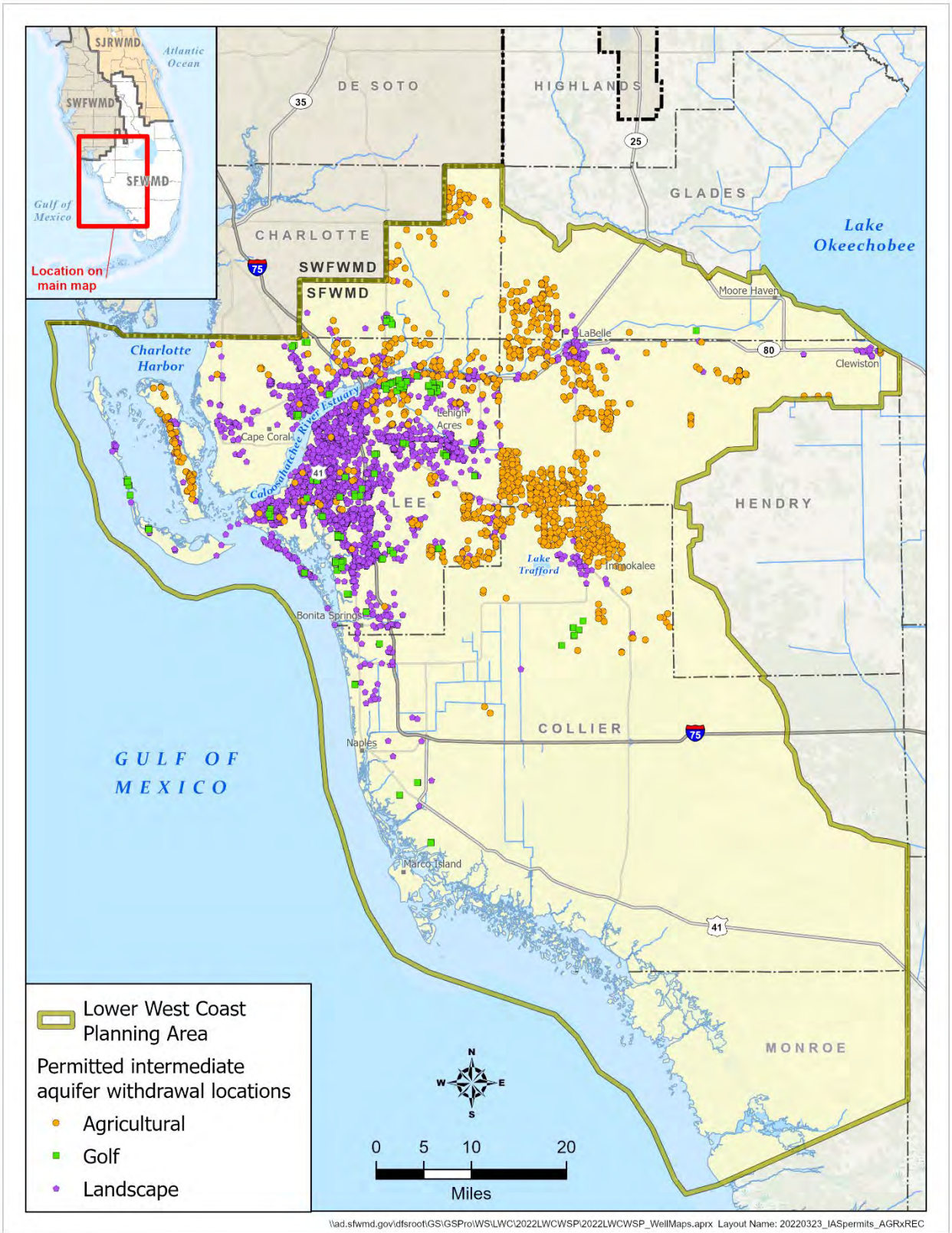

Figure 5-8. Permitted intermediate aquifer system withdrawal locations for irrigation within the LWC Planning Area.

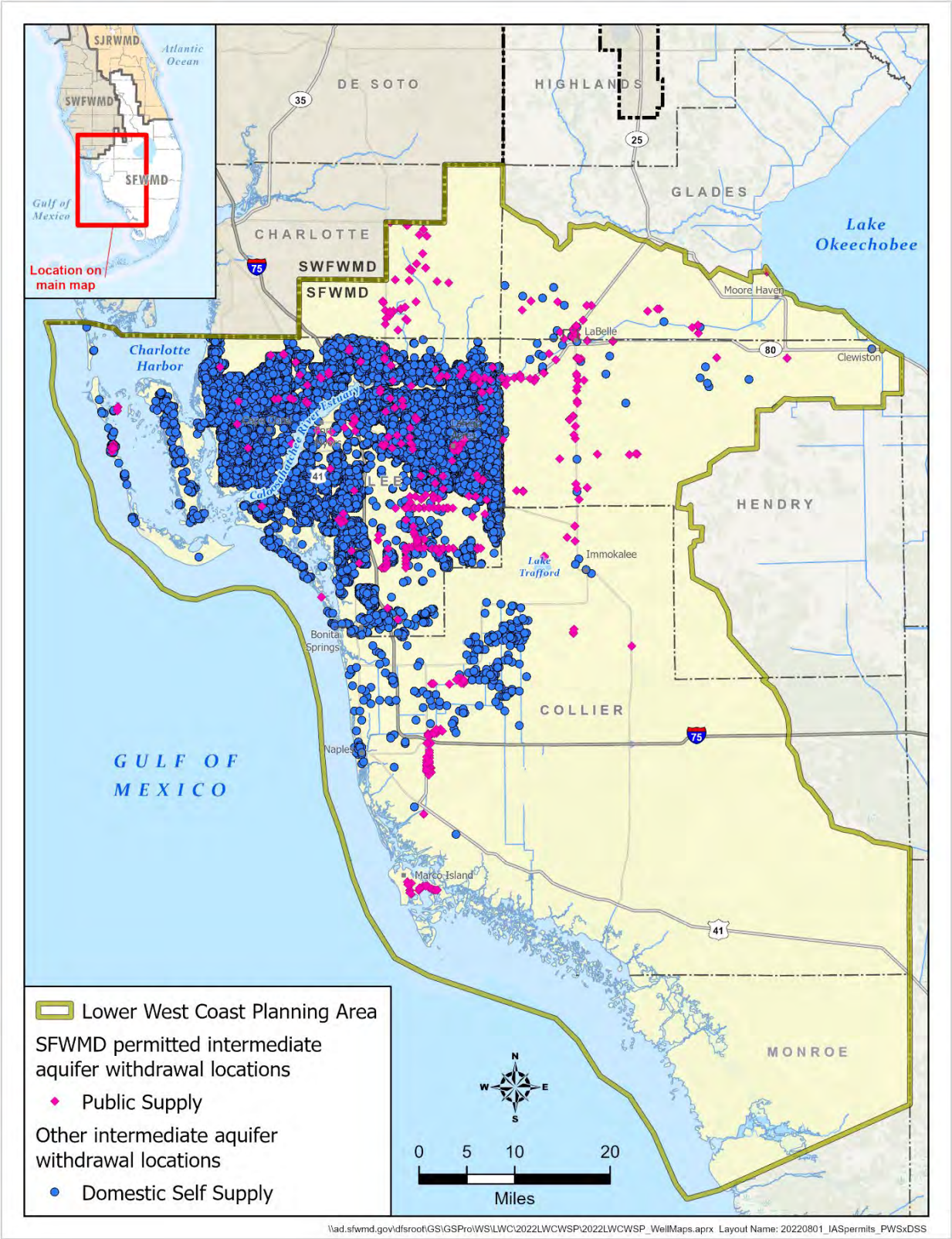

Figure 5-9. Permitted intermediate aquifer system withdrawal locations for Public Supply and Domestic Self-Supply within the LWC Planning Area.

Existing and Future Use of Groundwater

AG primarily depends on surface water but is also the largest user of fresh groundwater in the LWC Planning Area (**Figure 5-2**). In 2020, 278 million gallons per day (mgd) of the region's AG demand was met with fresh groundwater from the SAS and IAS. Use of fresh groundwater for AG irrigation is projected to increase slightly over the planning period.

The second largest user of fresh groundwater is L/R. In 2020, approximately 44% of L/R demand, including golf courses, was met with fresh groundwater (**Figure 5-2**). L/R demands are expected to increase 34% by 2045, based on population growth. Fresh groundwater is expected to meet approximately 37% of the increased demand, depending on availability at specific locations. For the L/R category, some fresh groundwater withdrawals may be replaced with reclaimed water if available.

Of the 24 PS utilities in the LWC Planning Area, 10 utilities use fresh groundwater to meet all their potable water demand, and the remaining 14 utilities use brackish groundwater for all or a portion of their current demands. Brackish groundwater supplies the majority of water for PS demands, while fresh groundwater supplies the remaining 45% (**Figure 5-2**). Total groundwater withdrawals for PS have slightly increased over the past 15 years (**Figure 5-10**). PS use of the FAS has increased in volume since 2005, while the volume of fresh groundwater withdrawn from the SAS has reduced. In 2005, the SAS provided approximately 55% of the water for PS, and the FAS provided approximately 34%. By 2020, only about 38% of PS demand was met with water from the SAS due to increased use of water from the FAS (45%). The percentage of SAS use for PS is projected to continue decreasing over time as the use of AWS sources (e.g., brackish water, reclaimed water) increases.

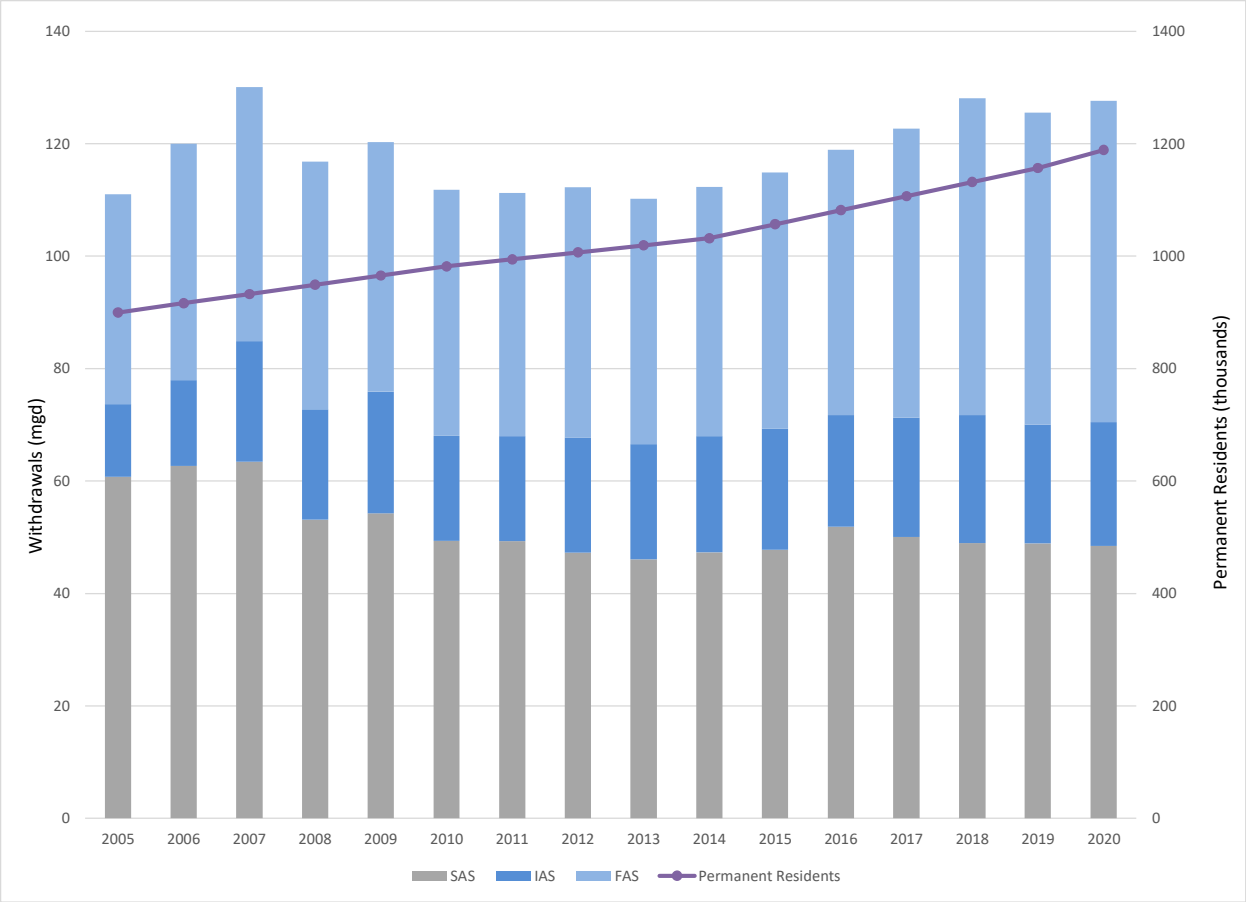

Figure 5-10. Public Supply withdrawals from the surficial, intermediate, and Floridan aquifer systems in the LWC Planning Area (2005 to 2020).

In 2020, fresh groundwater from the SAS and IAS supplied 100% of the estimated 24.27 mgd of demand for DSS. By 2045, DSS demand is expected to increase to 31.66 mgd, depending upon the rate of expansion of potable water distribution lines to self-supplied areas. Water levels within the Mid-Hawthorn aquifer have risen substantially in southern Cape Coral where DSS use has been replaced with expansion of PS distribution lines. However, areas not served by PS in northern Cape Coral and the southern portion of Fort Myers, continue to observe declining water levels in the Mid-Hawthorn aquifer due to DSS withdrawals. Monitoring wells in the Sandstone aquifer also indicate declining water levels in the area of Lehigh Acres, as discussed further in **Chapter 6**. In 2020, fresh groundwater was used to meet 13% of CII demands in the LWC Planning Area (**Figure 5-2**). CII demands will increase 26% by 2045, with most of the projected increase being supplied by fresh groundwater.

Increased withdrawals from the SAS and the freshwater portion of the IAS are generally limited due to potential impacts on wetlands and existing legal water uses, including DSS; the potential for saltwater intrusion; and the possibility of reaching aquifer MDLs. Therefore, traditional freshwater sources in the LWC Planning Area may not be sufficient to meet 2045 projected water use demands and alternative sources need to be developed to meet increased demands. The Lower West Coast Surficial and Intermediate Aquifer Systems Model (LWCSIM) was developed and used to evaluate changes in water levels in the SAS and IAS for the 2014 and 2040 withdrawal scenarios. The model was completed and simulations were conducted during 2020. **Chapter 6** and **Appendix D** provide information about the modeling effort for this plan update.

Brackish Groundwater

Surficial Aquifer System/Intermediate Aquifer System

Brackish water has a chloride concentration between 250 and 19,000 mg/L (seawater). In the LWC Planning Area, portions of the SAS and IAS contain brackish groundwater in locations that have been impacted by lateral saltwater intrusion from coastal seawater or by upward vertical intrusion from older or improperly constructed wells that tap underlying brackish aquifers. Brackish groundwater from the SAS and IAS is used for PS after membrane treatment to meet drinking water standards and for AG and L/R irrigation, after blending with freshwater sources.

Floridan Aquifer System

In the LWC Planning Area, water from the FAS typically has chloride concentrations greater than 1,000 mg/L and is considered brackish. Desalination or blending with fresh water is required before this water supply source is suitable for most uses, including irrigation and human consumption. Water quality in the FAS decreases substantially from central to southern Florida, with increasing hardness, chlorides, and salinity. Salinity also increases with depth, making the deeper producing zones less desirable for development than shallower parts of the system. The FAS is productive in the LWC Planning Area; however, use of this brackish water source is limited by water quality concerns (**Chapter 6**).

The FAS is a confined, high-yield aquifer system that provides substantial volumes of water. Overall, the productivity of the FAS is considerably greater than that of the SAS and IAS in the region. The top of the FAS is separated from the IAS by the low-permeability sediments of the intermediate confining unit. The FAS has several discrete aquifers separated by low-permeability confining units, including a unit defined (when present) as the "Lower Hawthorn aquifer," the Upper Floridan aquifer, Avon Park permeable zone, and Lower Floridan aquifer (**Figure 5-5**). Though generally not considered useful as a water supply source in the LWC Planning Area due to high salinity, the Lower Floridan aquifer includes the Boulder Zone (approximately 2,100 to 3,500 feet below mean sea level), a cavernous and highly transmissive interval used for disposal of wastewater effluent and concentrate from reverse osmosis (RO) treatment facilities through the use of deep injection wells.

The SFWMD partners with other agencies (e.g., the United States Geological Survey) to monitor the FAS through regional monitor well networks and through permittees as part of reporting requirements for water use (SFWMD) and deep injection wells (Florida Department of Environmental Protection [FDEP]). Data from these wells indicate some seasonal variations in water levels, but overall, levels have remained stable over the period of record. Nearly all PS utilities in the LWC Planning Area that use the Upper Floridan aquifer have had one or more production wells experience degraded (increasing salinity) water quality. **Chapter 6** and **Appendix D** contain monitor well location information and data from the regional FAS network as well as water quality graphs from several PS utility wellfields.

Existing and Future Use of Brackish Groundwater

Brackish groundwater is used primary by PS utilities to supply a majority of the demand (55%), and in some limited cases by AG (1%) and L/R (2%), as an alternative water supply (**Figure 5-1**). Permitted withdrawal locations from the FAS for AG, L/R, and PS are shown in **Figure 5-11.** PS withdrawals from the FAS have increased from approximately 37.36 to 57.18 mgd between 2005 and 2020 (**Figure 5-10**) and are expected to increase to over 120mgd by 2045 (**Appendix D**). In the LWC Planning Area, 10 PS utilities have FAS permit allocations totaling 96.44 mgd. In addition, 5 PS utilities are using saline groundwater from the IAS or SAS with allocations totaling 16.11 mgd.

PS utilities use RO and membrane softening treatment technologies to remove or reduce excess salinity to acceptable drinking water quality. The approximate production efficiency, or recovery, for brackish water RO facilities Districtwide is between 75% and 85%, depending on the membrane technology employed and the salinity of the source water (Carollo Engineers, Inc. 2009). There currently are 14 PS utilities using RO or membrane softening water treatment plants with a combined treatment capacity of 138.17 mgd. To some extent, saline groundwater can be blended with fresh water from other sources and treated with lime softening or nanofiltration technology to meet chloride drinking water standards. The ability to use blending depends on the water quality of the saline source and other treated water produced by the utility.

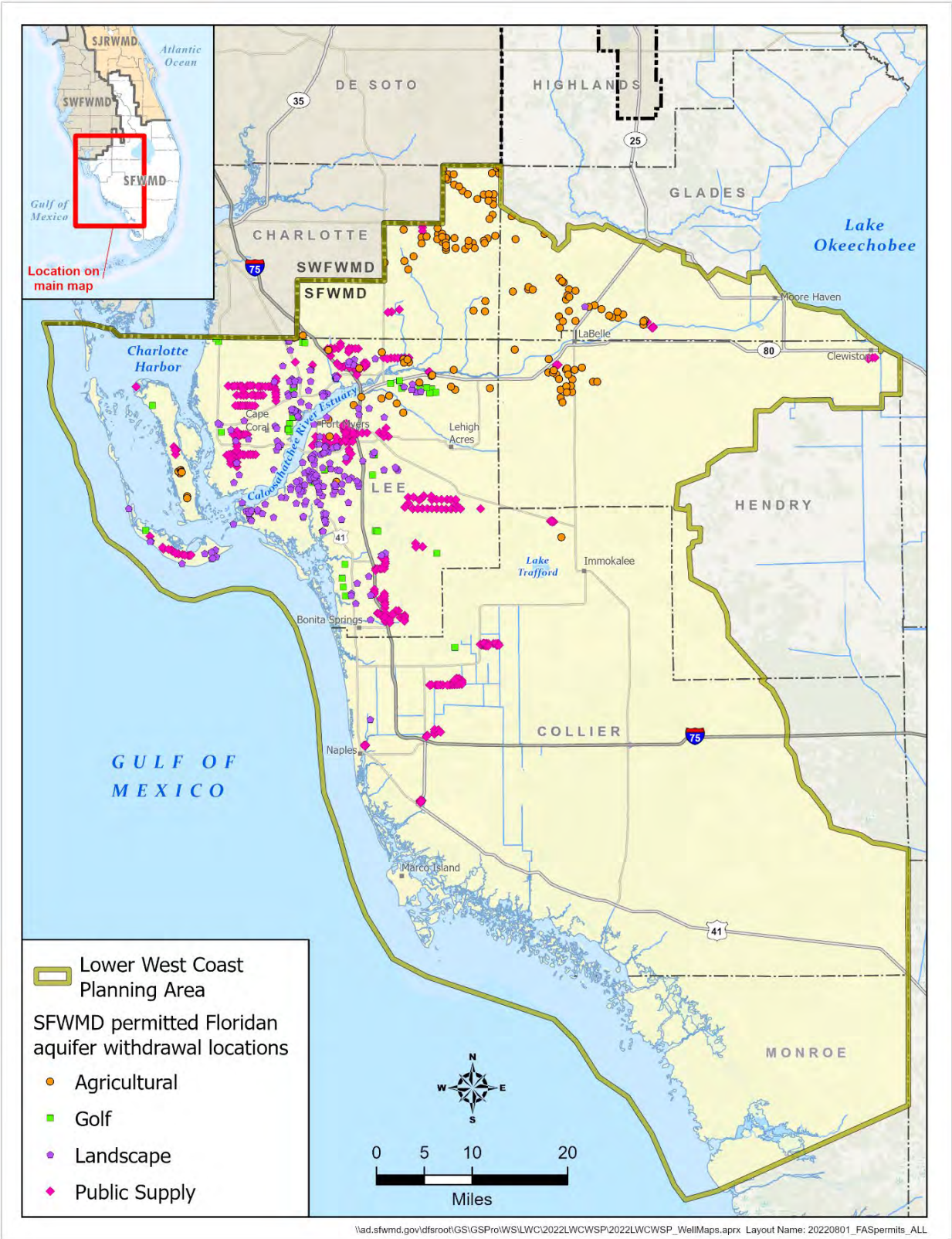

Figure 5-11. Permitted Floridan aquifer system wells in the LWC Planning Area.

RECLAIMED WATER

Reclaimed water is wastewater that has received at least secondary treatment and basic disinfection and is reused after flowing out of a domestic wastewater treatment facility (WWTF) in accordance with Rule 62-610.200, Florida Administrative Code (F.A.C.). Reuse is the deliberate application of reclaimed water for a beneficial purpose. Criteria used to classify projects as "reuse" or "effluent disposal" are contained in Rule 62-610.810, F.A.C.

Florida Statute 373.250 identifies reclaimed water as an AWS, including declaring reclaimed water supply projects as eligible for AWS funding. The Water Resource Implementation Rule (Chapter 62-40, F.A.C.) requires the FDEP and water management districts to advocate and direct the use of reclaimed water as an integral part of water management programs, rules, and plans. The SFWMD requires all water use permit applicants proposing to use more than 0.10 mgd of water and applicants within a mandatory reuse zone, as designated by local governments through ordinance, to use reclaimed water if feasible. In addition, substitution credits and impact offsets, resulting from use of reclaimed water, may be included in a water use permit. A substitution credit is the use of reclaimed water to replace a portion or all of an existing permitted use of a limited surface water or groundwater resource, allowing a different user to initiate or increase withdrawals from the resource. Impact offsets are derived from the use of reclaimed water to reduce or eliminate a harmful impact that has occurred or would occur as a result of a surface water or groundwater withdrawal.

Existing Reuse

Wastewater reuse conserves water resources by reducing reliance on traditional freshwater sources and is an environmentally sound alternative to deep well injection and other traditional disposal methods. Although disposal methods will be needed during wet periods, the use of reclaimed water during normal to dry periods minimizes wasteful disposal of water resources. In addition, reclaimed water provides an acceptable alternative to potable water for uses like irrigation, often at a lower cost. The volume of reclaimed water used in the LWC Planning Area for a beneficial purpose (e.g., landscape irrigation, golf course irrigation, cooling water, and other industrial uses) increased from 32.30 mgd in 1994 to 84.65 mgd in 2020 (**Figure 5-12**). Annual fluctuations in the volume of reclaimed water used are due to the addition of new users and variable amounts of rainfall. The individual reuse inventory reports for the year 2020 (unless otherwise noted for individual facilities) filed by each wastewater utility to the FDEP (FDEP 2021) were analyzed for the presentation in the following sections.

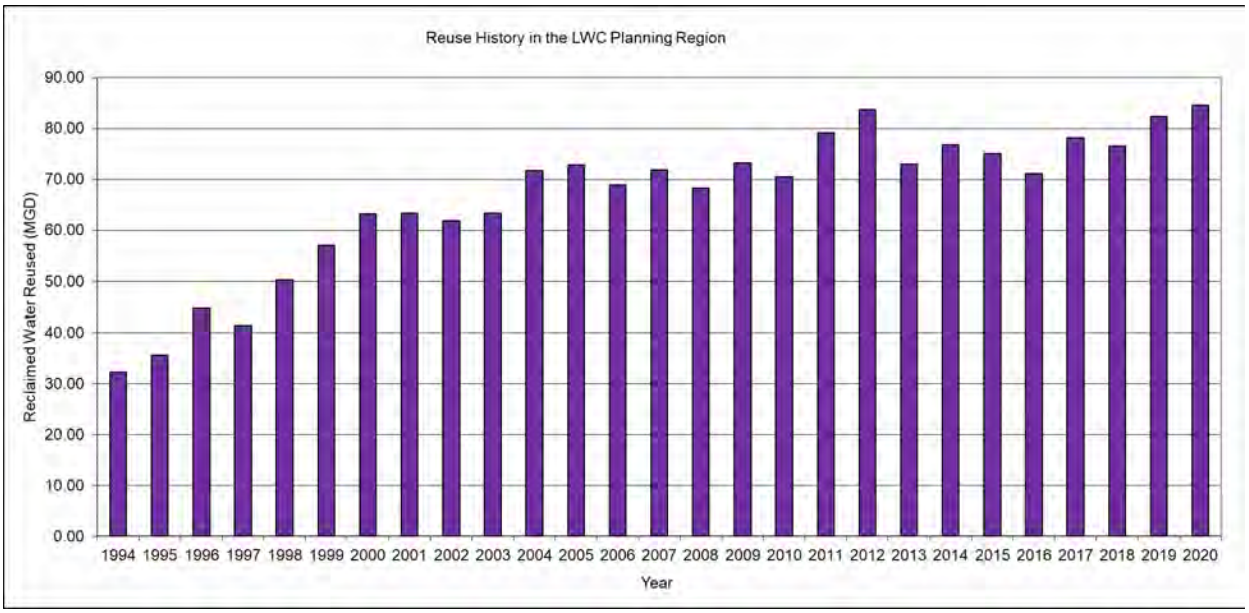

Figure 5-12. Annual average reclaimed water reuse in the LWC Planning Area from 1994 to 2020.

As of 2020, there are 40 domestic WWTFs in the LWC Planning Area with a capacity of 0.10 mgd or greater (**Appendix E**). In 2020, those facilities treated an average wastewater flow of 83.78 mgd. An additional 23.97 mgd of supplemental water was added by utilities. In total, 84.65 mgd was reused, which calculates to 78.6% total potential water reused including supplemental water. The county data indicated 98.0% of wastewater generated in Charlotte, 79.0% in Collier, 100% in Glades, 100% in Hendry, and 77.3% in Lee was reused (including supplemental flows). Reuse was primarily for irrigation of golf courses, parks, schools, and residential lots, accounting for 79.09 mgd (or 93.4%) of the total 84.65 mgd reused.

The remainder was reused for groundwater recharge through percolation ponds (2.29 mgd) irrigation of sprayfields (1.83 mgd), and other uses such as processes at the treatment facility, cooling water, and toilet flushing (1.44 mgd). However, 23.42 mgd of potentially reusable water was disposed of through deep well injection and surface water discharge in 2020, while 23.97 mgd of supplemental flows were required by reuse facilities to reliably meet their demands during dry conditions.

Supplemental Sources to Meet Reuse Demand

The use of supplemental water supplies to meet peak demands for reclaimed water may enable a wastewater utility to maximize its use of reclaimed water. However, during times of drought, water sources such as surface water, groundwater, and stormwater may not be available to supplement reclaimed water supplies in some areas. Use of supplemental water supplies is subject to consumptive use permitting and water shortage restrictions by the SFWMD.

During 2020, the following facilities cumulatively added 23.97 mgd of supplemental water to their reclaimed water supplies.

- Ave Maria
- Bonita Springs – East and West
- Collier County – North and South
- Cape Coral – Everest and Southwest
- Hunter's Ridge
- Lee County – Gateway
- Lee County – Three Oaks
- Marco Island
- Naples
- Port of the Islands – South
- Town and Country (Babcock Ranch)

Supplemental sources included surface water (16.33 mgd), followed by groundwater (7.43 mgd), with the remainder (0.21 mgd) being met with drinking water, demineralized concentrate, and ASR recovery. LWC utilities anticipate a cumulative demand of 58.90 mgd from supplemental sources to meet their 2045 reuse demands.

Reclaimed Water System Interconnects

Reclaimed water system interconnects may be owned or operated by different utilities or may be shared between two or more domestic WWTFs that provide reclaimed water for reuse activities. When two or more reclaimed water systems are interconnected, additional system flexibility is attained, which increases efficiency and reliability. In 2020, in the LWC Planning Area, interconnections existed between the following facilities: Collier County – North and Collier County – South; Bonita Springs – East and Bonita Springs – West; Cape Coral – Everest, Cape Coral – Southwest, and Del Prado; and Lee County – Fiesta Village and Lee County – Fort Myers Beach.

The Fort Myers – South facility does not currently provide reclaimed water service but will provide reclaimed water to Cape Coral's facilities by 2023. In addition, Fort Myers expects to interconnect its South facility to the Fort Myers – Central facility by 2040. Finally, Cape Coral plans to add a new North Phase I Water Reclamation Facility by 2035 which will connect to the Everest – South system.

Future Reuse

Based on information from wastewater utilities operating in the LWC, wastewater flows are projected to increase from 83.78 mgd in 2020 to 161.71 mgd by 2045. As stated previously, 23.42 mgd of potentially reusable wastewater effluent was disposed of in the LWC Planning Area in 2020. Combined, the projected 2045 wastewater and disposals flows represent 188.85 mgd of potential AWS.

Utilities currently distributing reclaimed water to customers intend to continue and expand their reuse systems as additional reclaimed water and users become available. Most major utilities in the region are planning to provide more reclaimed water and have begun or anticipate constructing the required treatment facilities to produce public access irrigation in anticipation of increasing reuse by 2045. In many cases, future reuse will occur in new residential developments, negating the use of potable water for irrigation, thereby reducing PS demands from the FAS compared to current projections.

Table 5-1 shows 2020 documented flows and 2045 projected flows, as estimated using utility-provided data, for average daily wastewater, total reuse, total discharges and supplemental flows, and the changes expected over the planning horizon by county.

Table 5-1. Documented 2020 and estimated 2045 reuse and related flows by county.

County	Wastewater Flows (mgd)		Total Disposal Flows (mgd)		Supplemental Flows (mgd)		Total Reuse (mgd)	
	2020	2045	2020	2045	2020	2045	2020	2045
Charlotte County	0.41	1.20	0.00	0.00	0.67	3.64	1.06	4.66
Collier County	30.71	51.52	7.06	9.93	3.95	8.53	27.39	50.18
Glades County	0.23	0.23	0.00	0.00	0.00	0.00	0.23	0.23
Hendry County	2.01	3.81	0.00	1.71	0.00	0.00	2.01	2.59
Lee County	50.42	104.95	16.36	15.50	19.35	46.73	53.97	135.94
LWC Planning Area Total	**83.78**	**161.71**	**23.42**	**27.14**	**23.97**	**58.90**	**84.65**	**193.59**

mgd = million gallons per day.

In many areas, local government development approval includes use of reclaimed water and extension of reclaimed water pipelines, substantially increasing the volume of reuse by 2045. Applying the current reuse rate of 78.6% to projected wastewater flows results in 43.24 mgd of additional reuse (for a total of 127.03 mgd) by 2045. However, utilities in the LWC Planning Area predict a cumulative increase in reuse of 108.94 mgd (for a total of 193.59 mgd) by 2045.

Currently, there are 17 proposed potable and nonpotable PS development projects in the LWC Planning Area that would potentially increase reclaimed water flows by 39.70 mgd, which, when combined to the cumulative current permitted wastewater capacity of all LWC reclaimed water facilities, total to 201.80 mgd. The full listing of these proposed projects can be seen in (**Chapter 8**).

WATER STORAGE

Storage is an essential component of any supply system that experiences fluctuation in supply and demand. Capturing excess surface water and groundwater during wet conditions for use during dry conditions increases the amount of available water. Approximately two-thirds of South Florida's annual rainfall occurs during the wet season. Without sufficient storage capacity, much of this water discharges to the ocean through surface water management systems and natural drainage. In the LWC Planning Area, potential water storage options include ASR systems and reservoirs, both of which are considered AWS options.

Aquifer Storage and Recovery

ASR involves storing stormwater, surface water, fresh groundwater, drinking water, or reclaimed water in an aquifer that has appropriate attributes (e.g., modest transmissivity, intergranular porosity, overlain by a competent confining unit, low ambient water salinity) and subsequently recovering the water. In this process, an aquifer acts as an underground reservoir for injected water. The injected water is treated to appropriate standards, which may vary depending on the water quality of the receiving aquifer, and then pumped into the aquifer through a well (i.e., stored). The water is pumped back out (i.e., recovered) at a later date for use. The amount of water recovered depends on subsurface conditions, storage time,

and water quality. The level of treatment required during recovery, if any, depends on the intended use of the water (e.g., public consumption, irrigation, surface water augmentation, wetlands enhancement).

The volume of water made available through ASR depends on several factors, including well yield, water availability, aquifer characteristics, variability in water supply and demand, and use type. There are uncertainties that need to be addressed with the implementation of ASR systems, but this storage option has the potential to retain substantial quantities of water that otherwise would be lost to the ocean, deep well injection, or evaporation.

Most of the ASR systems in the District have been built by PS utilities to store potable water during periods of low seasonal demand for subsequent recovery during periods of high demand. The SFWMD, in cooperation with the United States Army Corps of Engineers, is pursuing regional ASR systems as part of the Comprehensive Everglades Restoration Plan (CERP). Further information about these projects is provided in **Chapter 7**.

Figure 5-13 shows the locations of ASR projects constructed in the LWC Planning Area and the water source type. To date, ASR systems have been built by Cape Coral, Collier County Utilities, Lee County Utilities, Marco Island, and Naples.

- Cape Coral ASR Program – The Everest water reclamation facility ASR system is a proposed project that will use up to four ASR wells to store excess reclaimed water flows from the City of Fort Myers within the Upper Floridan aquifer. Cape Coral also has constructed six exploratory ASR wells that may be used in the future for storing excess storm water. Once operational and permitted by the FDEP, water recovered from the proposed ASR systems could be used to supplement irrigation withdrawals from the Cape Coral freshwater canal system.
- Collier County Utilities ASR Program – Collier County Utilities has constructed and tested ASR systems at Livingston Road, Manatee Road, and Carica Road for the intention of integration into the reclaimed water system. However, the ASR wells are currently inactive and the utility is considering abandonment of all of them.
- Lee County Utilities ASR Program – The Corkscrew water treatment plant (WTP) ASR system consists of five ASR wells that store potable treated water. The Olga WTP ASR system, constructed to store treated surface water from the C-43 Canal for potable use, has been inactive since 2006. The Lee County North ASR system is also inactive.
- Marco Island ASR Program – The Marco Lakes ASR system consists of seven ASR wells that store surface water captured annually from Henderson Creek and Marco Lakes in the Upper Floridan aquifer. Recovered water is routed to a WTP on the island via pipeline to supplement PS demand.
- Naples ASR Program – The Golden Gate ASR system uses four ASR wells to store excess surface water from the Golden Gate Canal to supplement to the city's on-site reclaimed water system during periods of high irrigation demand in the dry season.

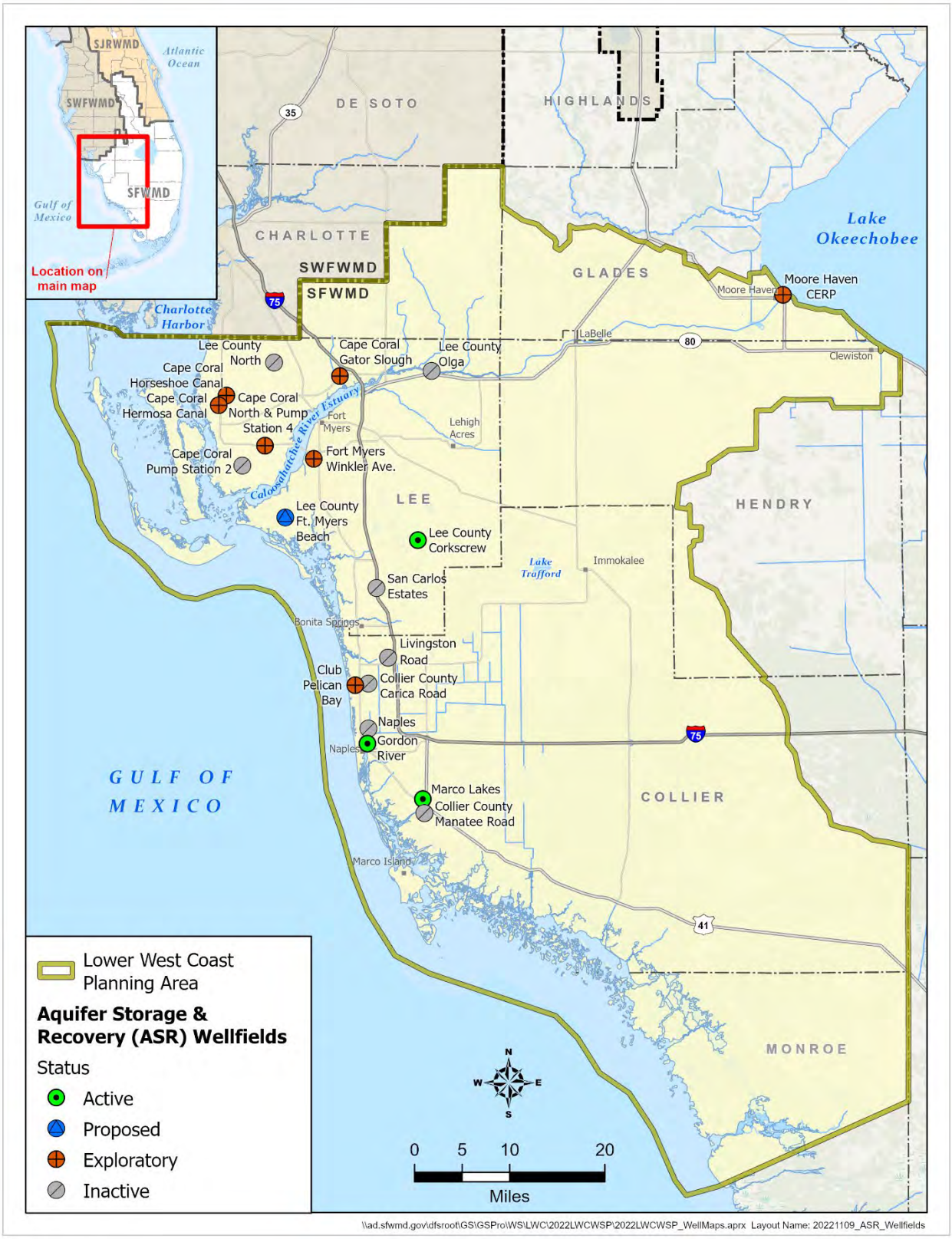

Figure 5-13. ASR wellfields in the LWC Planning Area.

Local and Regional Reservoirs

Surface water reservoirs store water primarily captured during wet weather conditions for use during the dry season and are considered an AWS source. Excess stormwater typically is captured from rivers or canals and stored in aboveground or in-ground reservoirs, which are referred to as off-stream reservoirs. Small-scale (local) reservoirs are used by agricultural operations to store recycled irrigation water and collect stormwater runoff. These reservoirs also may provide water quality treatment before off-site discharge. The C-43 West Basin Storage Reservoir is a CERP project currently under construction and one example of a large-scale, off-stream regional reservoir in the LWC Planning Area. Large-scale (regional) reservoirs are used for stormwater attenuation, water quality treatment in conjunction with stormwater treatment areas, and storage of seasonally available water. Regional storage projects, such as those related to CERP (**Chapter 7**), may enhance surface water availability.

SEAWATER

The use of desalinated seawater from the Gulf of Mexico is an AWS option. The SFWMD does not require water use permits for the use of seawater. The ocean is an abundant source of water; however, desalination is required before seawater can be used for most water supply purposes. There are no PS utilities currently using or proposing to use seawater by 2045.

Major advances in seawater desalination treatment and efficiencies have occurred over the past decade. As a result, desalination costs are declining; however, the cost of standalone seawater desalination facilities remains higher than brackish water desalination. Co-locating seawater desalination facilities with coastal power plants results in cost savings, decreasing the cost difference compared to other AWS options. Additional information regarding seawater desalination is provided in the 2021-2024 Support Document (SFWMD 2021).

SUMMARY OF WATER SOURCE OPTIONS

Water users in the LWC Planning Area rely on fresh groundwater and surface water as well as brackish water and reclaimed water for urban, agricultural, and industrial uses. Total gross water demands under average rainfall conditions are projected to increase 16% between 2020 and 2045. Additionally, the total demand projection for 2045 in this 2022 LWC Plan Update is 3% less than the estimated 2040 demand projected in the 2017 LWC Plan Update. As concluded in previous LWC water supply plan updates, traditional freshwater sources alone are not sufficient to meet projected 2045 water demands; therefore, continued development of AWS sources is needed.

Saline groundwater has recently become the primary source of water to meet increasing PS demands in the LWC Planning Area. Large-scale expansion of SAS and IAS withdrawals is limited by the rate of groundwater recharge, low aquifer productivity, potential impacts to existing legal users and wetlands, possible saltwater intrusion, and proximity to contamination sources. Therefore, the FAS will continue to provide an increasing portion of the water needed to meet 2045 PS demands. The West Coast Floridan Model results indicate the FAS will be able to meet demands, in terms of volume and water quality. Model results are discussed in **Appendix D**.

Traditional fresh surface water and groundwater sources will remain the primary sources for AG and L/R irrigation. As urban growth occurs, some agricultural land is expected to transition to urban uses. Many existing agricultural areas have water use permits to use fresh groundwater for crop irrigation. While water use permits cannot be directly transferred from one land use type to another, conversion of agricultural lands to another use may result in available fresh groundwater, consistent with regulatory criteria. In addition, several utilities are proposing to expand reclaimed water distribution systems for landscape and golf course irrigation.

The LWC Planning Area receives an average of 53 inches of rainfall annually; nearly two-thirds of this rainfall occurs during the wet season. Without sufficient storage capacity, much of this water discharges to tide. ASR systems and reservoirs under development as part of CERP will increase storage capacity and, in addition to meeting environmental water needs, will enhance water availability for other uses.

Water source options depend on location, use type, demand, regulatory requirements, and cost. As competition for limited water resources increases, development of AWS sources will also increase. The conclusions of previous plan updates continue to represent the issues considered to meet the 2045 projected water demands within the LWC Planning Area.

REFERENCES

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6

Water Resource Analyses

This chapter provides historical data and analyzes the current and future status of water resources in the Lower West Coast (LWC) Planning Area of the South Florida Water Management District (SFWMD or District) as well as their limitations and ability to meet the projected demands described in **Chapter 2**. The issues identified in this chapter may affect the use of existing water resources and the development of new supplies to meet projected water demands for 2045. **Appendix D** provides additional details about climate change, saltwater intrusion, and regional surficial aquifer system (SAS), intermediate aquifer system (IAS), and Floridan aquifer system (FAS) modeling. Understanding the effects of meeting water demands through withdrawals from water resources is critical to water supply planning.

TOPICS

- Summary of Issues Identified for 2045
- Evaluation and Analyses
- Surface Water Availability
- Groundwater Availability
- Climate Change and Sea Level Rise
- Summary of Water Resource Analyses

SUMMARY OF ISSUES IDENTIFIED FOR 2045

Traditional freshwater sources in the LWC Planning Area are not sufficient to meet 2020 and 2045 projected water use demands. Past analyses indicate that fresh groundwater from the SAS and IAS, and surface water from the Caloosahatchee River Basin are not adequate to meet the growing needs of the LWC Planning Area during 1-in-10-year drought conditions. As stated in **Chapter 5**, because development of the SAS and IAS has been maximized in many areas, most utilities have already tapped the deeper FAS to meet portions of current demands, and most of their increased needs in the future. The following water supply issues continue to influence water supply planning efforts in the LWC Planning Area:

- Increased withdrawals from the SAS and the freshwater portions of the IAS are generally limited due to potential impacts on wetlands and existing legal water uses, including Domestic Self-Supply (DSS); the potential for saltwater intrusion; and the possibility of reaching aquifer maximum developable limits (MDLs). New or increased allocations will be evaluated on an application-by-application basis to determine if a project meets water use permitting criteria.
    - In some areas, such as Cape Coral and Lehigh Acres, cumulative demands are negatively affecting aquifer water levels.

- Increases in surface water allocations from Lake Okeechobee and hydraulically connected surface waters are limited by the Lake Okeechobee Service Area (LOSA) restricted allocation area (RAA) criteria. Water availability from Lake Okeechobee is discussed comprehensively in the Lower East Coast Water Supply Plan.
- Peak freshwater discharges of surface water during the wet season are affecting the health of the Caloosahatchee River Estuary. Additional storage is required in the basin and in the regional system to attenuate damaging peak flow events.
- During dry conditions, surface water availability and current storage capacity sometimes are insufficient to meet water demands and environmental needs for the C-43 Canal and Caloosahatchee River Estuary.
- Withdrawals from the FAS are expected to increase to meet future demands. Monitoring water levels and water quality in the FAS will be needed to ensure long-term sustainability of the resource.
- Climate change and sea level rise could impact the availability of freshwater resources in the LWC Planning Area.

Previous LWC water supply plan updates identified a variety of alternative water supply (AWS) development projects to avoid water resource impacts as well as competition between water users, and to provide a sustainable supply of water. Projects include the use of reclaimed water, water storage using aquifer storage and recovery (ASR) wells, and development and use of brackish water sources.

While the development of fresh groundwater in many areas has been maximized, limited amounts of fresh groundwater may be locally available. As urban growth occurs, some agricultural land is expected to transition to urban community uses. Many existing agricultural areas have water use permits to use fresh groundwater for crop irrigation. While water use permits cannot be directly transferred from one land use type to another, conversion of agricultural lands to another use may result in available fresh groundwater.

EVALUATION AND ANALYSES

When developing this water supply plan update, data and information from many sources were considered. The following information sources were used to evaluate water resources in the LWC Planning Area, including their availability and ability to meet projected demands considering the issues listed above:

- Input from planning area stakeholders and the public
- Analyses and results from previous LWC water supply plan updates
- Water Supply Facilities Work Plans and capital improvements elements from local governments
- Activities and progress since the 2017 LWC Plan Update, including water supply diversification
- Groundwater modeling results from simulations conducted in 2020 using the Lower West Coast Surficial and Intermediate Aquifer Systems Model and the West Coast Floridan Model
- Water use permits and permit applications

- Water supply demand projections for 2045
- Hydrologic data for the SAS, IAS, and Upper Floridan aquifer (UFA) from monitor wells located in the LWC Planning Area
- Updated 2019 saltwater interface maps for Lee and Collier counties
- Data and information from the Comprehensive Everglades Restoration Plan (CERP), including status of CERP projects such as the Caloosahatchee River (C-43) West Basin Storage Reservoir

Based on information from these sources, issues identified in the 2017 LWC Plan Update were determined to be applicable for this 5-year plan update. The projected 2045 gross water demands for all water use categories in this plan update are 3% less than the projected 2040 demands in the 2017 LWC Plan Update (**Chapter 2**). The decrease in total projected demand is due primarily to decreases in projected Agriculture (AG) demands. As a result, the findings and conclusions of previous plan updates are considered conservative but still representative of current and projected scenarios.

SURFACE WATER AVAILABILITY

Traditionally, surface water from Lake Okeechobee, the C-43 Canal, and the Caloosahatchee River Estuary watershed has been the primary source of water supply for agriculture in the LWC Planning Area. As discussed in the 2017 LWC Plan Update, surface water availability from existing canal and storage networks within the hydraulically connected LOSA is insufficient to meet agricultural water use demands and environmental needs during 1-in-10-year drought conditions. Increases in surface water allocations from Lake Okeechobee and hydraulically connected surface waters are limited by the RAA criteria. Past analyses concluded that additional storage would be beneficial to providing adequate resources to meet existing legal user and natural system needs.

The lack of storage within the C-43 Canal and Caloosahatchee River Estuary watershed contributes to the following:

- The discharge of large volumes of water to tide during major storm events, which adversely impacts estuarine ecosystems due to sudden declines in salinity
- The discharge of water to tide during the wet season, making it unavailable to the ecosystem during the dry season
- The lack of sufficient dry season inflows to the estuary, which causes elevated salinity within the estuary

Construction of the CERP Caloosahatchee River (C-43) West Basin Storage Reservoir (**Chapters 4, 7,** and **Appendix C**) will provide surface water storage as a component of the recovery strategy for the Caloosahatchee River minimum flow and minimum water level (MFL). The main objective of the project is to capture excess wet season flows that will be used to enhance dry season flows to the Caloosahatchee River Estuary. Construction of the reservoir is anticipated to be completed in 2024. Additional reservoirs or water storage solutions to increase water storage capacity have been proposed by agricultural entities.

Lake Okeechobee provides supplemental water to the Caloosahatchee River Estuary via the C-43 Canal during the dry season. However, concerns about the integrity of the Herbert Hoover Dike surrounding Lake Okeechobee resulted in the United States Army Corps of Engineers (USACE) revising the water level operational protocol (the 2008 Lake Okeechobee Regulation Schedule), which limits water availability to the C-43 Canal and its tributaries. The USACE currently is rehabilitating the Herbert Hoover Dike, with an expected completion date by 2022. Concurrently, the USACE initiated in 2019 a re-evaluation of Lake Okeechobee operations to coincide with the completion of Herbert Hoover Dike rehabilitation. The Lake Okeechobee System Operating Manual (LOSOM) planning effort is re-examining the opportunities to balance the congressionally authorized project purposes for flood control, water supply, navigation, recreation, and preservation of fish and wildlife resources. The USACE plans to have a new schedule completed in 2023.

Several factors were considered when evaluating surface water availability to meet current and future demands in the LWC Planning Area. Based on monitoring data and resource protection criteria (i.e., RAAs, MFLs), surface water use for water supply is limited and is expected to remain so through the planning horizon. Increased future demands in the region likely will be met using groundwater sources.

GROUNDWATER AVAILABILITY

The SAS, IAS, and FAS are the major groundwater sources in the LWC Planning Area (**Chapter 5**). The following sections provide data and analyses of water levels and water quality in the SAS, IAS, and FAS. The SAS and IAS historically served as the major sources of fresh groundwater for Public Supply (PS), Landscape/Recreational (L/R) irrigation, and AG irrigation. However, past and present analyses of the SAS and IAS indicate that they are limited sources of groundwater in many areas. The SAS and IAS could not be the primary sources for all projected water demands in the LWC Planning Area without harming the environment or the resource. Alternative sources would need to be developed to meet increased demands. The SFWMD has developed regional groundwater models for the SAS/IAS and the FAS to evaluate current and future conditions within the LWC Planning Area. A summary of the groundwater modeling results for simulations conducted in 2020 can be found in this chapter and in **Appendix D**.

Additional limited groundwater may be developed and permitted from the SAS and IAS depending on local resource conditions, changing land use, and the viability of other supply options. Increases in withdrawals from the SAS and IAS are constrained by saltwater intrusion, wetland impacts, impacts to existing legal users, and other regulatory considerations. Withdrawals from the freshwater portion of the SAS and IAS also are limited due to the regulatory protections provided by aquifer MFLs and MDLs, as discussed in **Chapter 4** and **Appendix C**. MDL elevations are shown below on water level time series plots. Applications for increased withdrawals from the SAS and IAS will be reviewed on a project-specific basis to determine if water use permitting criteria will be met.

Hydrographs for selected SAS, IAS, and FAS monitor wells are presented below using data from the District's DBHYDRO database, United States Geological Survey (USGS) wells database, and the District's regulatory database (for PS facilities and wellfields). In DBHYDRO, monitor wells are identified by a unique DBKey, as listed in each time-series hydrograph.

In addition to the hydrographs, time series plots of chloride concentrations are provided as indicators of water quality on the saltwater interface maps contained in **Appendix D**. Groundwater chloride concentration data for selected PS wellfields are presented herein. These time series plots are provided by PS utilities as part of their water use permit monitoring requirements. Additional information about PS utilities, including permitted allocations, treatment facilities, and proposed projects, is available in **Appendix B** and later sections of this chapter.

Surficial Aquifer System Evaluation

Within the SAS, the Water Table and Lower Tamiami aquifers are primary water sources for DSS, L/R, and AG as well as a major source for PS in Collier, Lee, and Hendry counties. As such, the shallow aquifers are critically important to the region. The hydrologic data used in this plan update show a wide range in water levels in the SAS. The SAS (and its associated wetlands) depend on local rainfall and lateral seepage for aquifer recharge. During dry conditions, recharge diminishes, drainage persists, and irrigation and other demands increase, compounding stress on the SAS and wetland systems.

Surficial Aquifer System Water Levels

Permitted withdrawal locations from these aquifers are presented in maps in **Chapter 5**. Throughout the LWC Planning Area, there are no consistent downward or upward trends in SAS water levels; however, individual wells may show temporal trends reflecting local climatic variations. Active SAS monitoring well locations are shown in **Figure 6-1**.

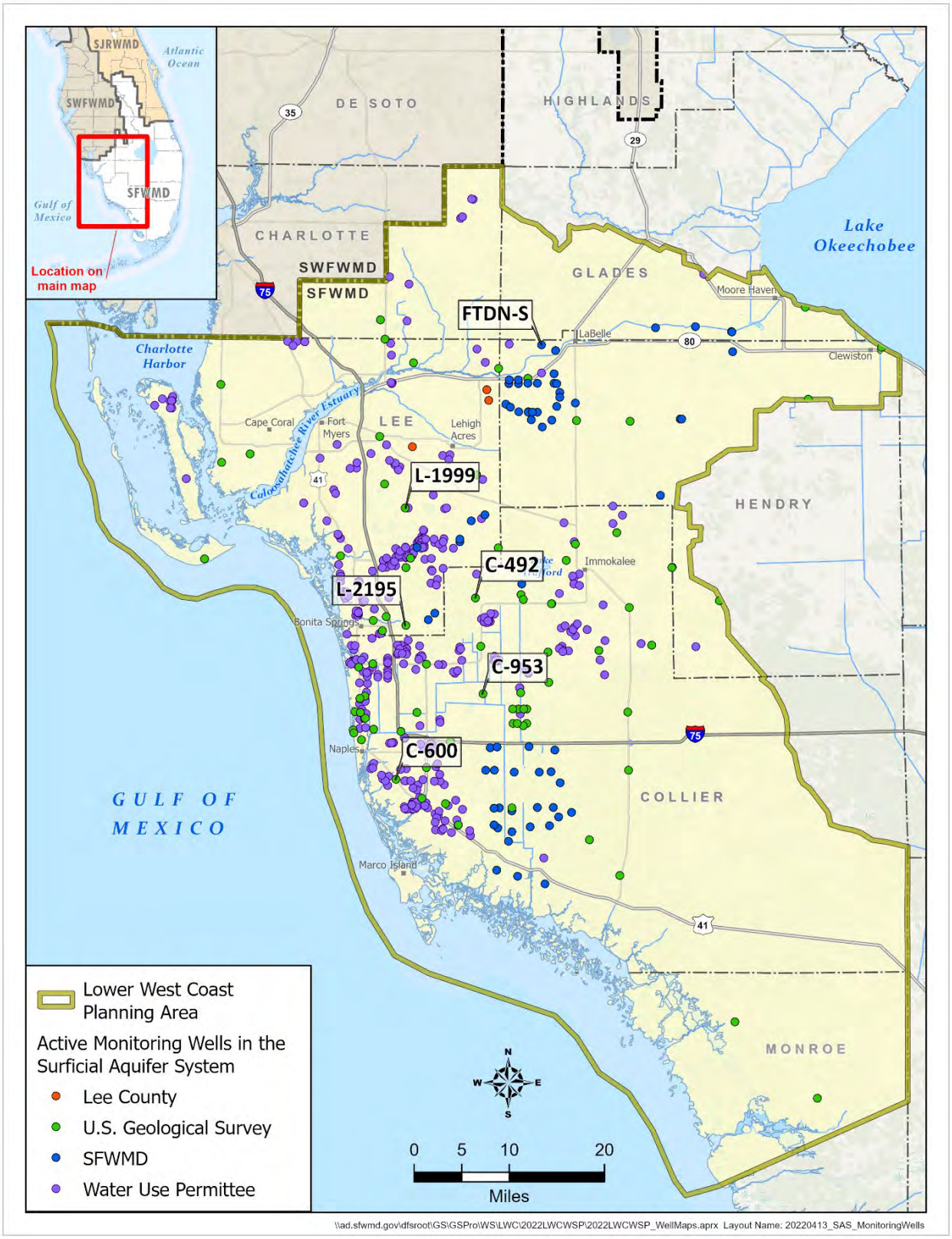

Figure 6-1. Active surficial aquifer system groundwater monitor wells in the LWC Planning Area.

Figures 6-2 through **6-6** are selected time-series plots showing groundwater elevation trends for Collier County SAS monitor wells C-492, C-600, Lee County SAS monitor well L-1999, Hendry County monitor well FTDN-S, and Lee County SAS monitor well L-2195. Wells C-492, L-1999, and L-2195 show approximately 5- to 6-foot variations in water levels between the wet and dry seasons, while the variations in water levels at C-600 are generally around 2 to 2.5 feet and 3.5 to 4 feet at FTDN-S. Seasonal variations in groundwater levels between the wet and dry seasons are typical in rainfall-driven shallow aquifers like the SAS. Well C-492 has shown an overall decreasing trend of about 0.8 feet over the lifetime of the water level records, while L-1999 shows a slight increasing water level trend over the entire period of record. The time-series plot for FTDN-S shows a stable water level trend throughout its 30-year record.

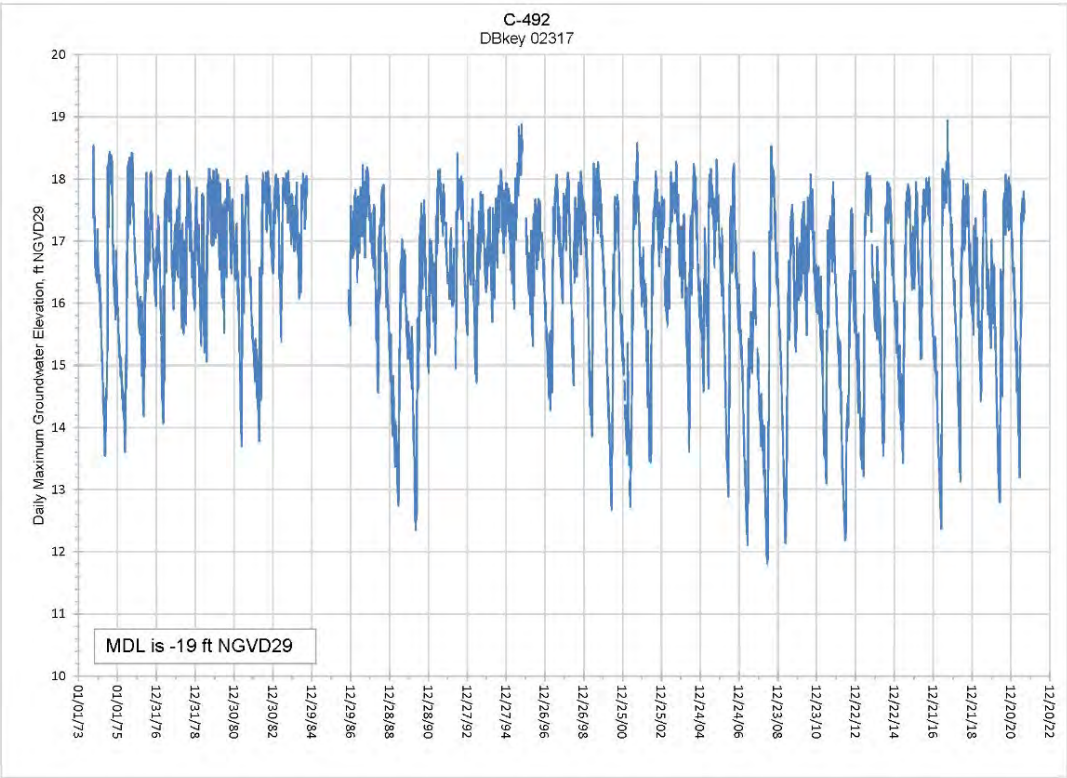

Figure 6-2. Water levels in Lower Tamiami aquifer monitor well C-492, northwestern Collier County.

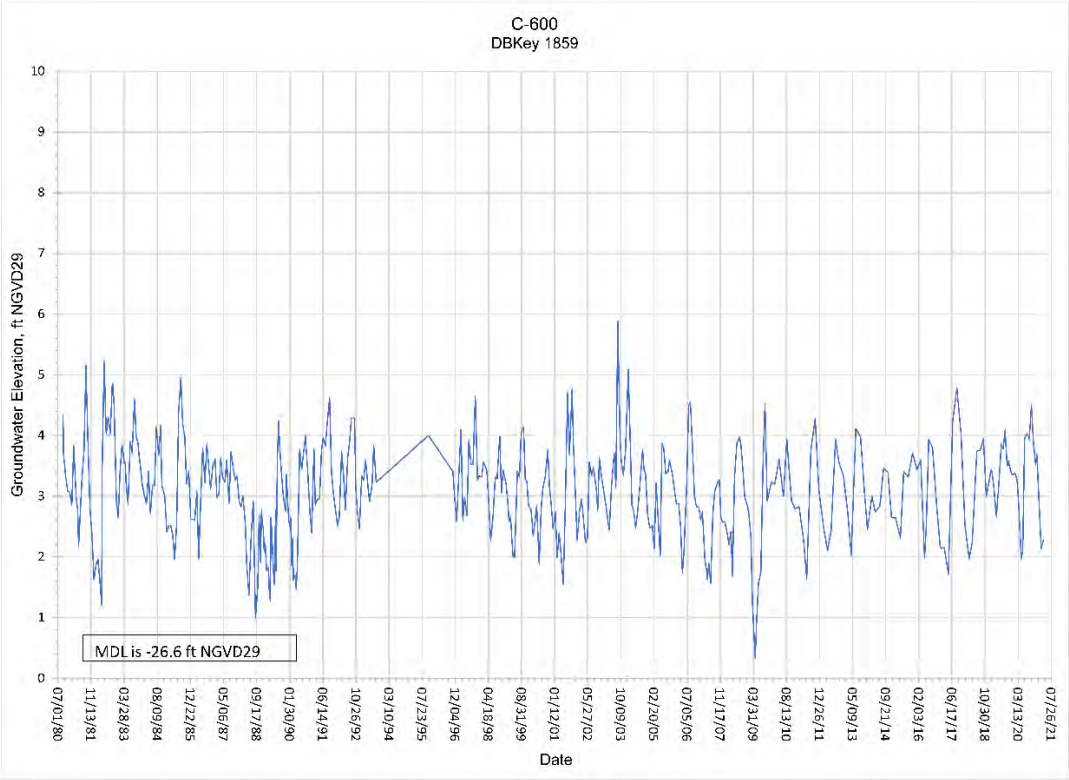

Figure 6-3. Water levels in USGS Lower Tamiami aquifer monitor well C-600, Collier County.

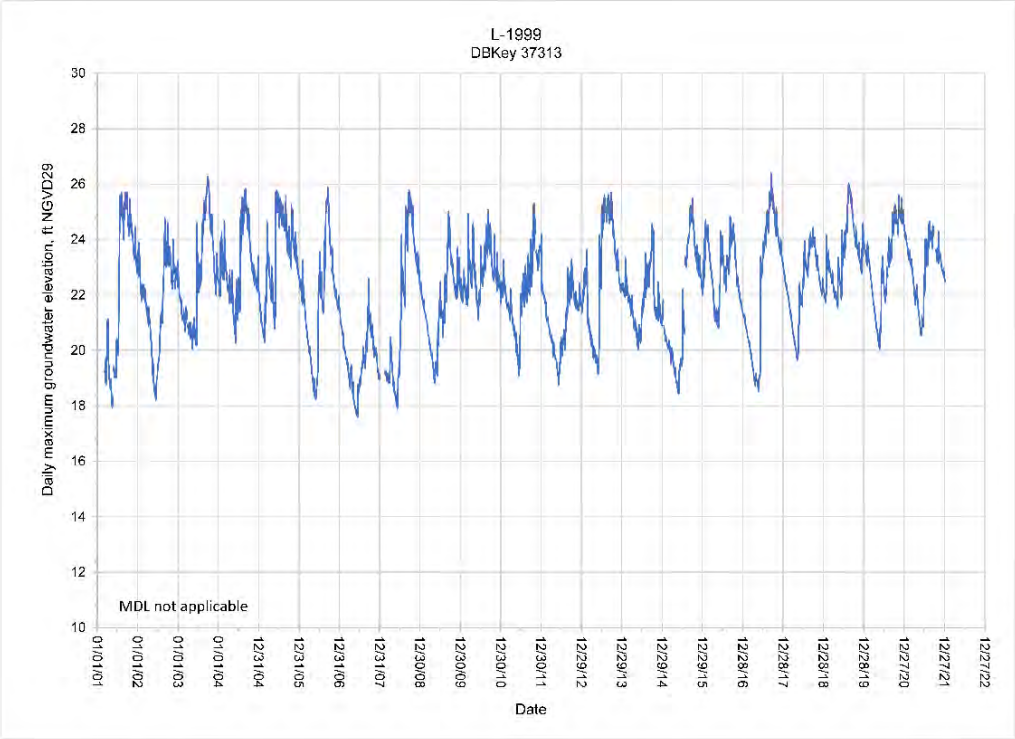

Figure 6-4. Water levels in surficial aquifer system monitor well L-1999, Lee County.

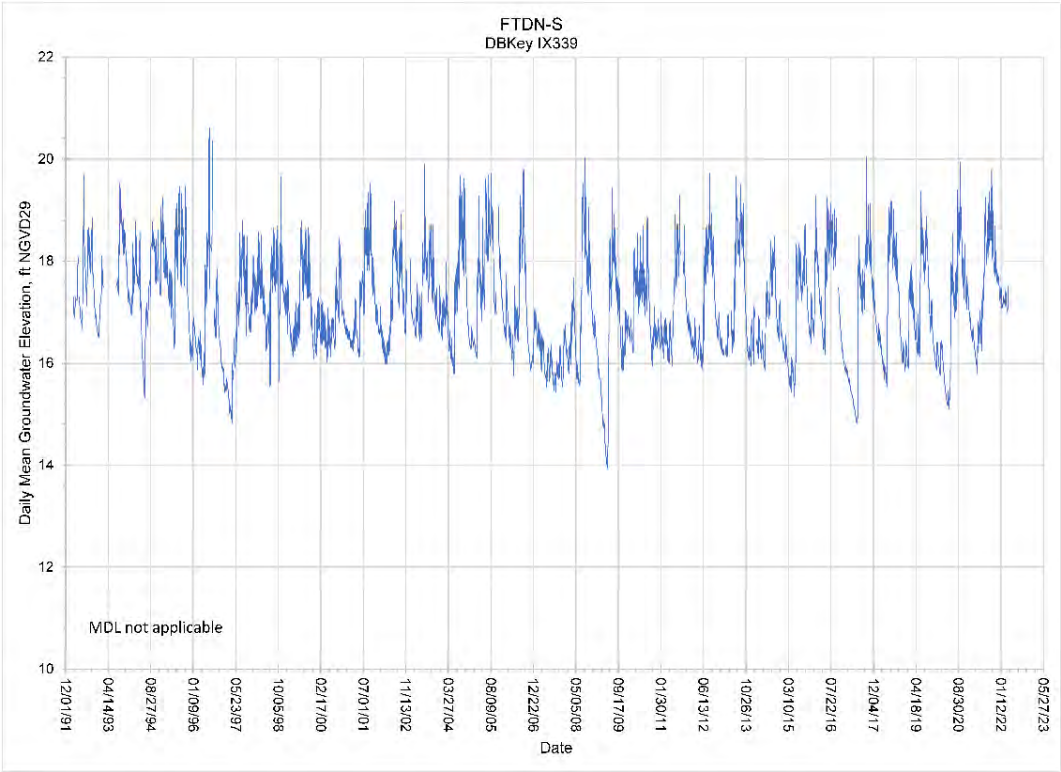

Figure 6-5. Water levels in surficial aquifer system monitor well FTDN-S, Hendry County.

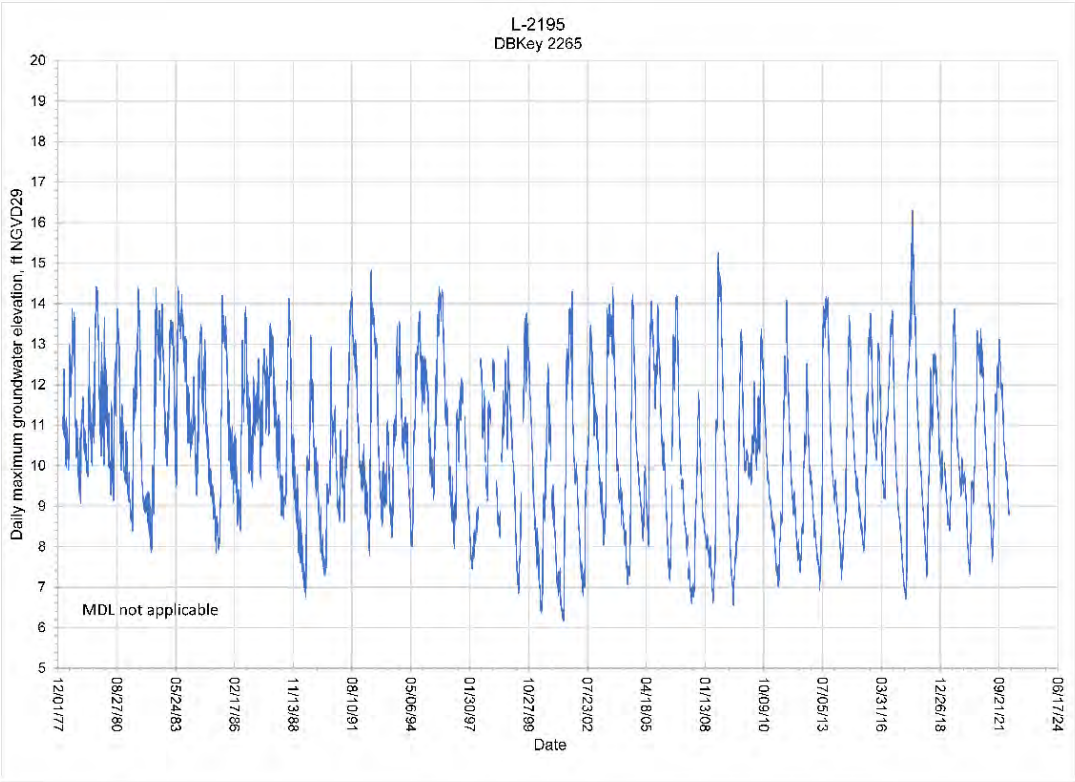

Figure 6-6. Water levels in surficial aquifer system monitor well L-2195, Lee County.

Intermediate Aquifer System Evaluation

In the LWC Planning Area, the IAS includes the Sandstone and Mid-Hawthorn aquifers. The Sandstone aquifer is used predominantly for AG and DSS. The Mid-Hawthorn aquifer is used by DSS and as a supplemental source for L/R and PS. The hydrologic data used in this plan update show a wide range in water levels in the IAS. The IAS is confined/semiconfined in the LWC Planning Area. The Mid-Hawthorn aquifer is recharged outside and north of the planning area, while the Sandstone aquifer receives some recharge locally (dampened because of the semiconfining rock unit above it) and from the north. Active IAS monitoring well locations are shown in **Figure 6-7**.

Intermediate Aquifer System Water Levels

Sandstone Aquifer

The time-series plots shown in **Figures 6-8** through **6-12** show steadily declining IAS groundwater elevations and relatively large variations in minimum and maximum groundwater elevations in Lehigh Acres. Prior to the 2000s, water level fluctuations between the wet and dry seasons in these wells varied by up to approximately 10 feet. Since about 2000, this variation has increased to approximately 20 feet. The overall declining groundwater elevation trend has caused some DSS wells to become inoperable. During the 2007 drought, 64% of the 526 replacement wells permitted by Lee County were in Lehigh Acres. Sandstone aquifer water levels have recovered near wellfields where withdrawals from this aquifer have been reduced. However, overall groundwater withdrawals from the IAS have increased in the LWC Planning Area.

In 2010, the SFWMD installed two Sandstone aquifer monitor wells (L-729 and L-2186) to help refine the top of the Sandstone aquifer and the MDLs for these two wells in Lehigh Acres (McMillon and Anderson 2015). This project and the results from other drilling in the area demonstrate the variability in the elevations of the top of the Sandstone aquifer.

From March 2017 to present, dry season water levels in well L-2186 have declined to less than 10 feet above (and sometimes less than 5 feet above) the MDL (9.1 feet National Geodetic Vertical Datum of 1929 [NGVD29]). Population in the Lehigh Acres area is expected to increase over the next few decades, and groundwater levels are expected to continue declining toward the MDL, particularly during the dry seasons and times of greater water use.

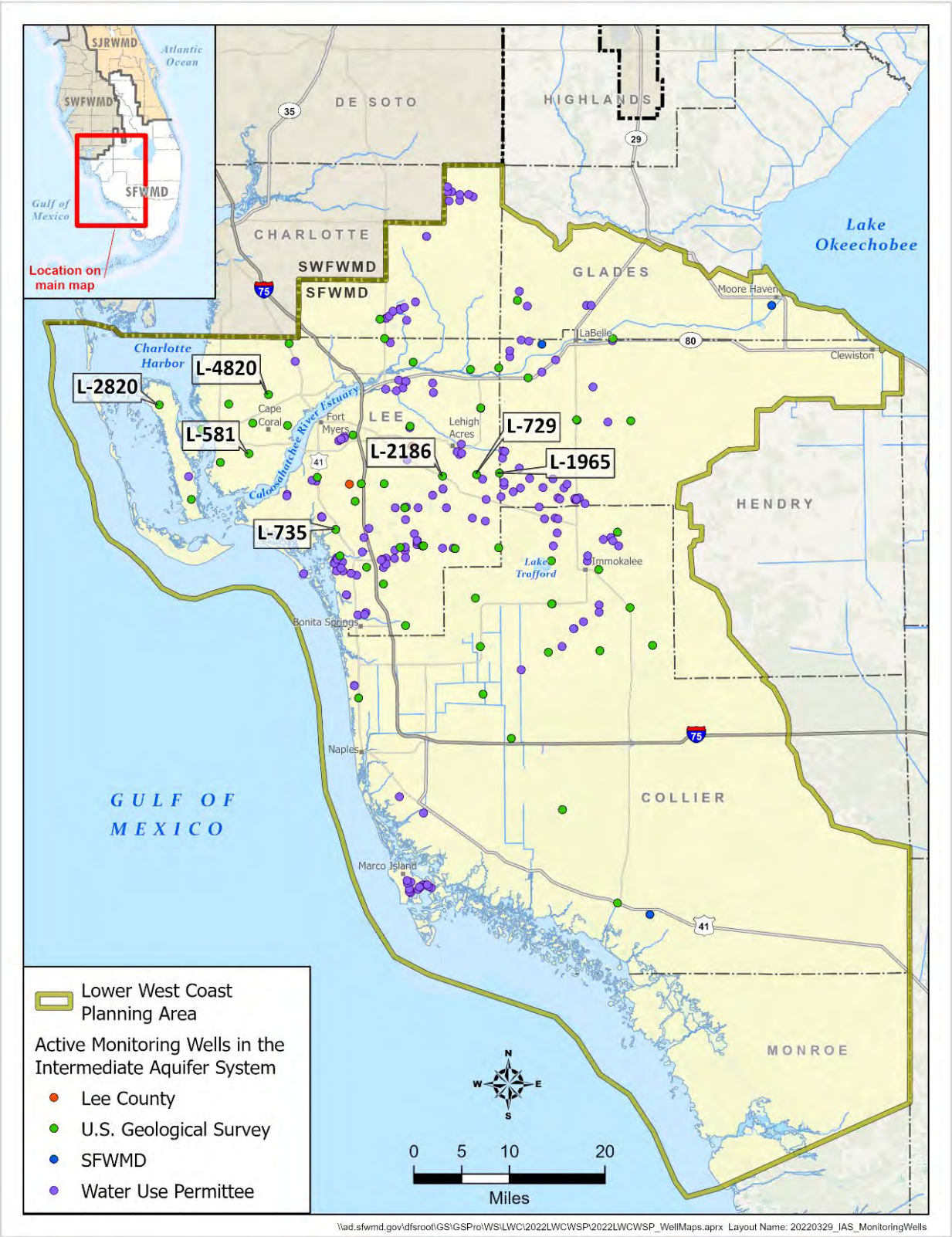

Figure 6-7. Active intermediate aquifer system water level monitor wells in the LWC Planning Area.

As shown in the time series plots for Sandstone aquifer wells L-729, L-2186, and L-1965 (**Figures 6-8** to **6-10**), water levels show declining trends with the usual seasonal variations. Water levels at well L-729 began to show a greater seasonal variation starting around 2001 and continuing into the present, with a slight overall decreasing trend. For approximately the last 15 years, the lowest groundwater elevations at L-729 have come within approximately 12 feet of the MDL elevation of -15 feet NGVD29. Water levels at Sandstone aquifer well L-2186 also show similar trends to well L-729, with increasing seasonal variations and declining water levels starting around 2000. During the dry season at L-2186, the water levels have dropped to within about 3 to 8 feet of the MDL elevation of -9.1 feet NGVD29. At Sandstone aquifer well L-1965, the same declining water level trend is visible. Slightly greater seasonal fluctuations in water levels are seen at L-1965 than those seen in L-729 and L-2186, with numerous MDL violations recorded at L-1965 since late 1999. The time-series plots indicate a long-term decline in available groundwater with increasingly greater seasonal variations and lower groundwater elevations during dry seasons.

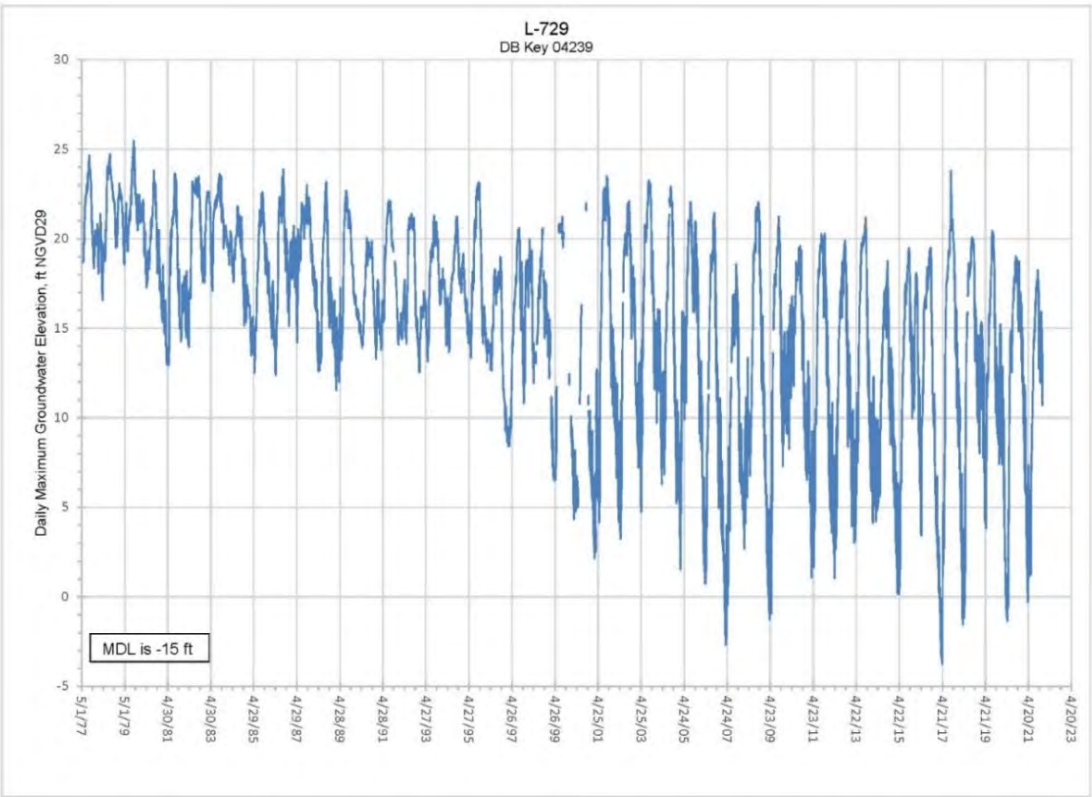

Figure 6-8. Water levels in Sandstone aquifer well L-729 in Lehigh Acres.

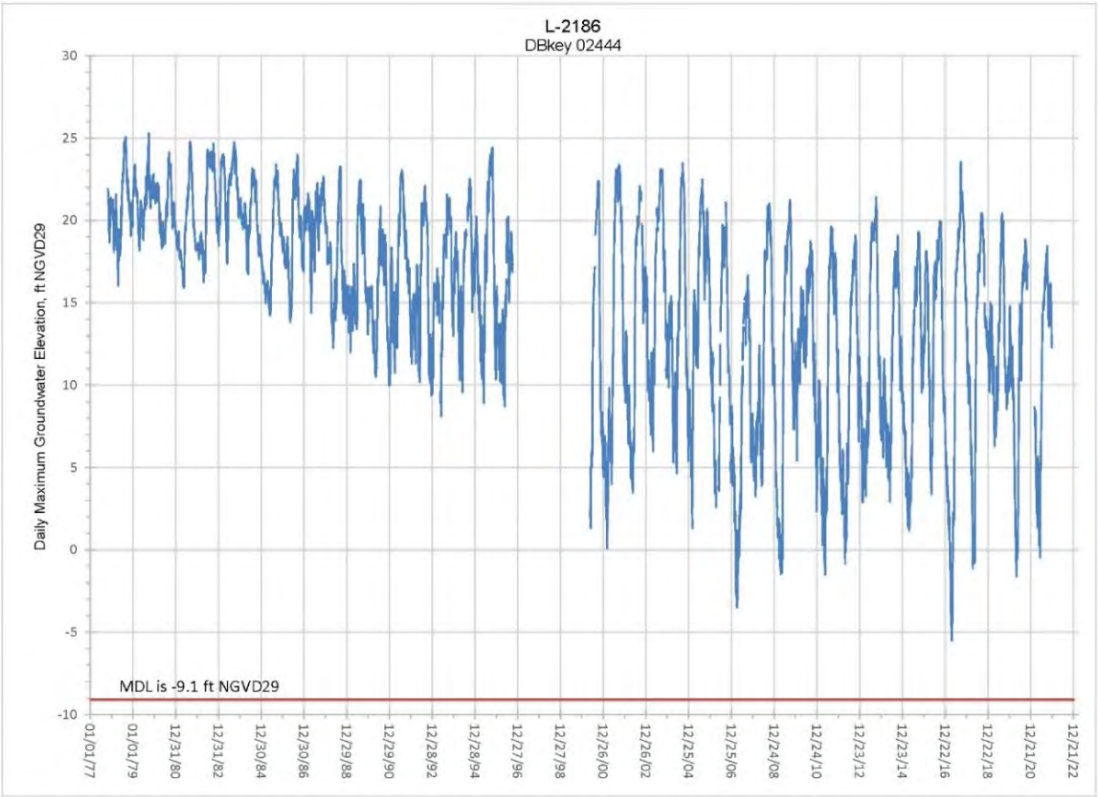

Figure 6-9. Water levels in Sandstone aquifer well L-2186 in Lehigh Acres.

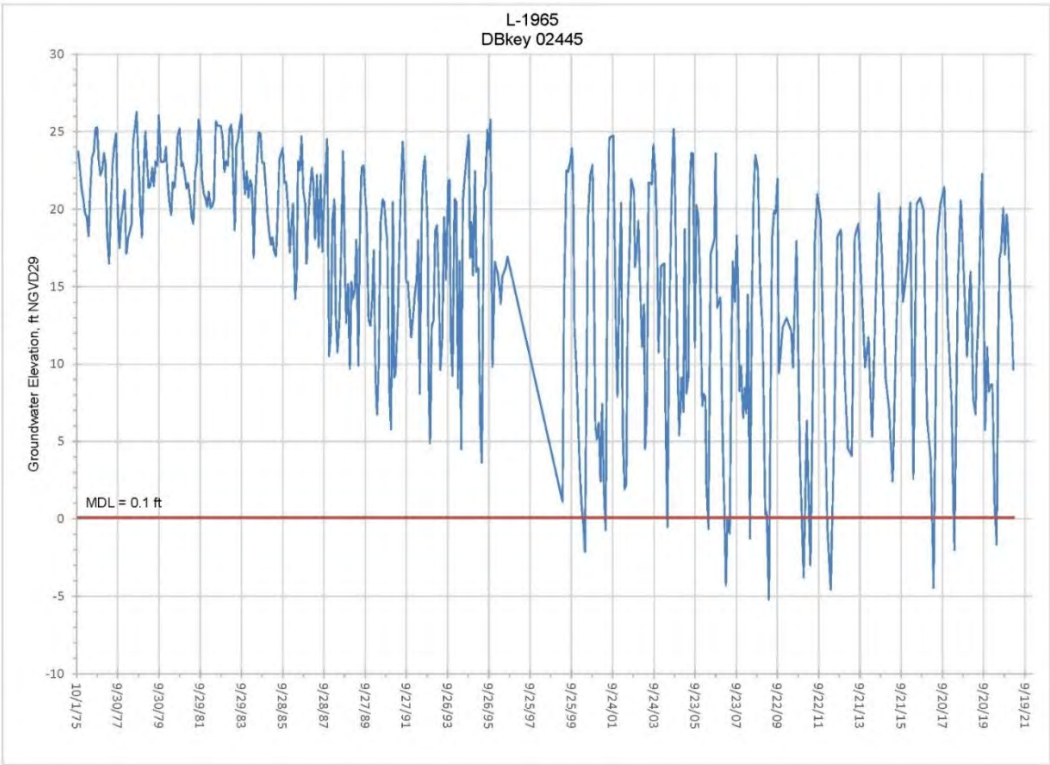

Figure 6-10. Water levels in Sandstone aquifer well L-1965 in Lehigh Acres.

Mid-Hawthorn Aquifer

In contrast to the declining trends observed for the IAS/Sandstone aquifer in Lehigh Acres, water levels within the Mid-Hawthorn aquifer have risen substantially in southern Cape Coral due to PS and reclaimed water service area expansion by the City of Cape Coral, which decreased DSS withdrawals from the Mid-Hawthorn (as shown by the increasing groundwater elevations at L-581; **Figure 6-11**). PS for this portion of Cape Coral is derived primarily from the FAS, which is hydraulically isolated from the IAS and SAS. Expansion of the southern Cape Coral service area as well as increased use of the FAS and reclaimed water were identified in the 2012 LWC Plan Update as partial solutions to diminishing IAS water availability in the area.

However, in northern Cape Coral not yet served by PS, water levels in the Mid-Hawthorn aquifer have continued to decline as shown in the hydrograph for well L-4820, where groundwater elevations are now approximately 65 feet lower than they were in 2003 (**Figure 6-12**). In addition, the MDL of -81 feet NGVD29 was exceeded twice (from March 27, 2020 to June 1, 2020 and from March 25, 2021 to July 5, 2021). Continued reliance on this IAS aquifer will cause further water level declines, which reinforces the need for AWS development to ensure adequate future water supply.

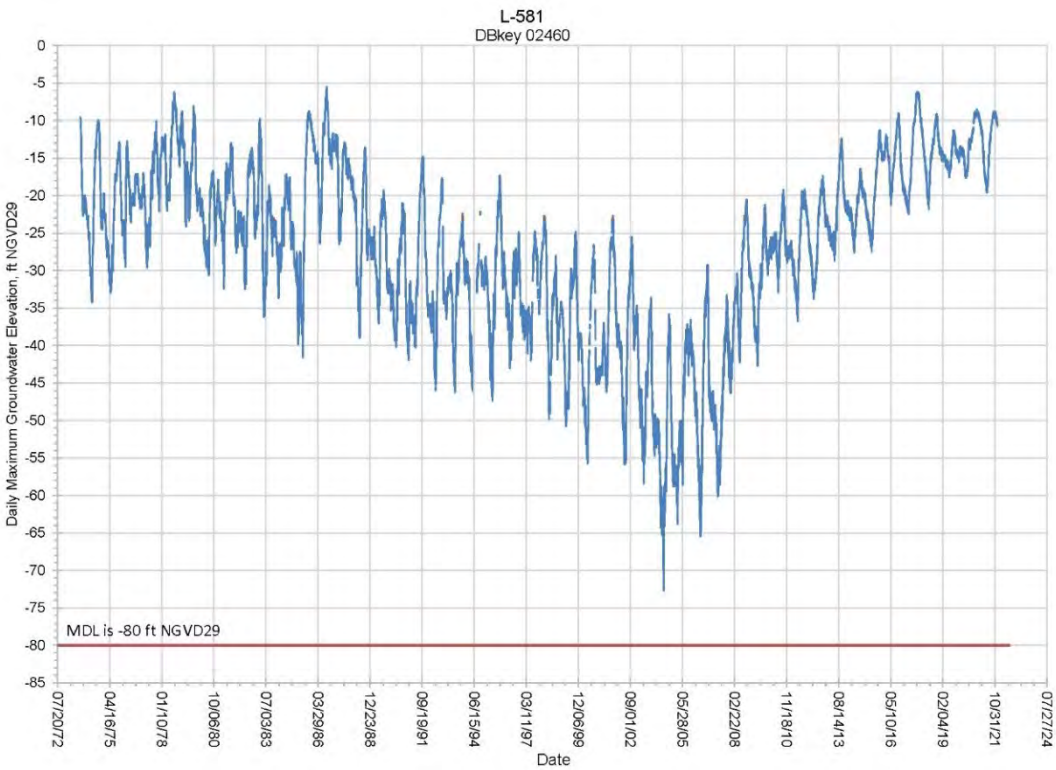

Figure 6-11. Water levels in Mid-Hawthorn aquifer well L-581 in southern Cape Coral.

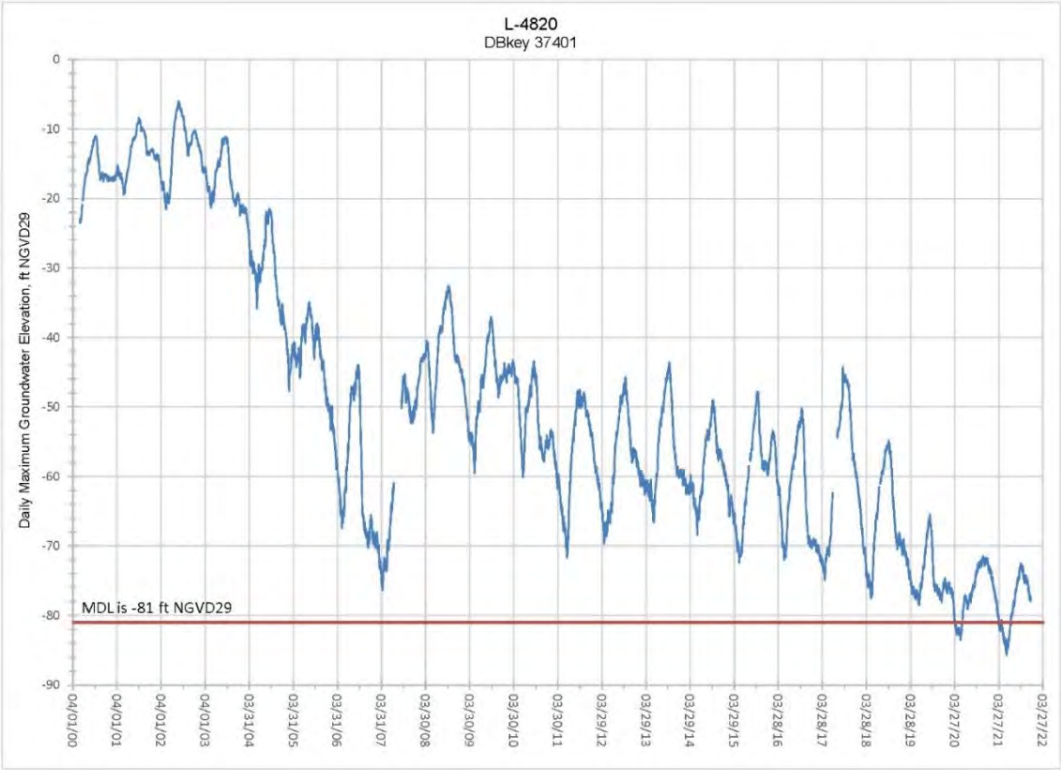

Figure 6-12. Water levels in Mid-Hawthorn aquifer well L-4820 in northern Cape Coral.

Surficial and Intermediate Aquifer System Water Quality

Water quality monitoring is crucial to managing and protecting fresh groundwater sources such as the SAS and IAS. The concentrations of chloride detected in groundwater samples are used as indicators of saltwater intrusion, which can occur due to the inland movement of the saltwater interface, or due to upward movement of saline groundwater (upconing) from underlying geologic units. Upconing and leakage from deeper brackish aquifers can occur through a variety of mechanisms including sustained overpumping, or flow through improperly abandoned or designed wells that are open to multiple aquifers. Chloride concentrations must be below the United States Environmental Protection Agency secondary drinking water standard of 250 milligrams per liter (mg/L) to meet the drinking water standard (United States Environmental Protection Agency 2021).

Saltwater Interface Mapping

The SFWMD periodically develops saltwater interface maps to help visualize and understand the potential degradation of the coastal aquifers and water supply wellfields tapping the SAS and IAS (**Appendix D**). Salinity data from monitor wells were compiled from multiple sources (e.g., USGS, SFWMD, water use permittees) and contoured to estimate the position of the saltwater interface, defined as the isochlor line with a 250 mg/L chloride concentration. To date, three series of maps have been developed (2009, 2014, and 2019), with plans to update the maps every 5 years. This approach tracks the position of the saltwater interface over time, can be used to identify areas of concern that may need additional monitoring, and may suggest the need for changes in wellfield operations. The SFWMD's saltwater interface

monitoring and mapping program is described by Shaw and Zamorano (2020). The 2019 saltwater interface maps are available on the SFWMD's webpage https://www.sfwmd.gov/documents-by-tag/saltwaterinterface.

In general, the 2019 maps are similar to the 2014 maps; however, relatively small differences indicate that the interface is regionally dynamic, with inland movement in some areas and seaward movement in other areas. Local-scale investigation of the saltwater interface could be warranted in some areas, depending on the network of monitor wells available, the proximity of the saltwater interface to specific wellfields, and groundwater withdrawal rates at these wellfields. The 2019 saltwater interface maps for the Water Table, Lower Tamiami, Sandstone, and Mid-Hawthorn aquifers are presented in **Appendix D**.

Water Quality Data from Selected PS Wellfields in the SAS

For water supply, the primary concern of rising sea levels is the inland migration of salt water. In coastal South Florida, saltwater intrusion has been an issue since humans began draining lands for development and withdrawing groundwater for drinking and irrigation supplies. Sea level rise is anticipated to exacerbate the situation. Several PS utilities in the LWC Planning Area use the SAS for all or part of their water needs, and several utilities have limited ability to desalinate water. Therefore, many utilities are required by their water use permit to maintain chloride monitoring to identify possible inland movement of the saltwater interface. This section includes the historical plots of chloride concentrations from a few PS wellfields that withdraw water from the SAS. An additional discussion of the PS utilities that are particularly vulnerable to dry conditions within the LWC Planning Area is included in **Appendix D**.

Naples Coastal Ridge Wellfield

Naples has been utilizing the groundwater from the Lower Tamiami aquifer at the Coastal Ridge wellfield since the 1960s. The city has maintained a vigilant water quality monitoring and wellfield operating regime (in tandem with operation of the East Golden Gate wellfield) that has successfully provided continued withdrawals from the aquifer without causing a significant deterioration of water quality from the production wells (**Figure 6-13**).

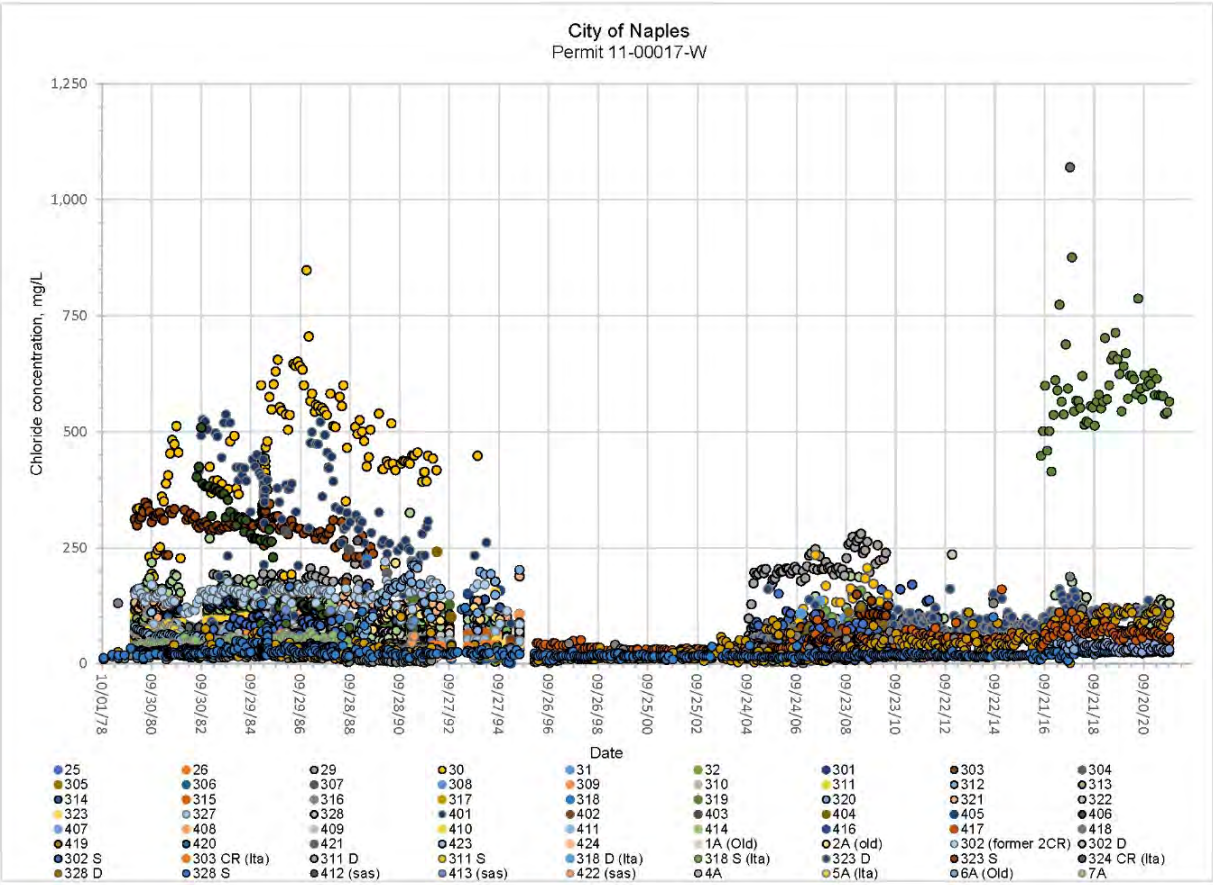

Figure 6-13. Chloride concentrations in the Naples Coastal Ridge wellfield.

Bonita Springs West Wellfield

The Bonita Springs West wellfield has been utilizing the Lower Tamiami aquifer for PS since the early 1980s. Over the last 14 years, all the chloride concentrations are stable with most of the wells containing chloride concentrations below about 150 mg/L, with well MW-1 reporting values around 300 mg/L. Well 1 contained elevated chloride concentrations between 1,200 mg/L and 350 mg/L; however, use of this well was discontinued in 2007 (**Figure 6-14**).

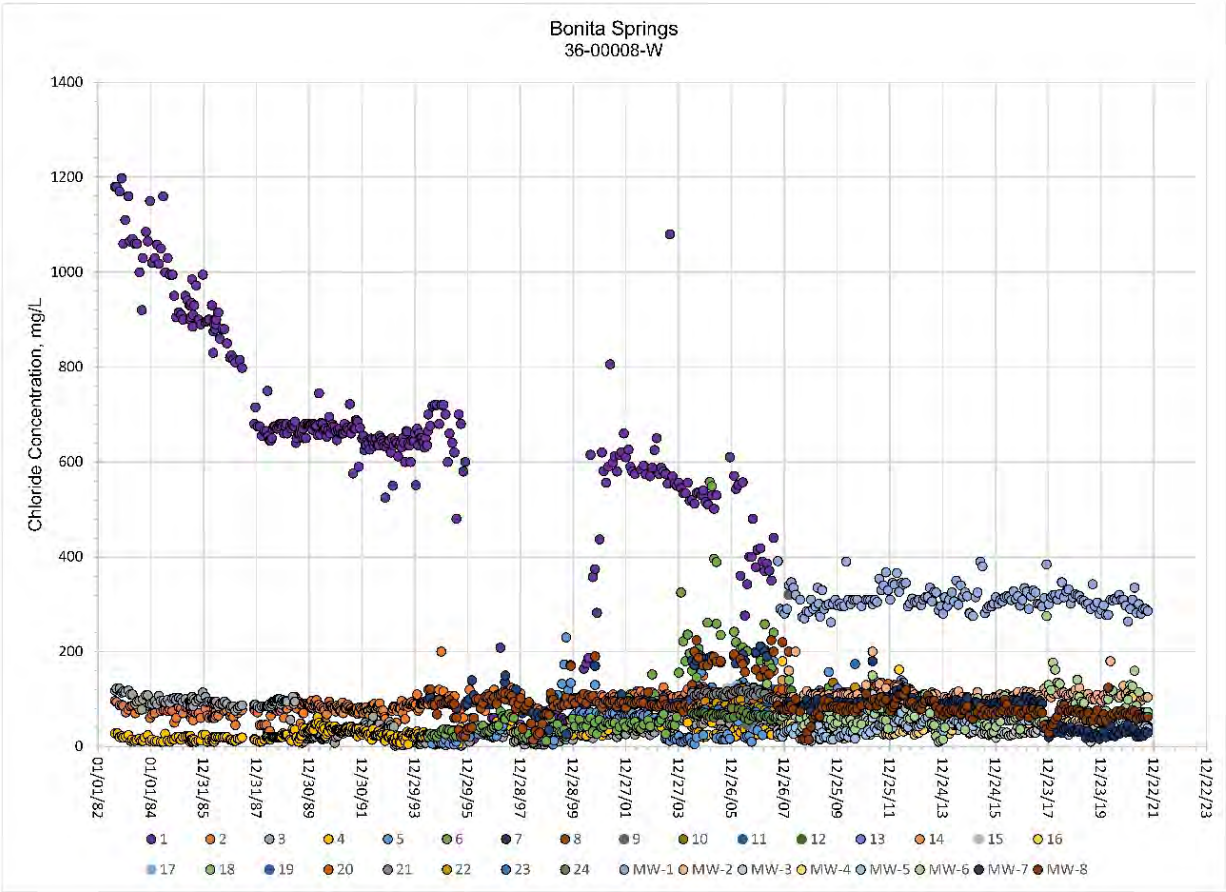

Figure 6-14. Chloride concentrations in the Bonita Springs West wellfield.

Lee County Green Meadows

Lee County Utilities has been utilizing the SAS at the Green Meadows wellfield for PS since 1985. Over the last 10 years, the chloride concentrations have been fairly stable with the majority of the wells containing chloride concentrations below about 80 mg/L, with a number of the wells showing a slight decreasing trend in chloride concentrations (**Figure 6-15**).

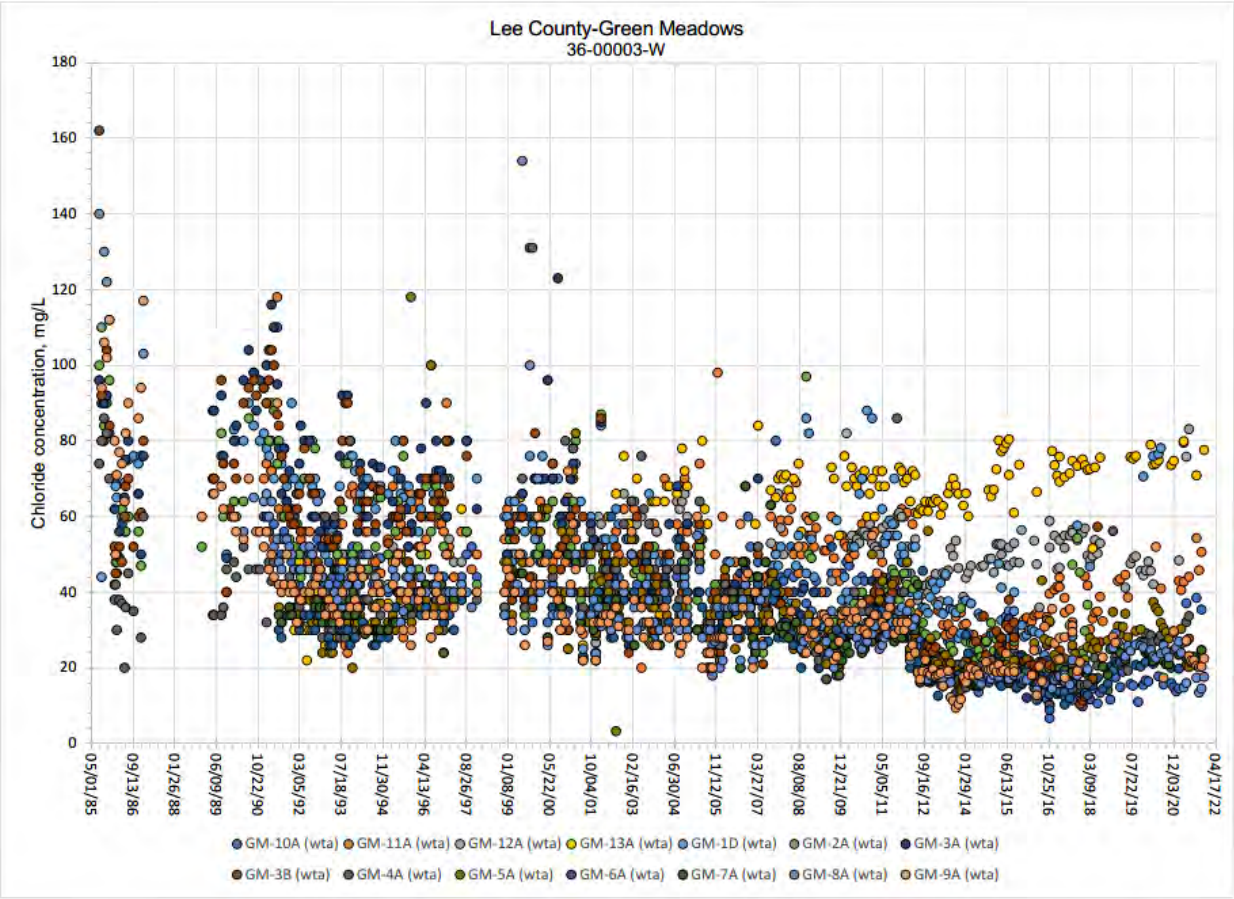

Figure 6-15. Chloride concentrations in the Lee County Green Meadows surficial aquifer system wellfield.

Surficial and Intermediate Aquifer Groundwater Modeling

The Lower West Coast Surficial and Intermediate Aquifer Systems Model (LWCSIM) was designed to evaluate the sustainability of existing and projected future LWC Planning Area demands from the SAS and IAS. The LWCSIM was used to identify areas where cumulative water use withdrawals may harm existing groundwater resources and natural systems (e.g., wetlands). The modeling effort also investigated the potential for increased risk of saltwater intrusion in the SAS and IAS. The results from the model simulations indicated that no widespread impacts are anticipated from groundwater withdrawals through 2040. The total demand projection for 2045 in this 2022 LWC Plan Update is 3% less than the estimated 2040 demand projected in the 2017 LWC Plan Update. Therefore, the modeled results are considered to be representative of the future demands. The LWCSIM indicated a few localized areas that require continued monitoring, additional planning, and adaptive management strategies to prevent harmful impacts to groundwater resources and wetlands in the future. The LWCSIM also indicated that groundwater withdrawals at the projected 2040 demand levels do not pose an increased risk of saltwater intrusion near major public supply wellfields in the coastal portions of the SAS and IAS. **Figures 6-16** and **6-17** present the difference between 2020 and 2040 water levels in the Water Table aquifer (SAS) and the Sandstone aquifer (IAS). Additional graphics and a summary discussion of the LWCSIM results are provided in **Appendix D** and within the complete model application report (Bandara et al. 2020).

Surficial and Intermediate Aquifer System Conclusions

Analyses of the SAS and IAS indicate that water availability for increased water allocations is limited in many areas and cannot be the primary source for all projected water demands in the LWC Planning Area without harming the water resource including related natural systems. Water levels and water quality in the SAS appear to be stable at current withdrawal rates as available from saltwater intrusion monitoring mapping data and PS wellfield information. IAS water levels are declining towards established MDL/MFL elevations in localized areas of Cape Coral and Lehigh Acres. Northern expansion of Cape Coral's water services should address this resource concern; however, a sustainable water strategy needs to be developed for Lehigh Acres. AWS sources such as the FAS and reclaimed water will need to be expanded to meet increasing water demands in many urbanized areas.

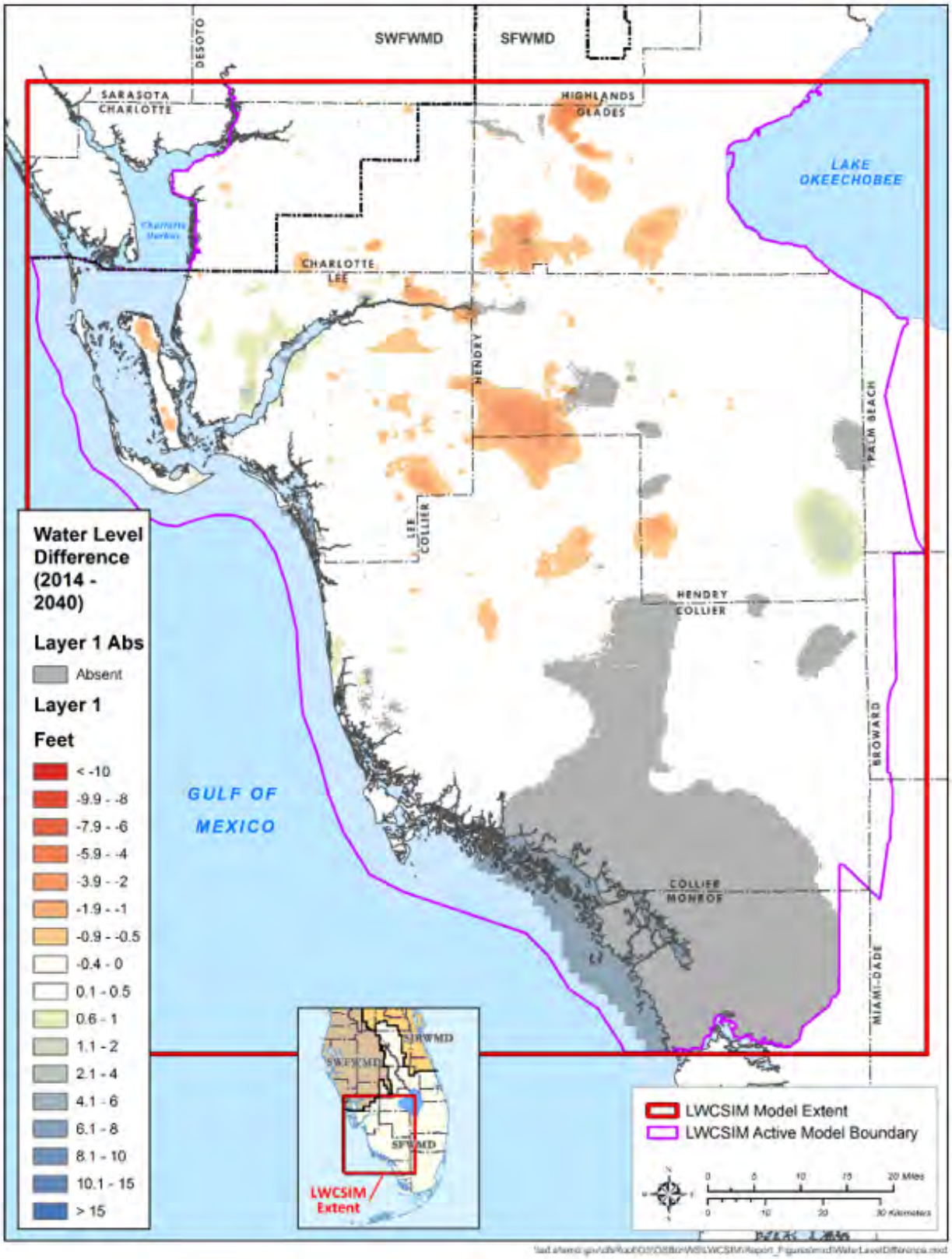

Figure 6-16. 2014 to 2040 water level difference in the Water Table aquifer (SAS).

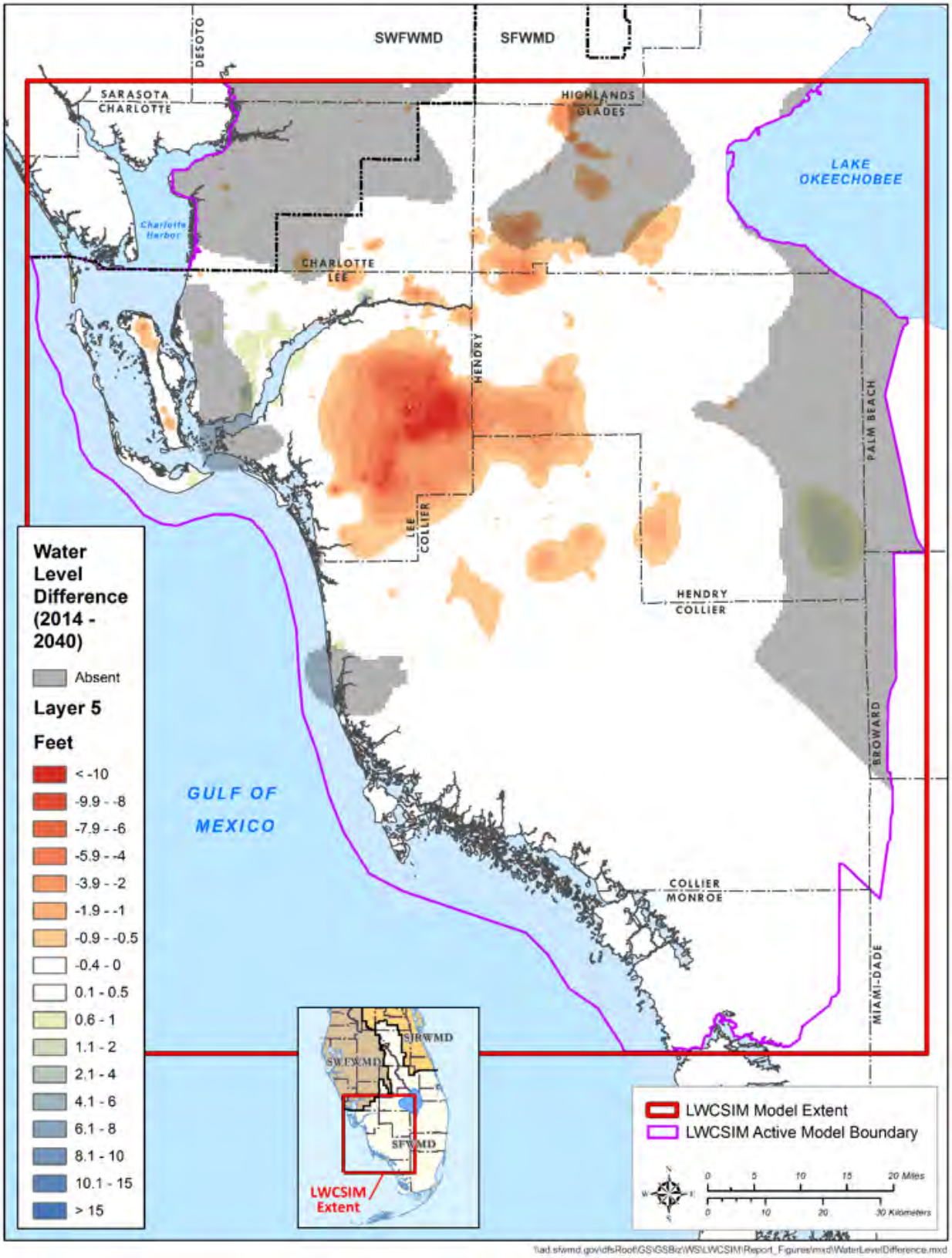

Figure 6-17. 2014 to 2040 water level difference in the Sandstone aquifer (IAS).

Floridan Aquifer System Analysis

The FAS is a productive and important aquifer used primarily by PS utilities as an AWS. As development of the SAS and IAS became maximized without causing harm to the water resources, most utilities have used the FAS to meet a portion of their current demands, and these utilities are anticipating expansion of FAS wellfields to meet future demands (**Chapter 8**). The FAS is brackish in the LWC Planning Area and requires desalination treatment prior to use. FAS wells primarily pump from the brackish UFA. Currently, the Avon Park permeable zone (APPZ), and the Lower Floridan aquifer are not used as water sources in the LWC Planning Area.

Water availability from the FAS is affected primarily by water quality degradation, which can be managed through appropriate wellfield design and operating protocols. One of the key objectives is to minimize upconing of saline water from deeper portions of the aquifer. PS utilities can increase well spacing between newly installed wells to minimize interference effects and excessive drawdowns, rotate the operation of individual wells to reduce pumping stress and excessive drawdowns, reduce pumping rates, and plug and abandon wells that have shown an increase in chloride concentrations or that were designed with open intervals intersecting multiple aquifer zones of varying water quality. Most PS utilities are required to monitor water quality at their wellfields as part of their water use permits. Future strategies to address managing withdrawals to minimize water quality degradation are provided in **Chapter 9**.

Groundwater monitoring provides water users with an understanding of the hydrogeologic system through long-term systematic data collection, which is needed to evaluate current and expected future groundwater conditions, detect temporal trends in water levels and water quality, and develop and calibrate groundwater models. The SFWMD's Regional Floridan Groundwater (RFGW) monitoring program consists of a network of monitor wells completed in the various producing zones of the FAS (i.e., UFA, APPZ). Data collected from the RFGW program includes lithologic data, groundwater level data, and groundwater quality data, all of which are crucial to evaluating the water supply potential of the FAS.

Floridan Aquifer System Water Levels

PS utilities are expanding their use of the FAS to meet increased water demands. Due to this increased use, it is important to monitor water levels to identify any impacts to the resource. Regional FAS monitor well locations in the LWC Planning Area are shown in **Figure 6-18**. For water supply planning purposes, four FAS monitor wells were chosen as representative of trends in regional water levels. Water level time series plots for these wells are presented in this section.

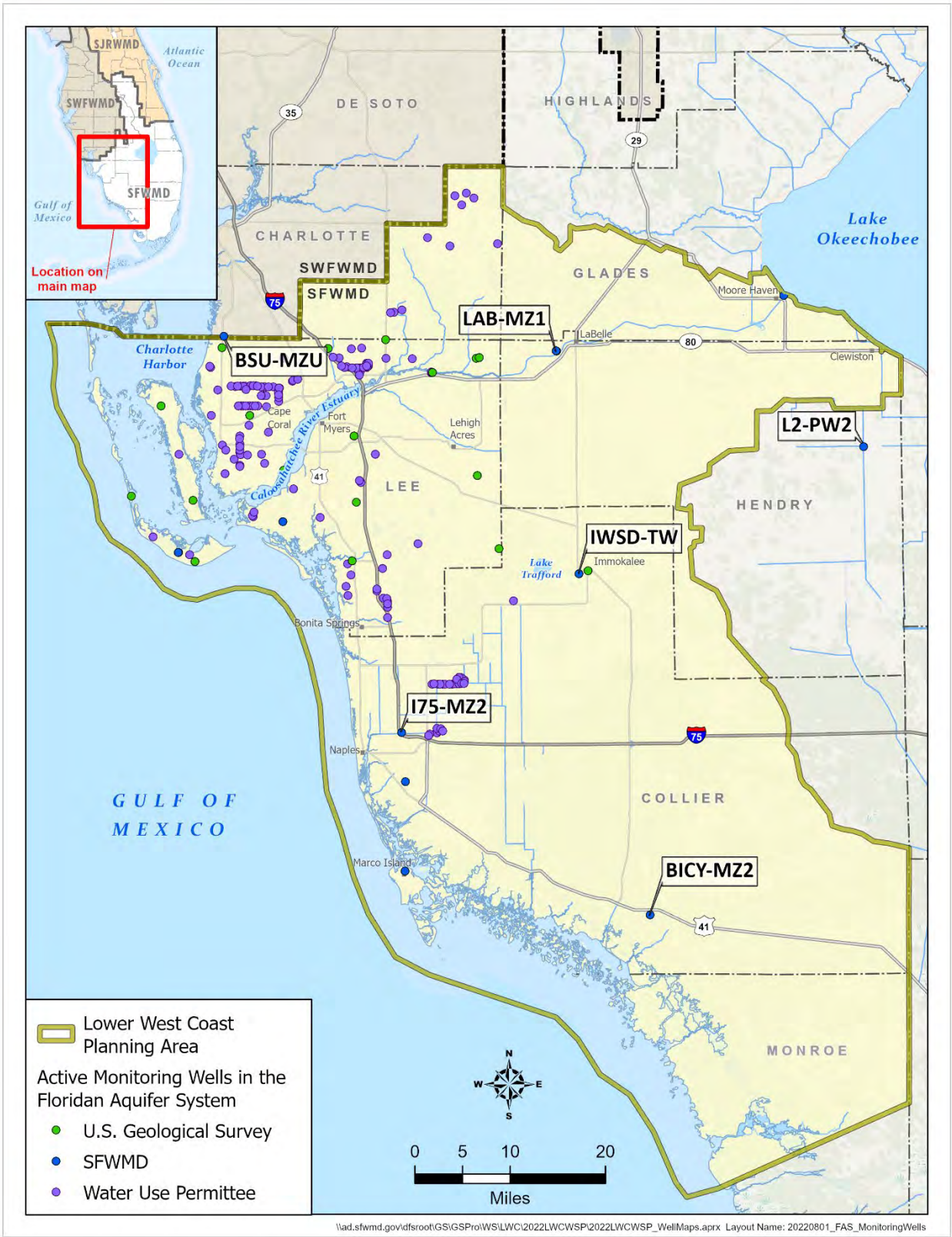

Figure 6-18. Regional Floridan Aquifer Groundwater monitoring wells in the LWC Planning Area.

As shown in **Figure 6-19**, groundwater levels at well BICY-MZ2 (BICY-TW), located in Big Cypress Swamp, show seasonal fluctuations of approximately 1 foot, with variability in the overall water level trend over the entire record. Groundwater elevations reached their highest elevations in 2020.

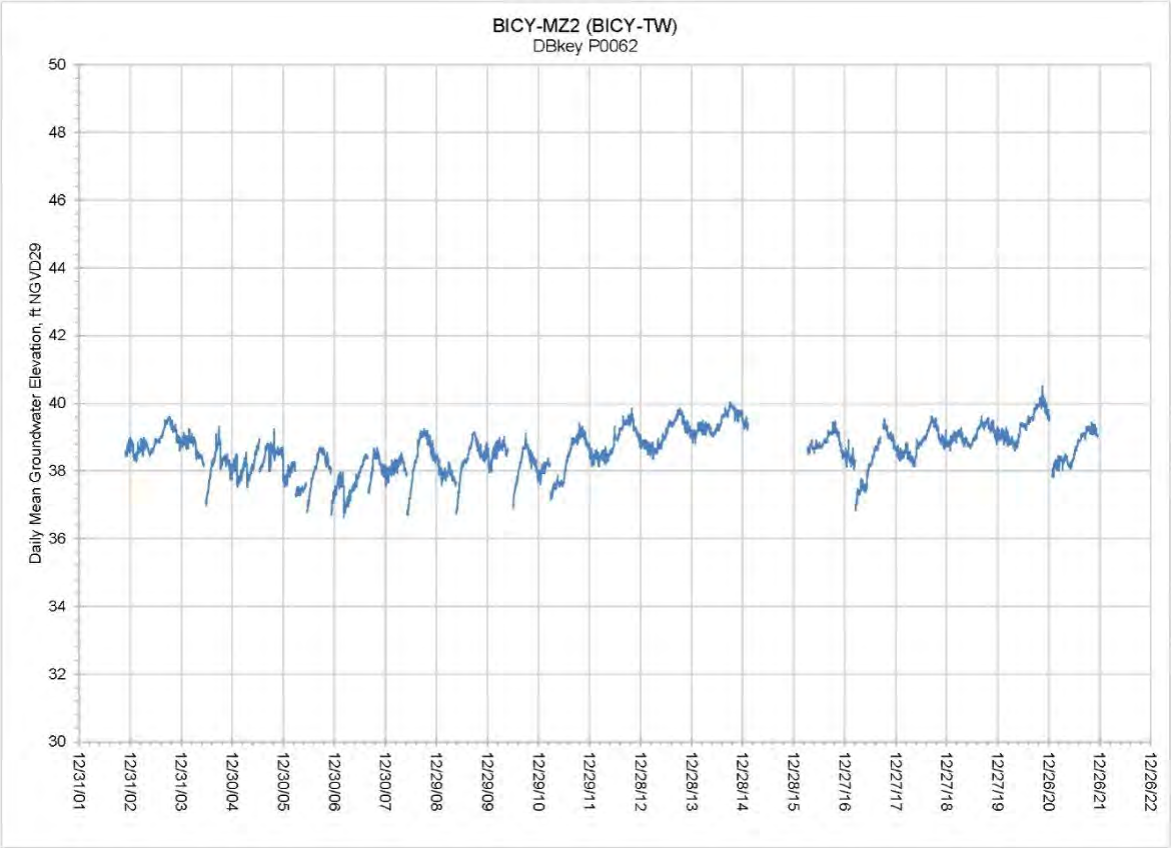

Figure 6-19. Water levels in Floridan aquifer system monitor well BICY-MZ2 (BICY-TW), Big Cypress Swamp, Collier County.

As shown in **Figure 6-20**, water levels at well I75-MZ2 (I75-TW), located near Naples, seasonally fluctuate between 2 to 3 feet. Longer-term trends also can be seen. For example, from a high in 2003 of 36.32 feet NGVD29, a downward trend continued through 2007, when the record low of 30.88 feet NGVD29 was recorded. During the subsequent 10 years, there was a gradual recovery in groundwater elevations throughout each wet-dry season cycle, with a high of +35.75 feet NGVD29 following the 2016 wet season. Since 2016, the water levels appear to be fairly stable.

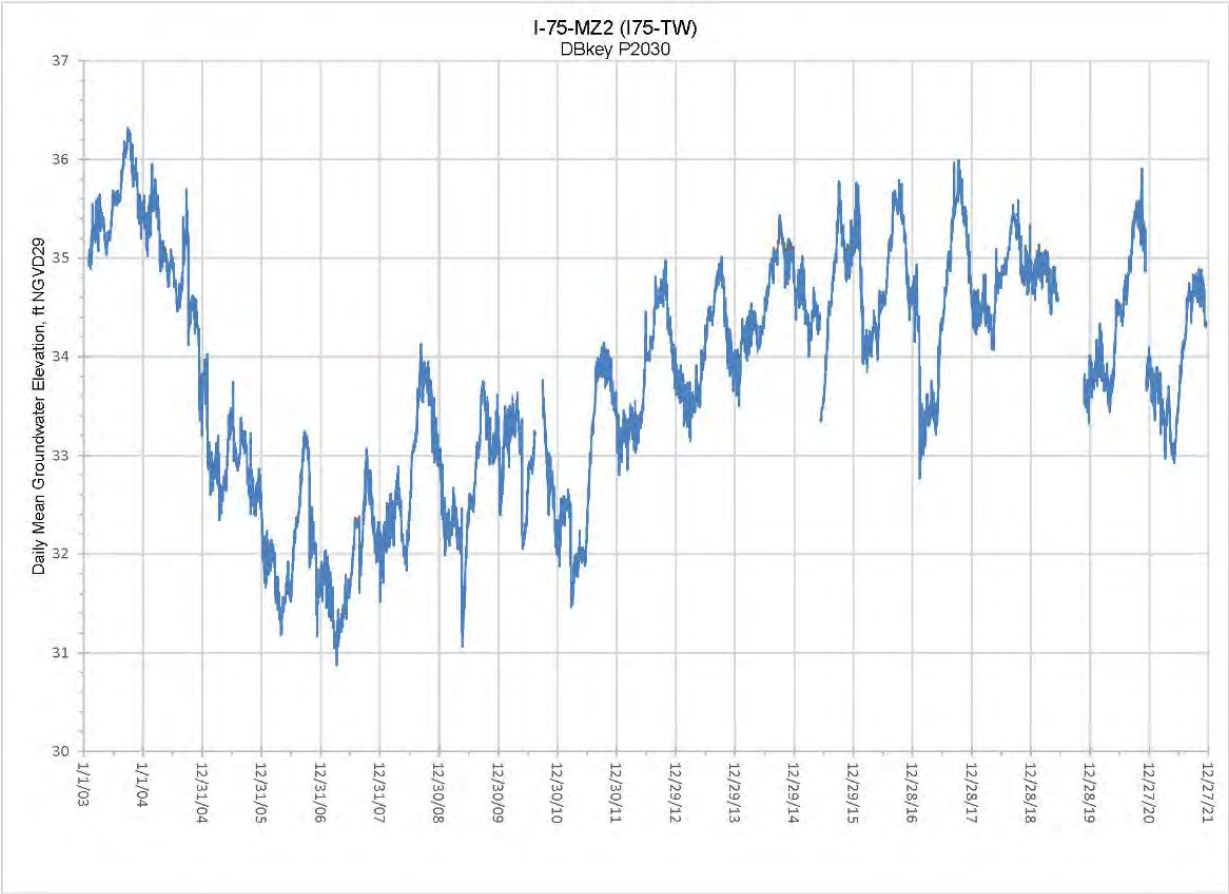

Figure 6-20. Water levels in Floridan aquifer system monitor well I75-MZ2 (I75-TW), Collier County.

As shown in **Figure 6-21**, water levels at well LAB-MZ1 (LAB-PW2), located in LaBelle, seasonally fluctuate approximately 2 to 3 feet. The overall long-term water level trend is stable.

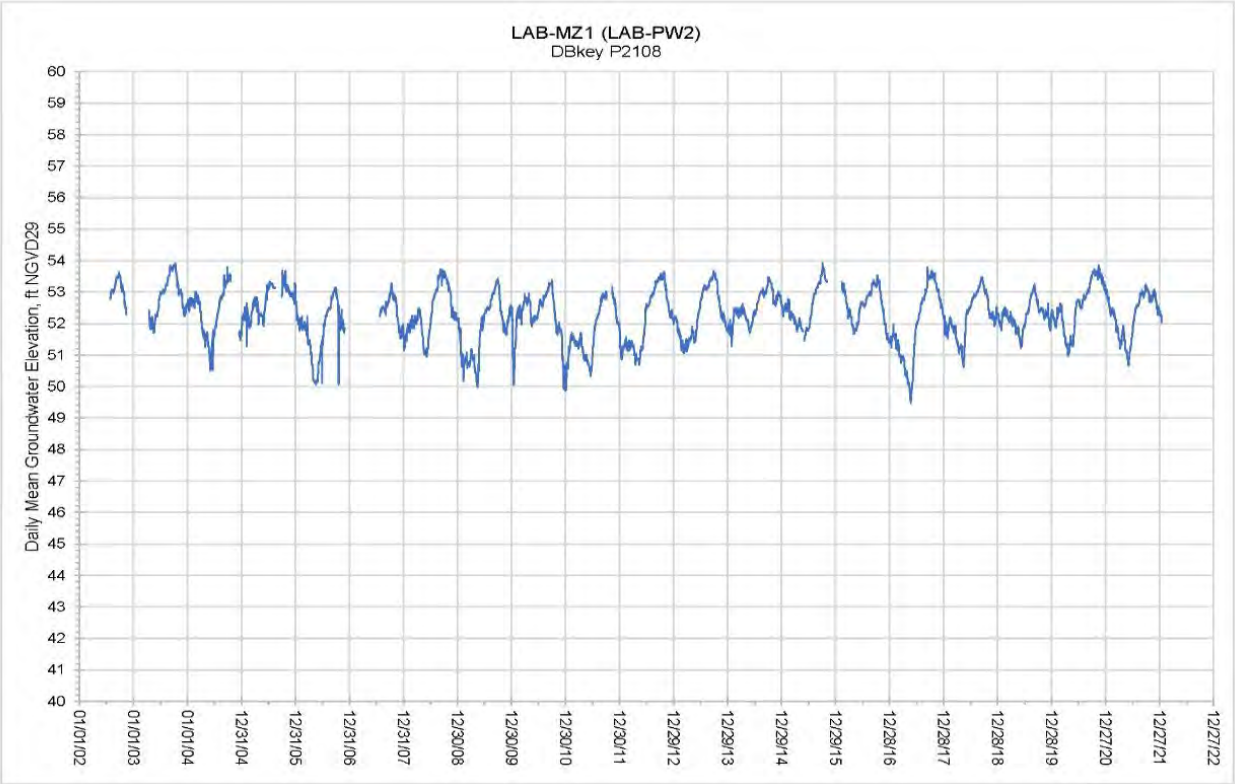

Figure 6-21. Water levels in Upper Floridan aquifer monitor well LAB-MZ1 (LAB-PW2), Glades County.

As shown in **Figure 6-22**, groundwater elevations in well L2-PW2, located in western Hendry County, seasonally fluctuate up to approximately 2 feet. The overall long-term water level trend is stable.

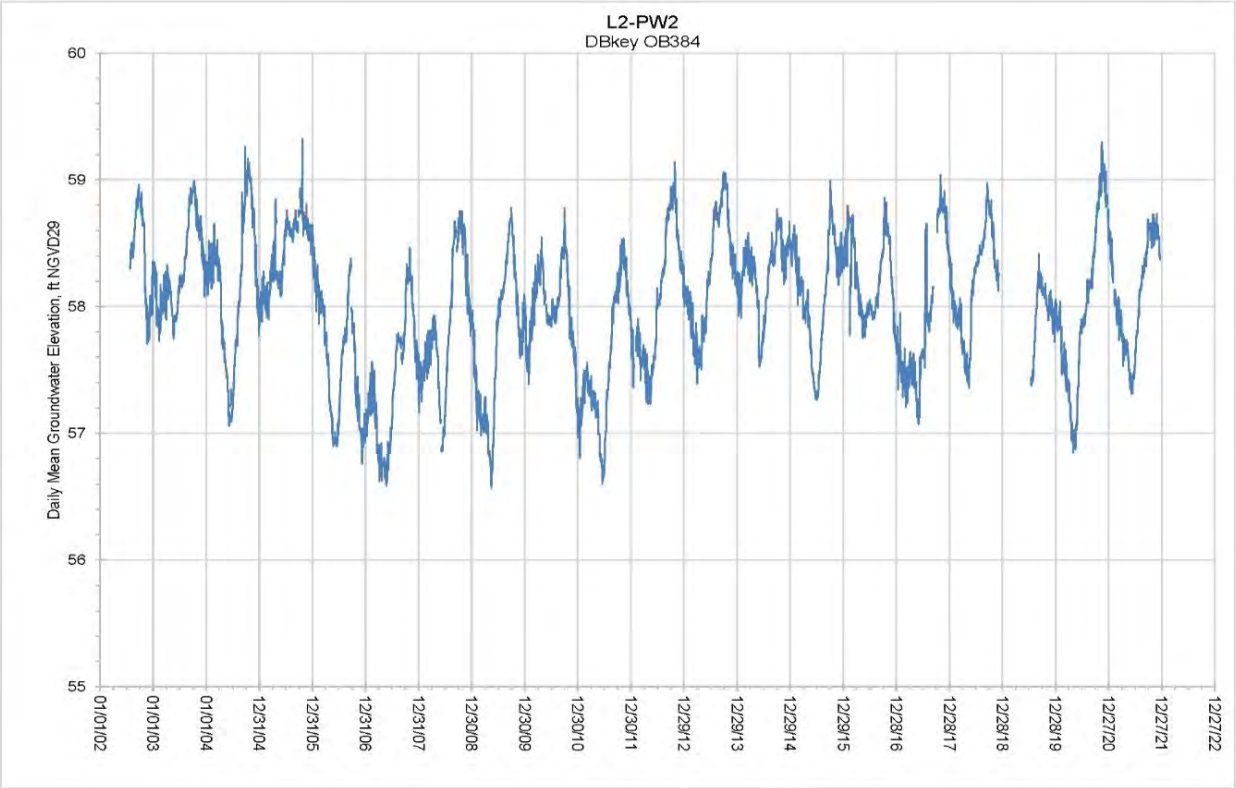

Figure 6-22. Water levels in Upper Floridan aquifer monitor well L2-PW2, western Hendry County.

In summary, data from these monitoring wells indicate that regional UFA groundwater levels are stable, with expected seasonal fluctuations. While the magnitude of these fluctuations may vary from year to year, no UFA monitor wells show declining trends.

Upper Floridan Aquifer Water Quality

This section discusses chloride concentrations in the UFA at six monitor wells shown in **Figure 6-18**. The chloride concentration results are varied, with maximum historical concentrations ranging from 851 mg/L at L2-PW2 to 4,300 mg/L at I75-MZ2.

As shown in **Figure 6-23**, groundwater samples from well BSU-MZU (BSU-MW), have chloride concentrations that fluctuate by approximately 250 mg/L over the period of record. The minimum chloride concentration (650 mg/L) was in December 2006, and the maximum chloride concentration (900 mg/L) was in October 2020. Since 2008, the sampling frequency has decreased, but the chloride concentrations have increased from 772 mg/L in May 2009 to 807 mg/L in February 2016 and, finally, to the maximum recorded concentration of 900 mg/L in October 2020.

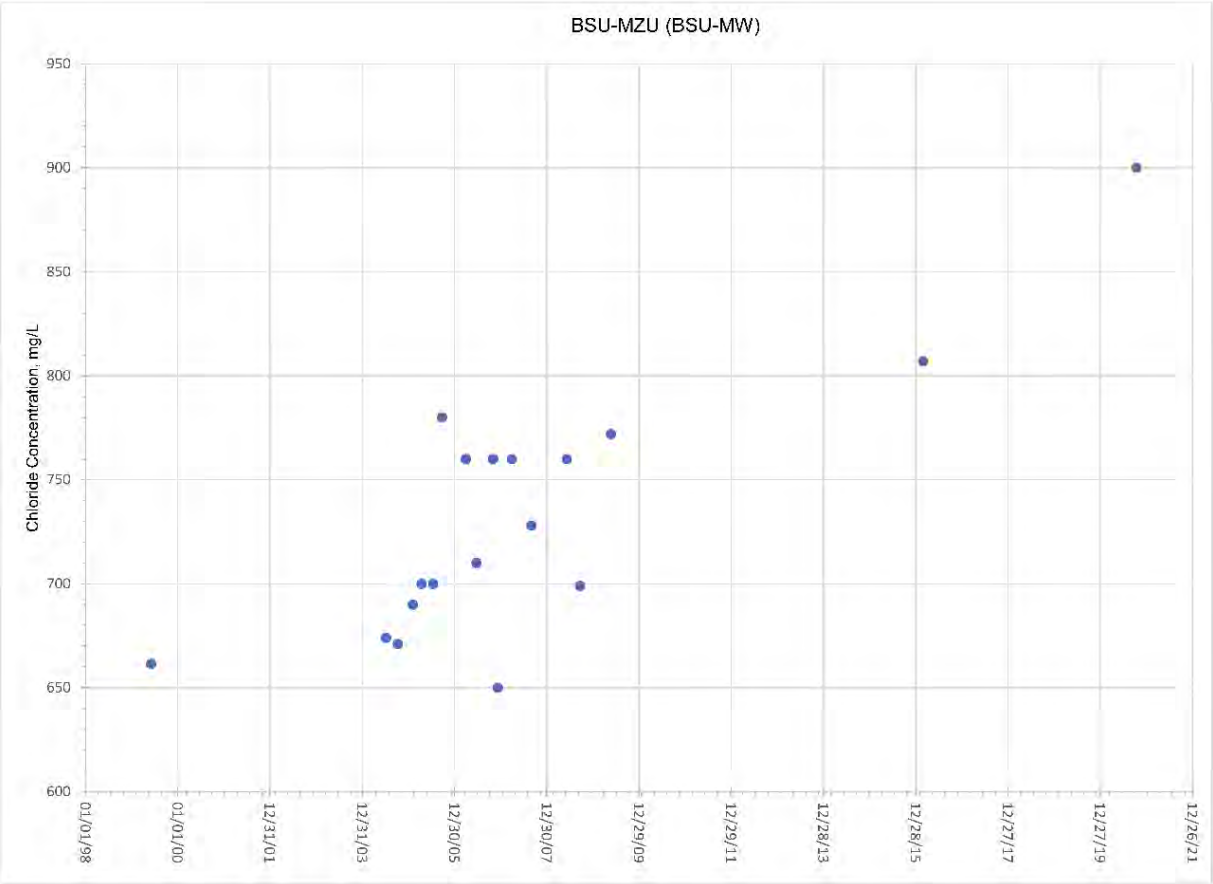

Figure 6-23. Chloride concentrations in Upper Floridan aquifer monitor well BSU-MZU (BSU-MW), southwestern Charlotte County.

As shown in **Figure 6-24**, well BICY-MZ2 (BICY-TW), located in Big Cypress Swamp, has chloride concentrations that generally fluctuate by 500 mg/L over the period of record, except for the approximately 1,300 mg/L variation observed in 2006 and 2008. Overall, and since 2008, chloride concentrations have been consistent and predominantly fall around the average for the period of record (2,628 mg/L). The two most recent samples showed similar chloride concentrations close to 2,750 mg/L.

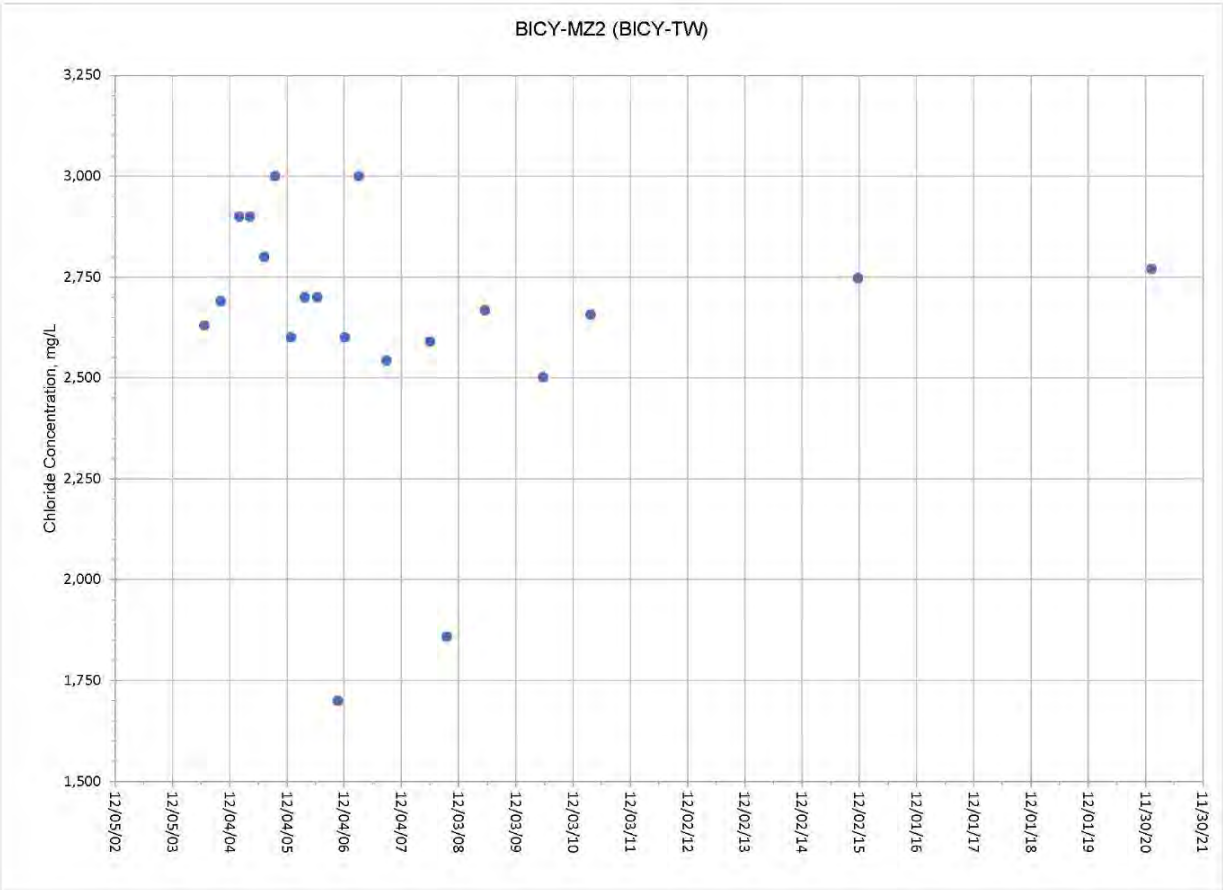

Figure 6-24. Chloride concentrations in Upper Floridan aquifer monitor well BICY-MZ2 (BICY-TW), Big Cypress Swamp.

As shown in **Figure 6-25**, well I75-MZ2 (I75-TW), located near Naples, has chloride concentrations fluctuating approximately 1,300 mg/L over the period of record, with the most recent sample (December 2020) having a chloride concentration of 3,659 mg/L, close to the long-term average chloride concentration of 3,753 mg/L for this well, but 357 mg/L higher than the last sample collected on February 23, 2016.

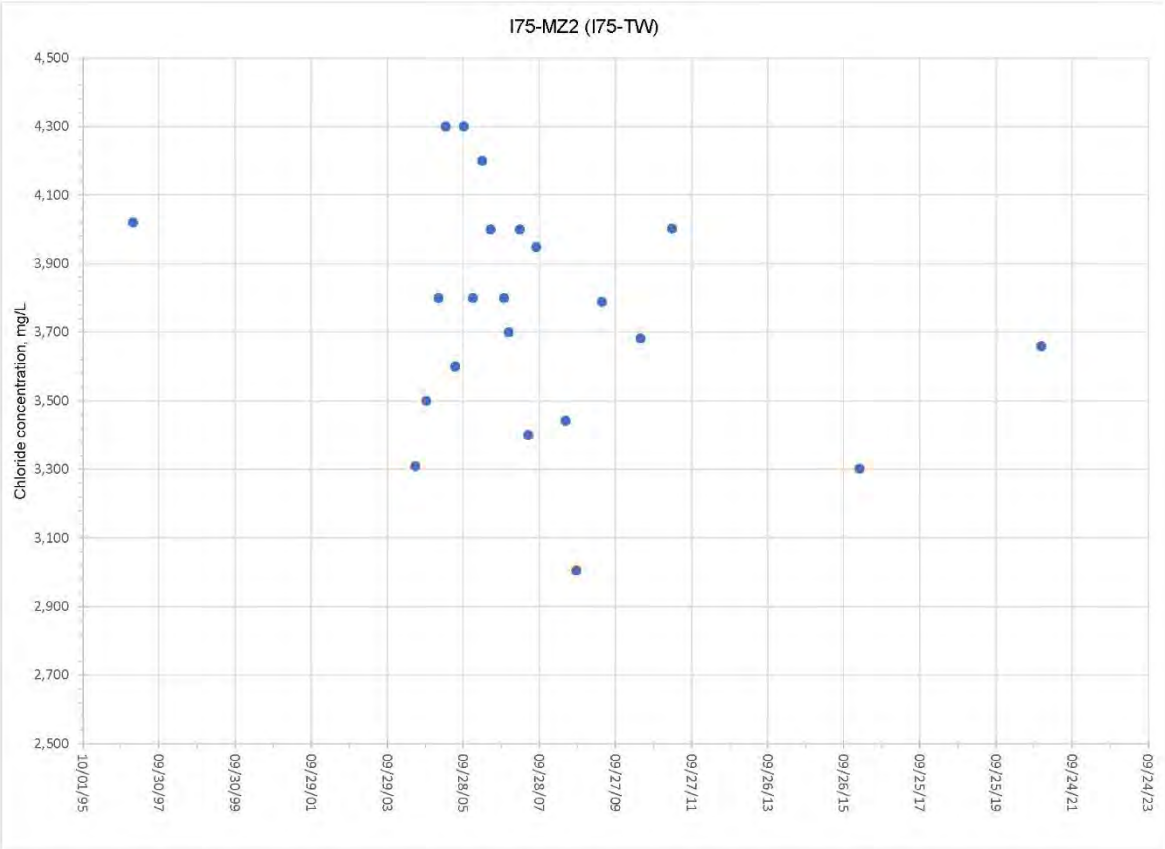

Figure 6-25. Chloride concentrations in Upper Floridan aquifer monitor well I75-MZ2 (I75-TW), Naples.

As shown in **Figure 6-26**, well ISWD-TW (IWSD-MZ2), located in Immokalee, has chloride concentrations that generally fluctuate by approximately 200 mg/L over the period of record. Both the minimum and maximum chloride concentrations occurred in 2005 (September and February, respectively). The two most recent samples (January 2016 and October 2020) had chloride concentrations close to the average value for the entire period of record. Chloride concentrations appear to be stable at this well although gaps of 4 to 6 years exist between the last three samples.

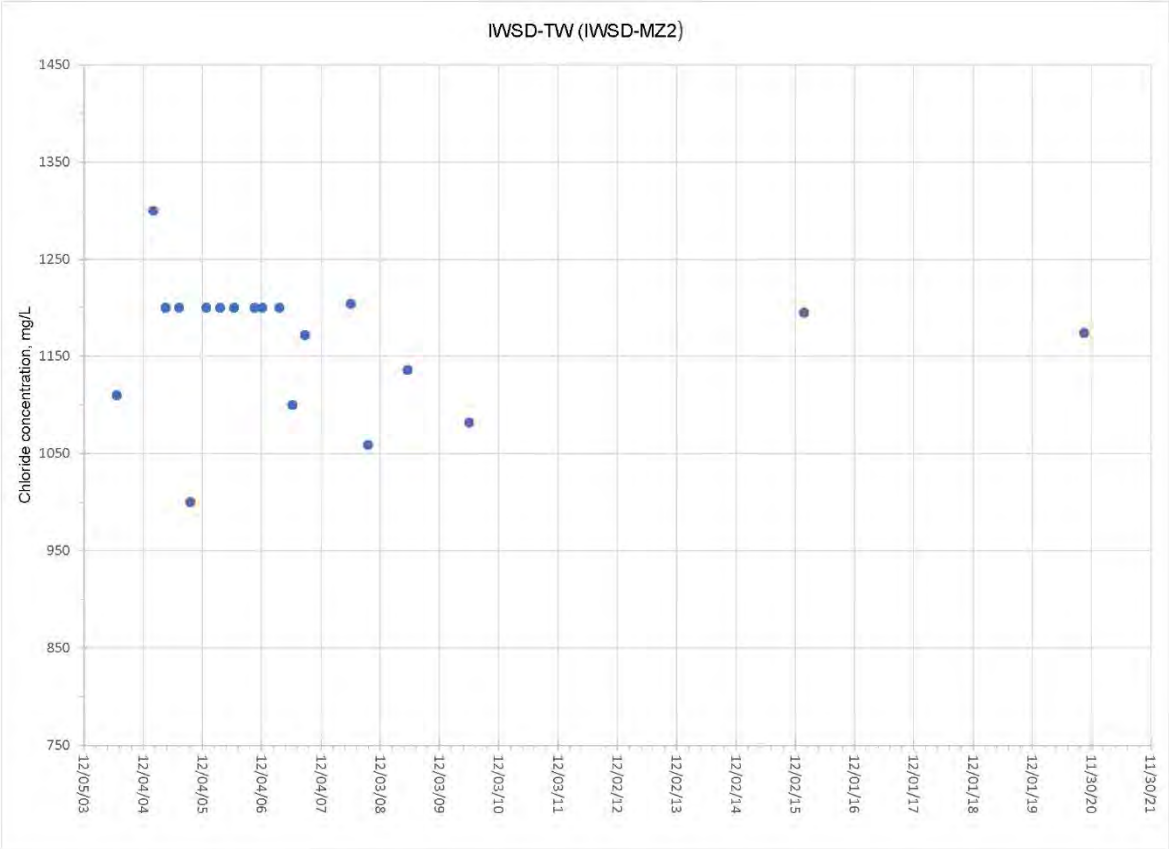

Figure 6-26. Chloride concentrations in Upper Floridan aquifer monitor well IWSD-TW (IWSD-MZ2), Immokalee.

As shown in **Figure 6-27,** well LAB-MZ1 (LAB-PW2), located in LaBelle, has chloride concentrations fluctuating approximately 350 mg/L over the period of record. The maximum chloride concentration (1,000 mg/L) was reported in January 2007. Recent chloride concentrations are more in line with the long-term average at this well. The two most recent samples show a decline in chloride concentrations from 708 mg/L in January 2016 to 673 mg/L in February 2021.

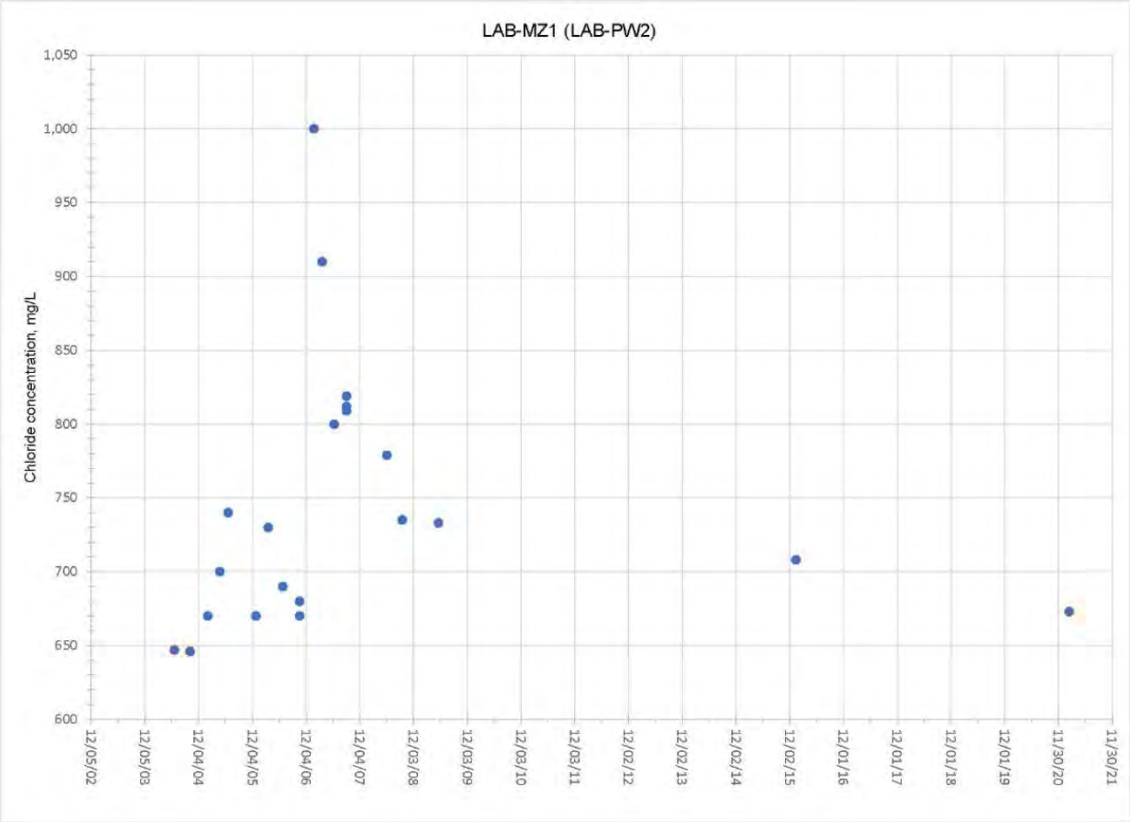

Figure 6-27. Chloride concentrations in Upper Floridan aquifer monitor well LAB-MZ1 (LAB-PW2), LaBelle.

As shown in **Figure 6-28**, well L2-PW2, located in western Hendry County, has chloride concentrations fluctuating approximately 290 mg/L over the period of record. The maximum chloride concentration (851 mg/L) was reported for the most recent sample collected on March 16, 2021, an increase of 200 mg/L over the second most recent sample collected on February 9, 2016. There appears to be an increasing chloride concentration trend since 2010; however, only three samples have been collected and analyzed.

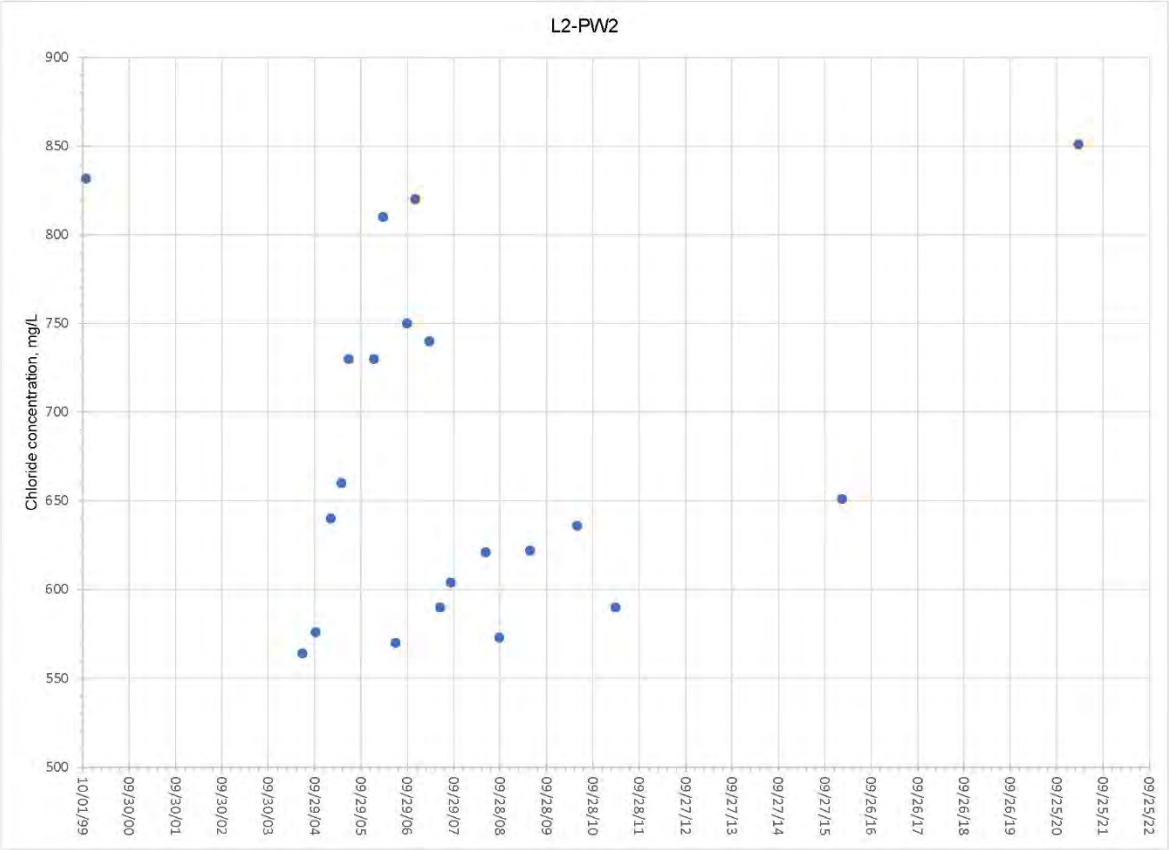

Figure 6-28. Chloride concentrations in Upper Floridan aquifer monitor well L2-PW2, western Hendry County.

FAS Chloride Data from a Recent SFWMD Sampling Event

On a biannual basis, the SFWMD conducts water quality sampling of FAS monitoring wells within the LWC Planning Area. Maps are prepared that are color-coded to indicate the regional range of ambient chloride concentrations within the UFA. **Figure 6-29** presents the concentration of chlorides within the UFA from monitoring wells during the 2020-2021 sampling event.

Figure 6-29. Upper Floridan aquifer chloride concentrations during the 2020-2021 sampling event.

Public Water Supply Utilities Using the Upper Floridan Aquifer

In the LWC Planning Area, the UFA is brackish and requires desalination via reverse osmosis (RO) treatment prior to potable use. The UFA supplies water primarily for PS utilities, and some AG users have permits to withdraw from the UFA for freeze protection or backup supply.

Although UFA chloride concentrations are expected to be high (>250 mg/L), it is still important to monitor water quality trends to ensure that treatment processes are suitable to deliver fresh drinking water, and consumptive uses are not impacting the resource. Increased chloride concentrations suggest that deeper FAS water is being drawn upward into a wellfield. If this should occur, FAS wellfield operations may need to be adjusted to shift pumpage within the wellfield or temporarily cease FAS pumping and instead use SAS wells until water quality stabilizes in the FAS.

Nearly all PS utilities utilizing the UFA in the LWC Planning Area have had one or more production wells experience a degradation in water quality, causing the utility to discontinue pumping at one or more wells. This section discusses changes in chloride concentrations over time in six LWC PS wellfields (**Table 6-1**).

Table 6-1. Major Public Supply Upper Floridan aquifer wellfields discussed in this section.

Utility	Permit Number	Number of Existing Permitted FAS Wells	Permitted FAS Allocation (mgd)
Clewiston	26-00769-W	4	2.58
Collier County Utilities (North)	11-00249-W	19*	Combined 19.52 mgd
Collier County Utilities (South)	11-00249-W	9*	
LaBelle	26-00105-W	2	0.92
Fort Myers	36-00035-W	19	15.25
Lee County Utilities (North)	36-00152-W	18	16.68
Cape Coral (South)	36-00046-W	22	Combined 39.25 mgd
Cape Coral (North)	36-00046-W	34	

mgd = million gallons per day.
* Excludes wells completed in the Mid-Hawthorn aquifer.

Fort Myers Wellfield

The Fort Myers RO treatment plant began operation in 2002, with an initial capacity of 6 million gallons per day (mgd) of net (finished) water using seven UFA production wells. By 2007, the system had been expanded to 13 mgd using 16 production wells. Plans are in place to build out the current RO plant with a capacity of 20 mgd of net (finished) water using a total of 41 UFA production wells. **Figure 6-30** shows chloride concentrations over time for 16 UFA production wells in the Fort Myers RO wellfield. Several wells have chloride concentrations around 1,000 to 1,500 mg/L. However, many wells show notable increases in chloride concentrations 4 to 5 years after installation. These wells generally started with a chloride concentration below 1,500 mg/L but exhibited two-to three-fold increases by 2017. One of the wells (P-10) started with a chloride concentration of approximately 1,750 mg/L, but by 2014, the concentration had increased to approximately 9,000 mg/L.

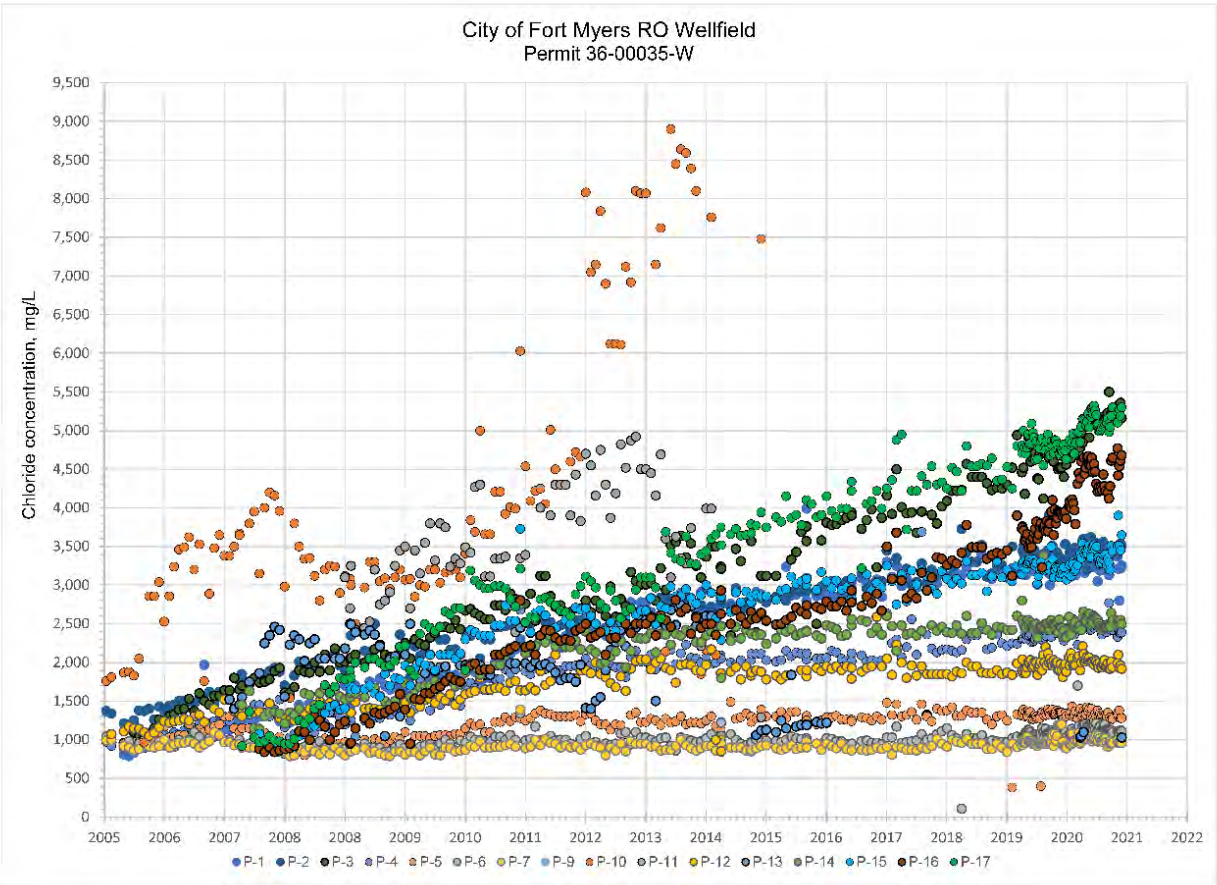

Figure 6-30. Chloride concentration trends at production wells in the Fort Myers wellfield.

Lee County Utilities North Wellfield

Chloride data have been collected at this wellfield since 1985. **Figure 6-31** presents the change in chloride concentrations since December 2004 for 38 production wells in the Lee County Utilities North wellfield. Most of the wells that are still in operation have chloride concentrations greater than about 600 mg/L and a period of record extending back to 2006. Chloride concentrations at well PW-6 increased to 4,800 mg/L within 1 year, and the well was taken offline. Chloride concentrations at most of the wells that came online in 2010 and 2013 remain under 1,500 mg/L and appear to be stable.

Wells PW-9, PW-13A, and PW-16A have reported the highest concentrations of chloride, generally within the 1,800 to 3,000 mg/L range. Starting in 2009, chloride concentrations at well PW-9 increased and remained in the 2,800 to 3,500 mg/L range, until 2018 when chloride concentrations began to decrease to approximately 2,200 mg/L in 2021. During 2021, chloride concentrations once again have increased at PW-9 to approximately 2,800 mg/L. PW-13 chloride concentrations have been declining over approximately the last 3 years and are now around 2,800 mg/L. Chloride concentrations at PW-16A show a slight increasing trend, with the November 2021 chloride sample having a concentration of 2,090 mg/L.

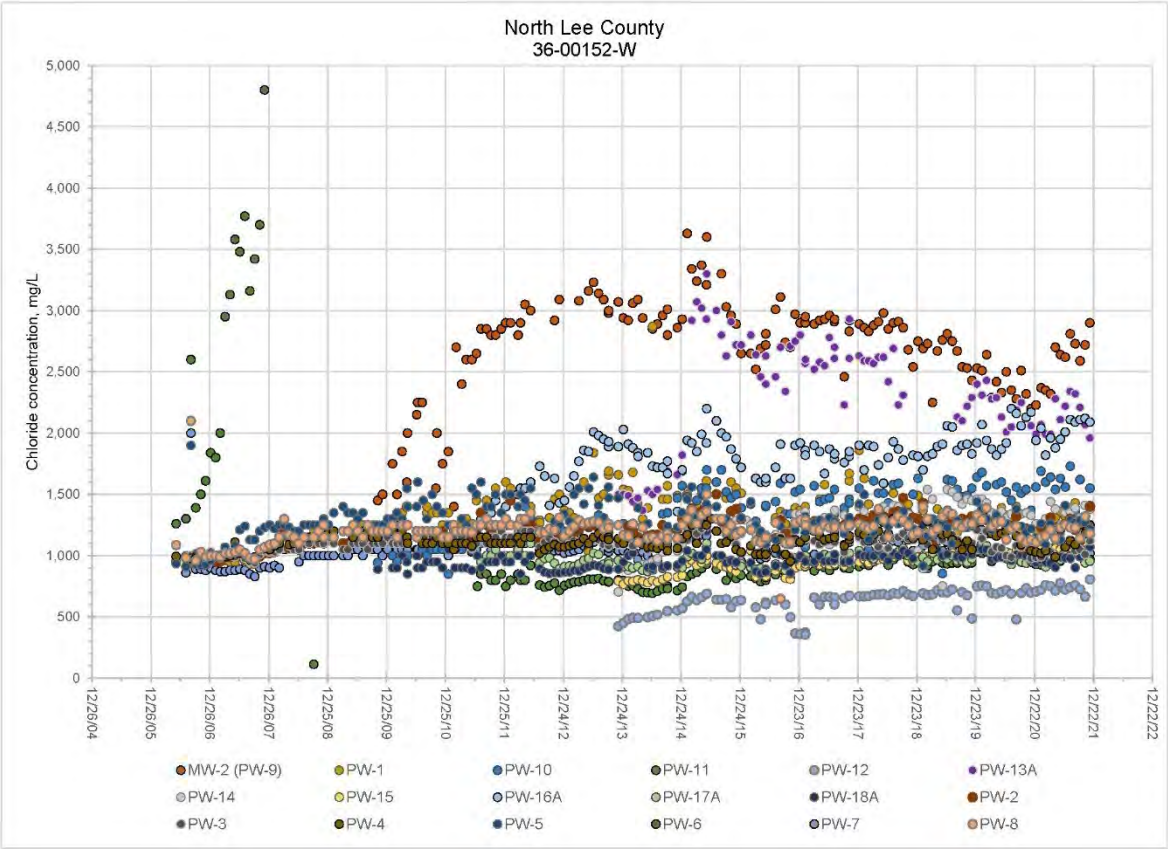

Figure 6-31. Changes in chloride concentrations in operational and nonoperational wells in the Lee County Utilities North wellfield.

Collier County Utilities North Wellfield

All operational and nonoperational UFA and Mid-Hawthorn production wells in the Collier County Utilities North wellfield are shown in **Figure 6-32**. Most of the production wells have stable chloride concentration trends over time. However, the wells that have higher chloride concentrations show slightly more variation in chloride concentrations. Well RO-2N contained elevated chloride concentrations from 2013 to 2016 (approximately 9,000 mg/L) and was apparently shut down after 2016.

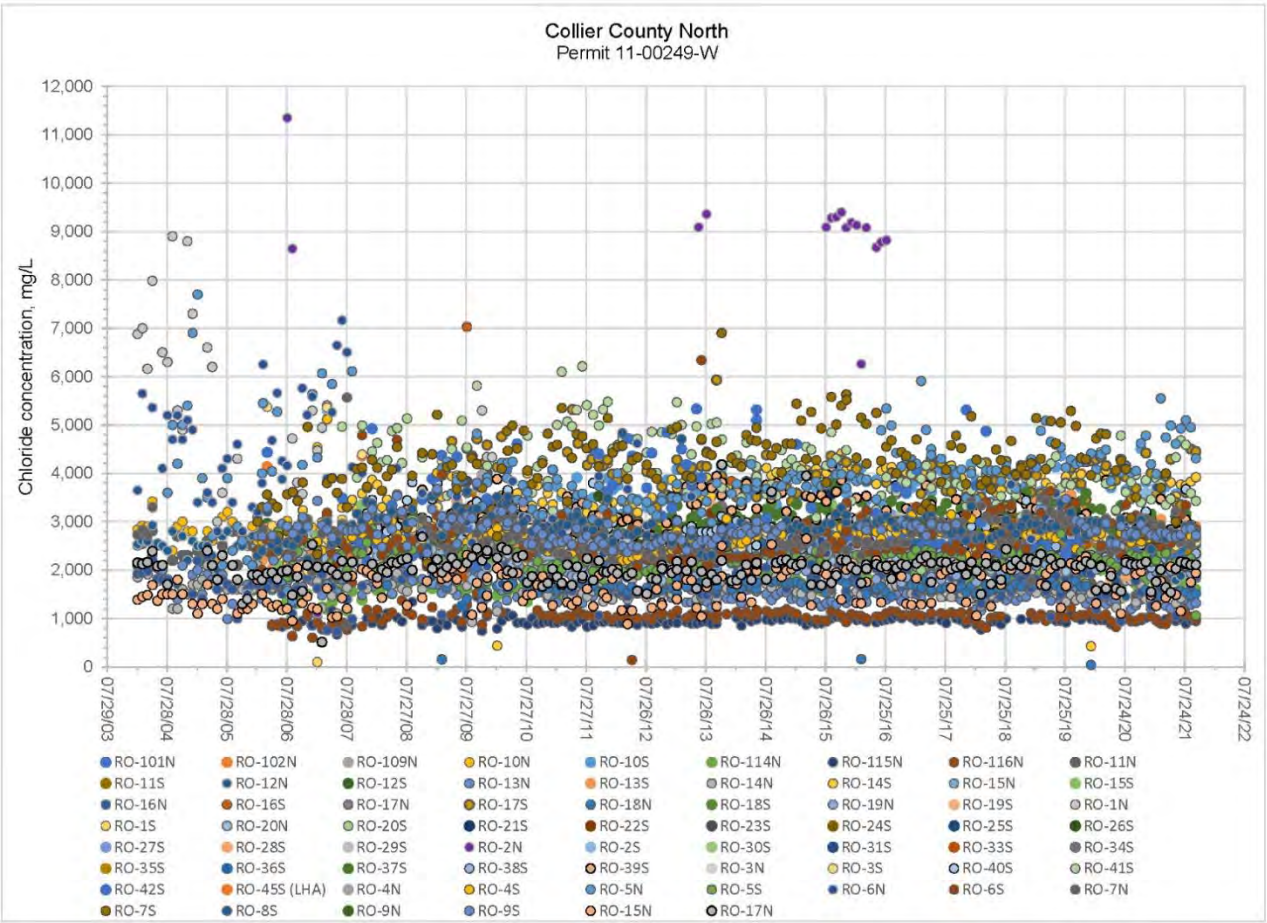

Figure 6-32. Changes in chloride concentrations in production wells at the Collier County Utilities North wellfield.

Cape Coral South Wellfield

Cape Coral was one of the first PS utilities in the LWC to convert to RO treatment for potable water supply and has two UFA wellfields (named Cape Coral North and Cape Coral South). As shown in **Figure 6-33**, most Cape Coral South UFA production wells had initial chloride concentrations between 250 and 1,000 mg/L. All the production wells show increasing chloride concentrations over time. Well RO-14 had an initial chloride concentration of 720 mg/L in July 1985, but the chloride concentrations increased over time to a maximum of 5,280 mg/L in April 2014. The chloride concentrations at RO-14 dropped to about 1,500 mg/L in 2015 but have increased to 2,480 mg/L during the last three sampling events in June, July, and August of 2021. In general, most of the wells with chloride concentrations greater than about 1,000 mg/L have shown steeper increasing chloride concentration trends over time than wells with concentrations less than 1,000 mg/L.

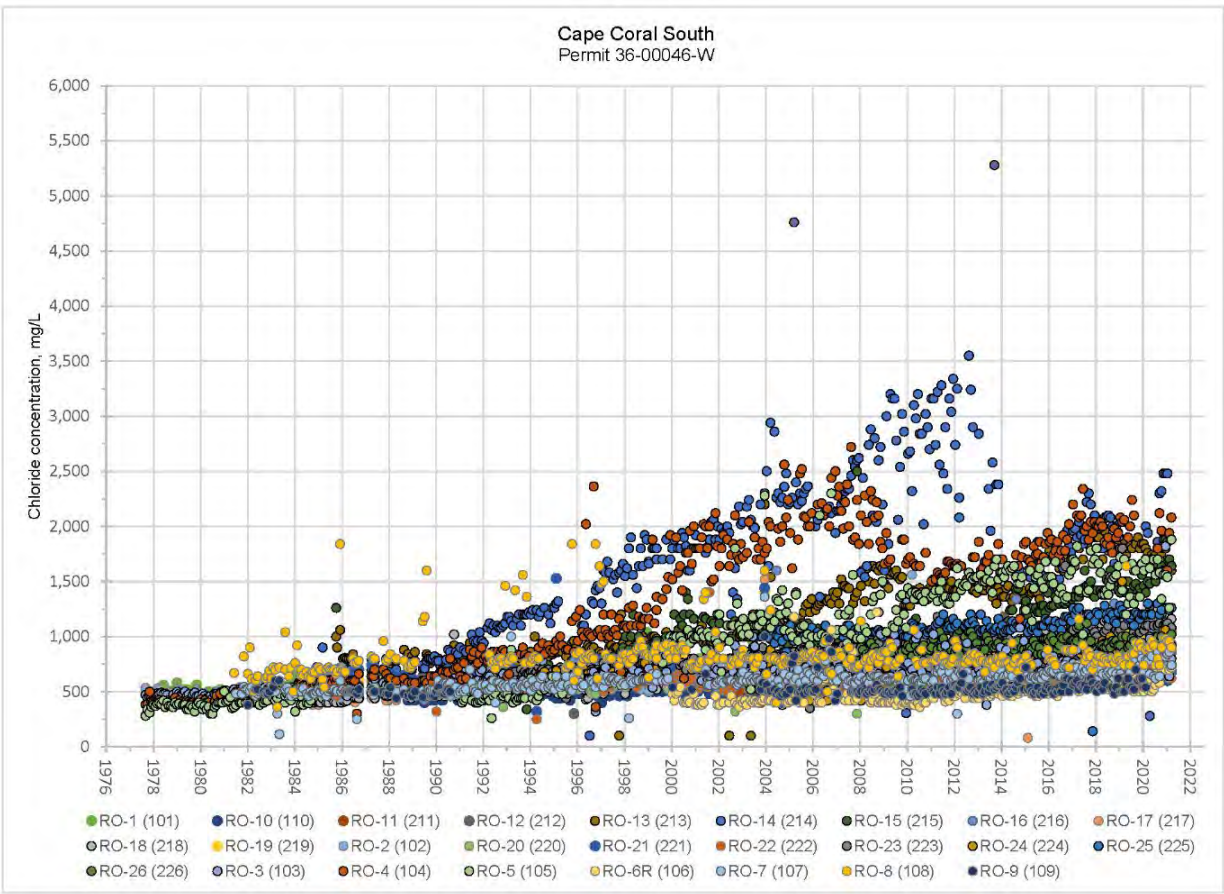

Figure 6-33. Changes in chloride concentrations in production wells at the Cape Coral South wellfield.

Cape Coral North Wellfield

The production wells in the Cape Coral North UFA wellfield are orientated along an east-west transect in northwestern Cape Coral. Although there is a general upward trend in most of the chloride concentrations, most wells remain in the 500 to 1,800 mg/L range (**Figure 6-34**). Three production wells (18N, 17N, and 7N) have shown elevated chloride concentrations and steeply increasing concentration trends compared to most of the wells at this wellfield. Well 18N has reported the highest chloride concentrations of any of the wells with a maximum of 7,640 mg/L but has shown a marked decline in chloride concentrations since February 2020, with the three most recent concentrations in this well reported to be 1,520 mg/L. Concentrations in well 7N have continued to increase, and the October 2021 sample contained 4,000 mg/L chloride. Similarly, well 17N has continued to show increasing concentrations, with the most recent sample in October 2021 having a chloride concentration of 3,621 mg/L.

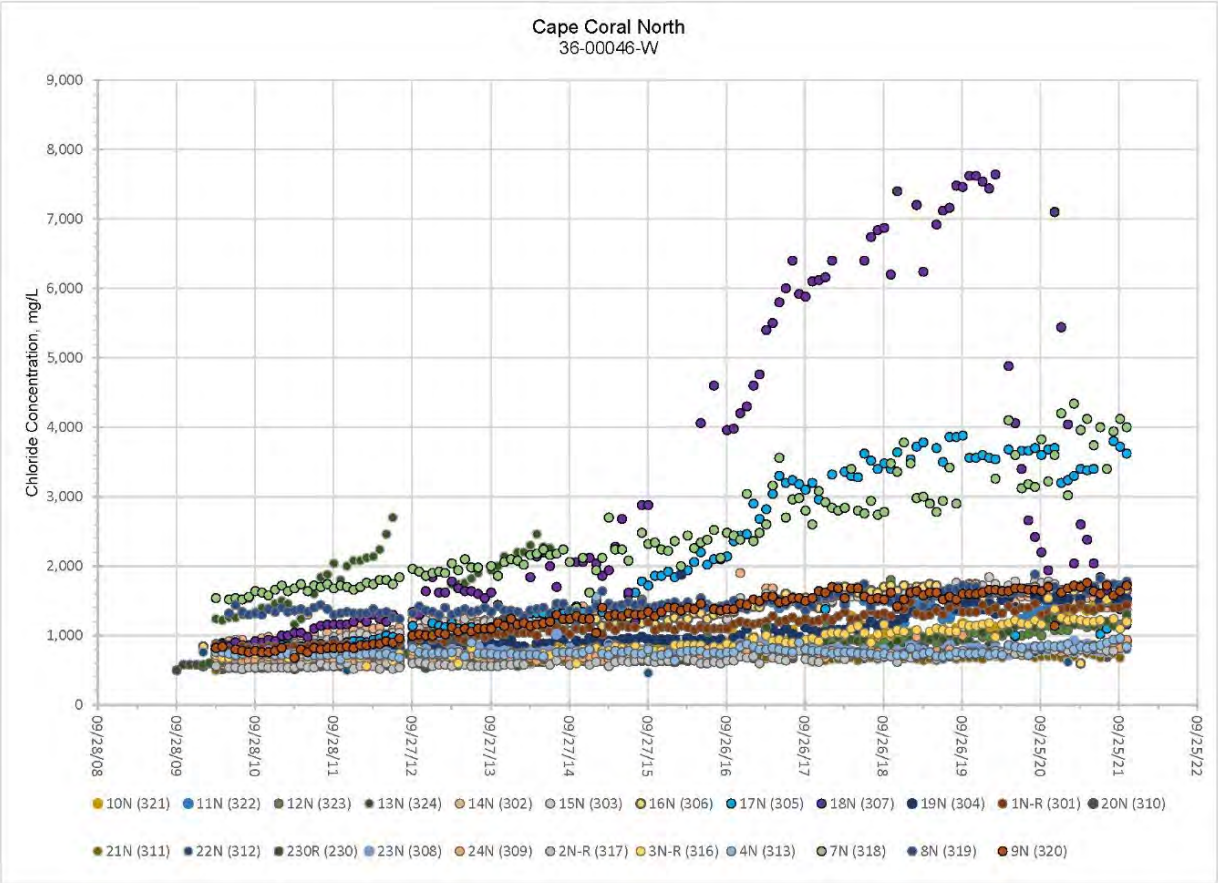

Figure 6-34. Changes in chloride concentrations in production wells in the Cape Coral North wellfield.

Clewiston Wellfield

Chloride concentration trends for all four UFA production wells in the Clewiston UFA wellfield are shown in **Figure 6-35**. Most of the UFA production wells appear to have stable chloride concentration trends except for Well 4, where chloride concentrations increased slightly starting in 2016 but appear to have remained stable since January 2020.

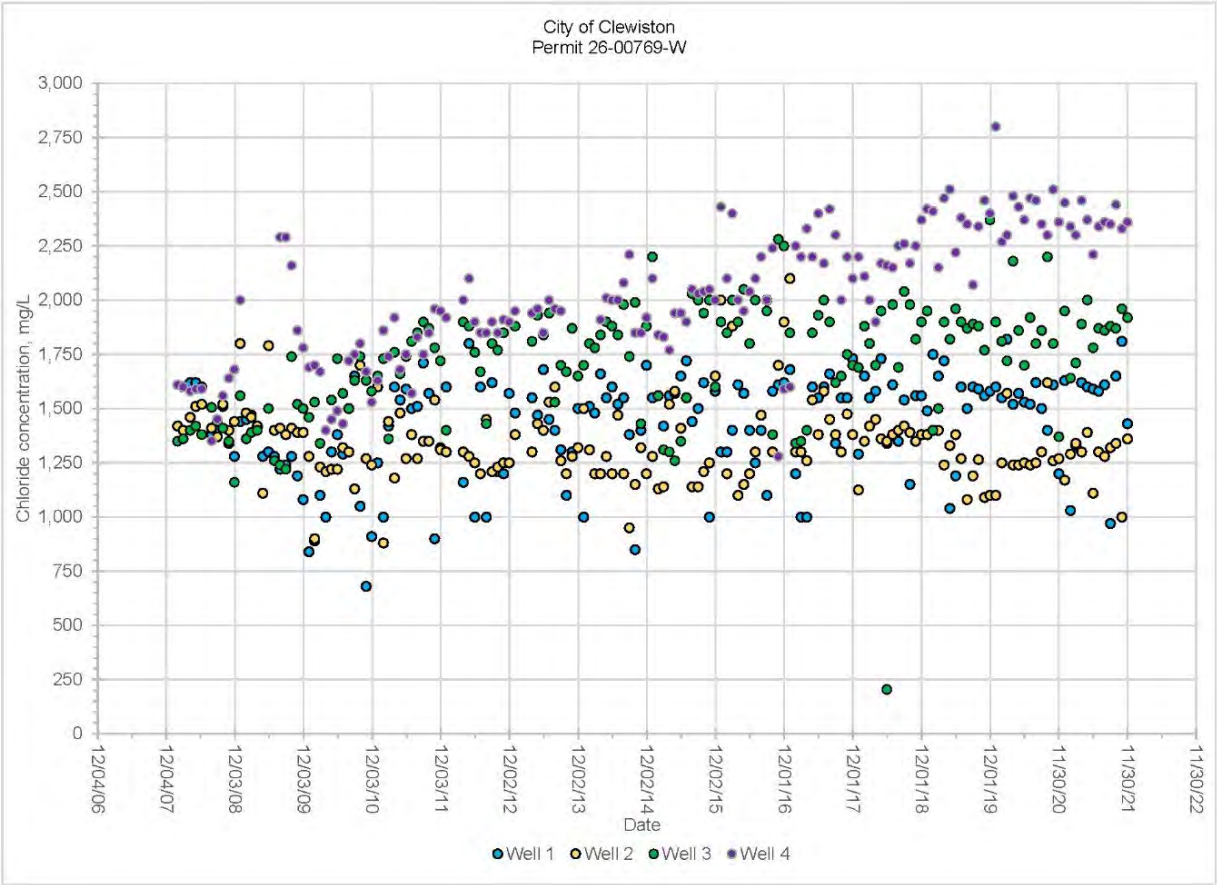

Figure 6-35. Changes in chloride concentrations in production wells in the Clewiston wellfield.

Floridan Aquifer System Groundwater Modeling

The SFWMD's West Coast Floridan Model (WCFM) was used to evaluate potential changes within the FAS as a result of projected groundwater withdrawals in the LWC Planning Area. The WCFM is a three-dimensional groundwater flow and transport model used to simulate water levels and total dissolved solids concentrations within the FAS for the southwestern coast of Florida. The model was developed using the USGS SEAWAT model code. The WCFM simulates the three primary zones in the FAS: the UFA, the APPZ, and the first permeable zone of the Lower Floridan aquifer. In the LWC Planning Area, the APPZ and the first permeable zone of the Lower Floridan aquifer contain groundwater with undesirably high salinity and in Collier County, the APPZ is not productive enough for water supply. There currently are no users withdrawing water from these aquifers within the planning area.

The WCFM results were analyzed for water level and water quality (total dissolved solids) changes by comparing the 2014 withdrawal quantities to the projected 2040 withdrawal quantities. Although there are some localized areas around wellfields with noticeable drawdowns and water quality degradation, the 2040 model results indicate no significant adverse impact to groundwater levels or water quality. **Figure 6-36** presents the difference in water levels within the UFA between 2020 and 2040 as predicted by the model. Overall, the model results conclude use of the FAS is sustainable through 2040. Additional graphics and a concise discussion of the WCFM results, conclusions, and recommendations are provided in **Appendix D**. The complete model design, calibration, and simulation results are contained within Billah et al. (2021).

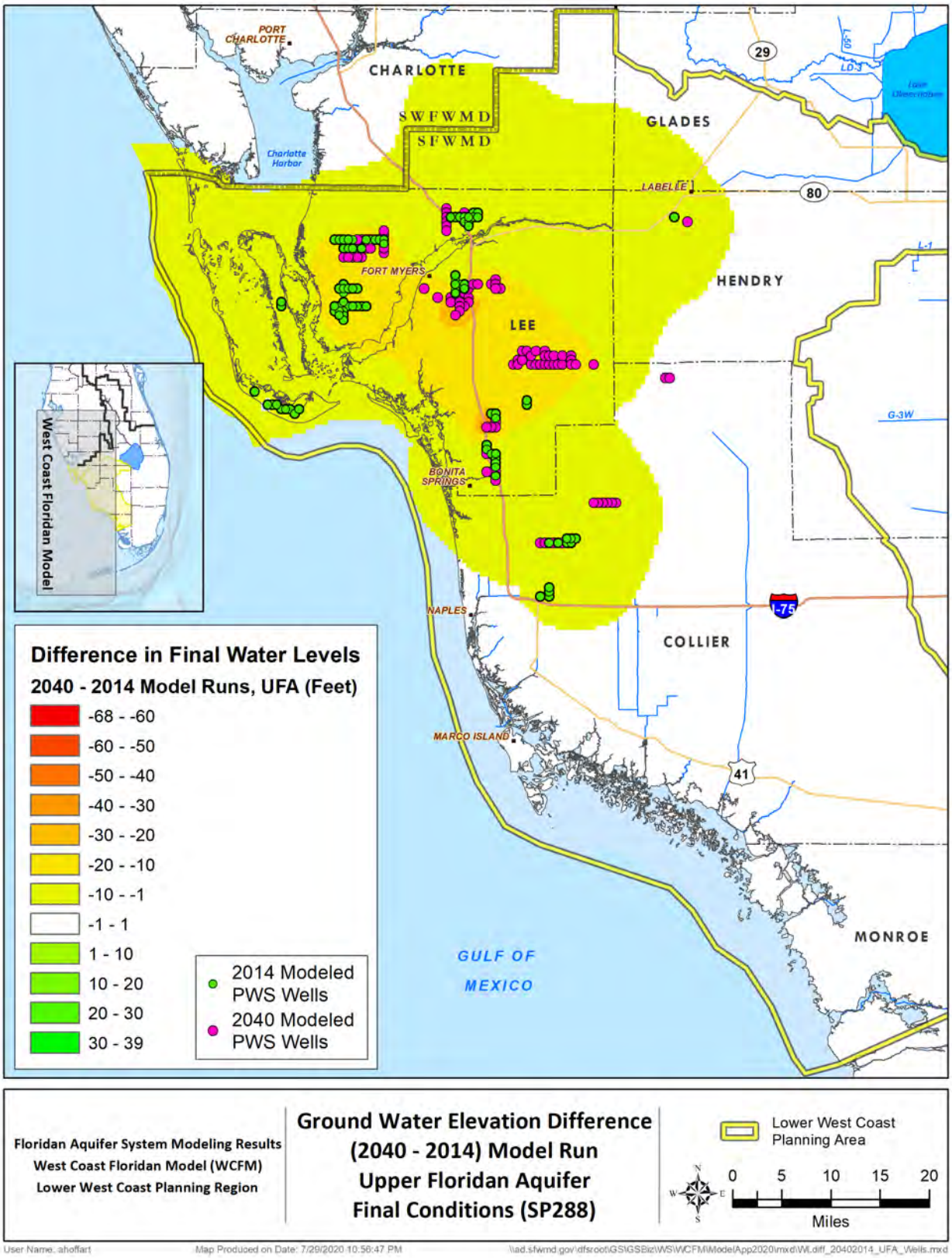

Figure 6-36. Upper Floridan aquifer water level differences between 2014 and 2040.

Floridan Aquifer System Conclusions

The total demand projection for 2045 in this 2022 LWC Plan Update is 3% less than the estimated 2040 demand projected in the 2017 LWC Plan Update. Therefore, the modeled results are considered to be representative of the future demands. Recent data and modeling results indicate the FAS can meet current and projected demands through 2045 with proper wellfield management. FAS water levels appear stable at current withdrawal rates. Where possible, more frequent sampling and analysis of FAS monitoring wells would aid in better defining the trends. However, model results indicate local decreases in water levels may occur based on assumed wellfield configurations and 2045 pumping rates. Chloride concentration trends show FAS wellfields have experienced some water quality degradation after several years of operation, which is likely to continue. Water level reductions and water quality degradation can be minimized by PS utilities through the following activities:

- Maximizing well spacing to reduce interference effects and stress on the FAS
- Plugging and abandoning individual wells experiencing chloride concentration increases and replacing them with new wells elsewhere in the wellfield area
- Partially back-plugging individual wells to isolate deeper poor-quality layers from overlying higher-quality layers, thereby keeping the wells in operation
- Reducing pumping rates at individual wells to minimize the potential for poor-quality water to be pulled into the well's production zone from below
- Rotating the operation of individual wells to reduce pumping stress and the potential influx of poor-quality water from below
- Installing additional monitor wells to provide early warning of upconing or lateral movement of poor-quality water

As PS utilities expand use of the FAS, implementation of these wellfield management activities is important to minimize the effects of water level reductions and water quality degradation. If interference to existing legal users results from another user's withdrawals, the interference shall be mitigated as described in the *Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District* (SFWMD 2022).

CLIMATE CHANGE AND SEA LEVEL RISE

Climate change is an issue of concern globally and especially in coastal regions such as South Florida. Because of its location, climate, hydrology, geology, topography, natural resources, and dense coastal populations, South Florida is particularly vulnerable to the effects of future changes in climate, including sea level rise. The nature and rate of change are highly uncertain, particularly at regional scales, but effects of sea level rise are already being experienced in South Florida.

Sea level rise affects flood control operations at coastal structures and contributes to inland movement of salt water into aquifers. In addition, increased air temperatures and changes in precipitation regimes and storm frequency associated with climate change could result in greater evaporation, longer drought periods, and higher risk of flooding throughout South Florida. These changes could affect regional water resources and planning and thus need to be considered when evaluating the ability of water supplies to meet future demands.

The SFWMD is responsible for managing and protecting water resources in South Florida by balancing and improving flood control, water supply, water quality, and natural systems. Over the last decade, the SFWMD has implemented strategies to adapt its operations and infrastructure to ensure this mission continues to be met under changing climate conditions. The SFWMD's approach focuses on assessing how sea level rise and extreme events, including flood and drought events, are likely to happen under current and future climate conditions. In addition, the SFWMD is working to ensure its resiliency planning is based on the best available science. These efforts require collaboration and cooperation with local and tribal governments; other regional, state, and federal agencies; universities; nongovernmental entities; a wide array of stakeholders; and concerned citizens throughout South Florida. Coordination is essential because effective solutions and adaptations require action across multiple agencies and administrative boundaries. Additional information regarding climate change and sea level rise within the LWC Planning Area is provided in **Appendix D**.

SUMMARY OF WATER RESOURCE ANALYSES

The evaluations and analyses associated with this 2022 LWC Plan Update support the findings and conclusions of the 2017 LWC Plan Update. The following are findings regarding the availability of water resources to meet projected 2045 water demands:

- New or increased allocations of surface water from Lake Okeechobee and LOSA, including the C-43 Canal, are limited in accordance with RAA criteria.
- Surface water will remain the primary source for agricultural irrigation, with fresh groundwater from the SAS and IAS as supplemental sources.
- The SAS and IAS historically have served as the primary sources of fresh water for urban demands. However, expansion of SAS and IAS withdrawals is limited due to low aquifer productivity, rate of recharge, potential impacts to wetlands and the increased potential for saltwater intrusion, and proximity to contamination sources. New or increased allocations of water from the SAS in coastal areas beyond those currently permitted will require evaluation on an application-by-application basis.

- The results of the LWCSIM simulations indicated no widespread water level or water quality impacts are projected to occur in the SAS and IAS. However, localized areas of intensive withdrawals from the Mid-Hawthorn aquifer in Cape Coral and the Sandstone aquifer in Lehigh Acres are depressing groundwater elevations towards established MFLs.
- Monitoring well networks have been established for the SAS, IAS, and FAS and provide valuable data for evaluation of saltwater intrusion, aquifer assessment, and groundwater modeling.
- Most large PS utilities in the LWC Planning Area use the FAS to meet some or all of their demands and plan to increase their use of the FAS to meet increased future demands.
- The results of the WCFM simulations indicated no widespread water level or water quality impacts are projected to occur in the FAS. However, increased withdrawals at projected future rates (2045) will have a greater effect on water levels and water quality in the UFA, primarily in northwestern Lee County.
- Saltwater intrusion monitoring and mapping indicate little movement of the saltwater interface in the SAS and IAS from 2009 to 2019. Local-scale investigation of the interface position could be warranted in some areas.

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7

Water Resource Development Projects

This chapter addresses the roles of the South Florida Water Management District (SFWMD or District) and other parties in water resource development projects and provides a summary of projects in the Lower West Coast (LWC) Planning Area. The water resource development efforts presented in this chapter reflect the current budget categories the SFWMD uses for funding new and ongoing water resource development projects. The project summaries serve as an overview of water resource-related activities in the region. This chapter was created using the Fiscal Year (FY) 2021 Districtwide water resource budget and includes schedules and costs for FY2021 to FY2025. Additional details on the status of these projects can be found in Chapter 5A (Kraft and Medellin 2021) of the *2021 South Florida Environmental Report – Volume II* (https://www.sfwmd.gov/sfer).

TOPICS

- Regional Groundwater Modeling
- Districtwide Water Resource Development Projects
- Comprehensive Everglades Restoration Plan
- Northern Everglades and Estuaries Protection Program
- Big Cypress Basin Programs

Florida water law identifies two types of projects to meet water needs: water resource development projects (subject of this chapter) and water supply development projects (**Chapter 8**). Water resource development is defined in Section 373.019(24), Florida Statutes (F.S.), as follows:

> *…the formulation and implementation of regional water resource management strategies, including the collection and evaluation of surface water and groundwater data; structural and nonstructural programs to protect and manage water resources; the development of regional water resource implementation programs; the construction, operation and maintenance of major public works facilities to provide for flood control, surface and underground water storage, and groundwater recharge augmentation; and related technical assistance to local governments, and to government-owned and privately owned water utilities.*

Most water resource development activities in the SFWMD support and enhance water supply development but do not directly yield specific quantities of water. Instead, these projects are intended to assess the availability of an adequate water supply for existing and future uses, including maintaining the functions of natural systems. For example, project-related hydrologic investigations as well as groundwater monitoring and modeling provide important information about aquifer characteristics (e.g., hydraulic properties, water quality), which are useful for designing appropriate facilities, identifying safe aquifer yields, and evaluating the economic viability of projects, but do not increase water availability.

Water supply development projects (**Chapter 8**) generally are the responsibility of water users (e.g., utilities) and involve the water source options described in **Chapter 5** to meet specific needs. These projects often include construction of wellfields, water treatment plants, distribution lines, reclaimed water facilities, and storage systems.

Water resource planning in the LWC Planning Area is influenced by the Comprehensive Everglades Restoration Plan (CERP). Authorized by the United States Congress in 2000, CERP builds on and complements other state and federal initiatives to revitalize South Florida's ecosystems. These efforts have multiple implementation phases, which are supported by water resource development activities such as planning; land acquisition; design, including modeling; construction; and long-term operations and maintenance. CERP efforts are described in this chapter and in the annual updates of the *South Florida Environmental Report* (https://www.sfwmd.gov/sfer).

Since 2005, the SFWMD has been working with a coalition of government agencies, nongovernmental organizations, farmers, ranchers, and researchers to enhance opportunities for storing excess surface water on private and public lands. The effort, known as dispersed water management, includes the former pilot project Florida Ranchlands Environmental Services Project (FRESP), Northern Everglades Payment for Environmental Services (NE-PES), water farming, storage on public lands, and Northern Everglades public-private partnerships. Dispersed water management projects are constructed and managed primarily to attenuate wet season water releases and improve water quality entering Lake Okeechobee and the coastal estuaries, with ancillary benefits including increased opportunities for groundwater recharge, hydrological enhancement, and habitat improvement. In some cases, dispersed water management projects with storage features are constructed and operated to offset irrigation demands and other water-related needs of the system. Additional information can be found at https://www.sfwmd.gov/storage.

REGIONAL GROUNDWATER MODELING

The SFWMD funds development and application of numerical models for evaluation of groundwater and surface water resources in the District's planning areas. The models support development of regional water supply plans, minimum flows and minimum water levels (MFLs), water reservations, restricted allocation areas (RAAs), and other projects benefitting water resources. Regional groundwater flow models simulate the rate and direction of water movement through the subsurface. Such models include the major components of the hydrologic cycle and are used in water supply planning to understand the effects of current and future water use. These models also can be designed to simulate salinity changes in the form of total dissolved solids, which are referred to as density-dependent and solute transport models.

West Coast Floridan Model

Groundwater withdrawals, particularly from the Floridan aquifer system (FAS), are anticipated to increase with the growing demand for water and limitations on fresh groundwater and surface water sources throughout South Florida. The West Coast Floridan Model (WCFM) is a density-dependent groundwater flow and transport model of the FAS. The model area covers the entire west coast of the District, extending from the Southwest Florida Water Management District boundary in Charlotte County to the Florida Keys. The model was completed, calibrated, and in 2020, used to evaluate potential changes to regional conditions of the FAS in the LWC Planning Area through 2040. **Appendix D** provides further information about the WCFM update and the simulation results.

Lower West Coast Surficial and Intermediate Aquifer Systems Model

The Lower West Coast Surficial and Intermediate Aquifer Systems Model (LWCSIM) was originally completed in 2006. The District updated this model to incorporate new hydrostratigraphic, water level, water use, and saltwater interface data that cover both the surficial and intermediate aquifer systems (SAS and IAS). A hydrostratigraphic reinterpretation report was completed in 2016, and the calibrated model underwent peer review. In 2020, the model was used to evaluate regional water resources from 2014 to 2040. **Appendix D** provides further information about the LWCSIM construction and simulation results.

DISTRICTWIDE WATER RESOURCE DEVELOPMENT PROJECTS

Water resource development projects encompassing more than one planning area generally are considered Districtwide projects. **Table 7-1** summarizes the estimated costs through 2025 of Districtwide water resource development projects and regional projects that benefit water supply. The following categories are types of ongoing Districtwide water resource development projects:

- MFL, water reservation, and RAA rule activities
- Comprehensive Water Conservation Program
- Cooperative Funding Program for alternative water supply (AWS) development and water conservation
- Drilling and testing groundwater resources
- Groundwater assessment through data collection and modeling
- Groundwater, surface water, and wetland monitoring

MFL, Water Reservation, and RAA Rule Activities

MFLs, water reservations, and RAA rules as well as other water resource protection measures have been developed to ensure the sustainability of water resources within the SFWMD. **Chapter 4** provides information on MFLs, water reservations, and RAAs in the LWC Planning Area. Additional information about water resource protection can be found in the *Support Document for the 2021-2024 Water Supply Plan Updates* (2021-2024 Support Document; SFWMD 2021).

Comprehensive Water Conservation Program

The long-standing conservation goal of the SFWMD is to prevent and reduce wasteful, uneconomical, impractical, or unreasonable uses of water resources. This is addressed through planning; regulation; use of alternative sources, including reclaimed water; public education and outreach; and demand reduction through conservation technology, best management practices, and water-saving funding programs. The Comprehensive Water Conservation Program is a series of implementation strategies designed to create an enduring conservation ethic and permanent reduction in water use. The program is discussed further in **Chapter 3**. Additional information can be found in the 2021-2024 Support Document (SFWMD 2021).

Cooperative Funding Program

AWS projects and source diversification are important supplements and replacements to traditional water sources in order to meet current and future water needs Districtwide. The SFWMD has provided cost-share funding for AWS development for more than two decades. In 2016, the SFWMD combined funding programs for stormwater, AWS, and water conservation projects into one streamlined program, the Cooperative Funding Program (**Chapter 8**). AWS funding helps water users develop reclaimed water projects, water reclamation facilities, brackish water wellfields, reverse osmosis (RO) treatment facilities,

stormwater capture systems, and aquifer storage and recovery (ASR) well systems. A full description of AWS-related projects and associated funding is contained in the SFWMD's alternative water supply annual reports, prepared pursuant to Section 373.707(7), F.S., and published in annual updates of the *South Florida Environmental Report* (https://www.sfwmd.gov/sfer). Further information about AWS options (e.g., reservoirs, ASR systems) is provided in **Chapter 5**.

Table 7-1. Fiscal Year 2021-2025 implementation schedule and projected expenditures (including salaries, benefits, and operating expenses) for water resource development activities within the SFWMD. All activities are ongoing unless noted otherwise (Modified from Kraft and Medellin 2021).

Regional Water Activities	Plan Implementation Costs ($ thousands)					Total
	2021	2022	2023	2024	2025	
Water Supply Planning	1,280	1,280	1,280	1,280	1,280	**6,400**
CFWI Water Supply Planning Project	1,838	1,838	1,838	1,838	1,838	**9,190**
Comprehensive Plan, Documents Review, and Technical Assistance to Local Governments	224	224	224	224	224	**1,120**
Water Supply Implementation	243	243	243	243	243	**1,215**
MFL, Water Reservation, and RAA Rule Activities	354	354	354	354	354	**1,770**
Comprehensive Water Conservation Program	1,462[a]	358[b]	358[b]	358[b]	358[b]	**3,290**
Cooperative Funding Program	15,057	0[b]	0[b]	0[b]	0[b]	**14,661**
Groundwater Monitoring	2,249	2,249	2,249	2,249	2,249	**11,245**
Groundwater Modeling	1,033	1,033	1,033	1,033	1,033	**5,165**
Estimated portion of C&SF Project Operation & Maintenance budget allocated to Water Supply[c]	120,139	120,139	120,139	120,139	120,139	**600,695**
Subtotal	**143,879**	**127,718**	**127,718**	**127,718**	**127,718**	**654,751**
Regional Projects Benefitting Water Supply						
Lake Okeechobee Watershed Restoration[d]	98,000	50,000[e]	50,000[e]	50,000[e]	50,000[e]	**298,000**
EAA Storage Conveyance Improvements and Stormwater Treatment Area[d,f]	77,532	70,468	61,229	29,811	46,095	**285,135**
Other Projects Associated with MFL Recovery/Prevention Strategies[g]	160,270	151,602	151,647	153,554	121,300	**738,373**
Subtotal	**335,802**	**272,070**	**262,876**	**233,365**	**217,395**	**1,321,508**
Total	**479,681**	**399,788**	**390,594**	**361,083**	**345,113**	**1,976,259**

C&SF Project = Central and Southern Florida Project; CFP = Cooperative Funding Program; CFWI = Central Florida Water Initiative; EAA = Everglades Agricultural Area; FY = Fiscal Year; MFL = minimum flow and minimum water level; RAA = restricted allocation area; SFWMD = South Florida Water Management District; STA = stormwater treatment area.

[a] FY2021 includes $1.5 million of tentative, one-time funding for CFP water conservation projects.

[b] A determination of what funds, if any, will be allocated for CFP projects will be made by the District's Governing Board during the fiscal year budget development process.

[c] Approximated based on 50% of the FY2021 operation and maintenance budget.

[d] Project cost based on information contained in the draft FY2021–FY2025 SFWMD Five-Year Capital Improvement Plan.

[e] Funding contingent upon future state appropriations.

[f] Includes the C-44/C-23 Interconnect, Site Preparation, Inflow Canal Reservoir/STA, A-2 STA, North New River and Miami Canal Improvements, and bridges.

[g] Totals from Table 5A-8 of the *2021 South Florida Environmental Report* (Kraft and Medellin 2021), less the funding for the Lake Okeechobee Watershed Restoration and EAA Storage Reservoir Conveyance Improvements and STA.

Drilling and Testing Groundwater Resources

Evaluation of groundwater resources involves the installation of wells for short- and long-term monitoring of aquifer water levels and water quality. This work includes drilling and well construction, geophysical logging, aquifer tests, sediment analysis, lithologic descriptions, and water quality sampling to determine if the water is fresh or brackish. Knowledge of South Florida hydrogeology is enhanced through construction of exploratory and test wells and has improved the accuracy of the SFWMD's groundwater modeling and decision-making regarding water use permits.

Groundwater Assessment

Groundwater assessment includes results of drilling and testing programs as well as development of hydrostratigraphic maps and saltwater interface maps. A variety of technical publications related to hydrogeology, groundwater quality, project investigations, and saltwater interface mapping have been completed since the 2017 LWC Plan Update, as summarized below:

- **Geochemistry of the Upper Floridan Aquifer and Avon Park Permeable Zone** – The Regional Floridan Groundwater (RFGW) monitoring network was developed to evaluate current and future water quality and water level trends in the FAS within the SFWMD. The RFGW network includes 113 monitor wells completed in aquifers and confining units within the FAS. This investigation (Geddes et al. 2018) acquired and analyzed data from the Upper Floridan aquifer and Avon Park permeable zone.
- **Saltwater Interface Monitoring and Mapping Program** – The saltwater interface monitoring program was established to evaluate the extent of saltwater encroachment into aquifers along the South Florida coastline. Water quality data are collected and analyzed every 5 years to estimate and map the saltwater interface location in the SAS (Shaw and Zamorano 2020).
- **Groundwater Modeling** – As described above, the WCFM and LWCSIM models were recalibrated with additional hydrogeologic and hydrostratigraphic data collected since the previous calibration and updated with 2014 to 2040 demands to provide a planning-level evaluation of regional conditions in the SAS, IAS, and FAS.

Groundwater, Surface Water, and Wetland Monitoring

Water level and water quality monitoring provides critical information for developing groundwater models, assessing groundwater conditions, and managing groundwater resources. The SFWMD maintains extensive groundwater monitoring networks and partners with the United States Geological Survey (USGS) to provide additional support for ongoing monitoring. Data are archived in DBHYDRO (the SFWMD's corporate environmental database), which stores hydrologic, meteorologic, hydrogeologic, and water quality data. The USGS also monitors, archives, and publishes data annually. Districtwide groundwater monitoring activities include the following:

- **USGS contract for groundwater level monitoring** – In an ongoing effort by the USGS, with funding support from the SFWMD, groundwater level monitoring data are collected at 280 stations. The project includes well and recorder maintenance as well as archiving data in a USGS database for sites throughout the SFWMD.
- **Groundwater level monitoring** – In an ongoing effort by the SFWMD, groundwater levels are monitored throughout the District. As of 2020, Districtwide monitoring includes 443 active SFWMD groundwater stations for the SAS, IAS (where present), and FAS. Data are collected, analyzed, validated, and archived in DBHYDRO.
- **Regional Floridan Groundwater (RFGW) well network** – Water level and water quality monitoring is ongoing at 113 FAS monitor well sites in the SFWMD as of 2020. Well maintenance is conducted as needed.
- **Hydrogeologic database improvements** – Backlogged data are uploaded, and miscellaneous database corrections are made.
- **Monthly groundwater level measurements** – Continued water level monitoring is conducted at select sites, including data collection, analysis, and validation, to supplement the existing groundwater level network.

COMPREHENSIVE EVERGLADES RESTORATION PLAN

CERP provides a framework to restore, protect, and preserve the greater Everglades system. The United States Congress approved the restoration plan in the Water Resources Development Act of 2000. CERP efforts are reported in annual updates of the *South Florida Environmental Report* (https://www.sfwmd.gov/sfer). CERP projects in the LWC Planning Area include, but are not limited to, the following:

- Caloosahatchee River (C-43) West Basin Storage Reservoir
- Picayune Strand Restoration Project
- Southwest Florida Comprehensive Watershed Plan (formerly known as Southwest Florida Feasibility Study)
- Lake Okeechobee Watershed Restoration Project

Caloosahatchee River (C-43) West Basin Storage Reservoir

The Caloosahatchee River (C-43) West Basin Storage Reservoir (C-43 Reservoir) is a critical CERP project that will moderate flows to the Caloosahatchee River Estuary and help achieve a more balanced salinity regime. Early in the 20th century, the Caloosahatchee River was channelized (i.e., deepened and straightened), water control structures (e.g., S-78, S-79) were built, and canals were dug in the river basin to drain agricultural lands and urban areas. As a result of the modifications, during periods of prolonged low rainfall, freshwater flow to the estuary is greatly reduced, increasing salinity above tolerance levels for various ecosystem components. During periods of heavy rainfall, large volumes of nutrient- and sediment-rich fresh water are transported into the estuary, affecting habitat quality for seagrasses, oysters, and other aquatic organisms. The C-43 Reservoir location is shown in **Figure 7-1** and is designed to capture and store up to 170,000 acre-feet of water from the Caloosahatchee River Basin or from Lake Okeechobee when releases are necessary due to high lake levels. During dry periods, the stored water can be released to supplement low river flows and maintain

optimal salinity levels in the estuary. The area of ecosystem benefits encompasses almost 80,000 acres of riverine and coastal waters.

Construction of the C-43 Reservoir began in late 2015 and is anticipated to be completed in 2024. In 2017, all existing agricultural facilities on the site were removed and the embankment foundation was completed. The Irrigation Pump Station (S-476) was completed in 2019. This pump station replaces the need for local drainage district pump stations. The Inflow Pump Station (S-470), reservoir embankment, and associated structures are currently under construction. The full project involves construction of two pumping stations and the reservoir, which has two cells (**Figure 7-2**). In addition, the reservoir has a perimeter canal that provides seepage management and ensures water can be provided to adjacent landowners. Plans are in place to increase the capacity of the Townsend Canal to accommodate filling the C-43 Reservoir.

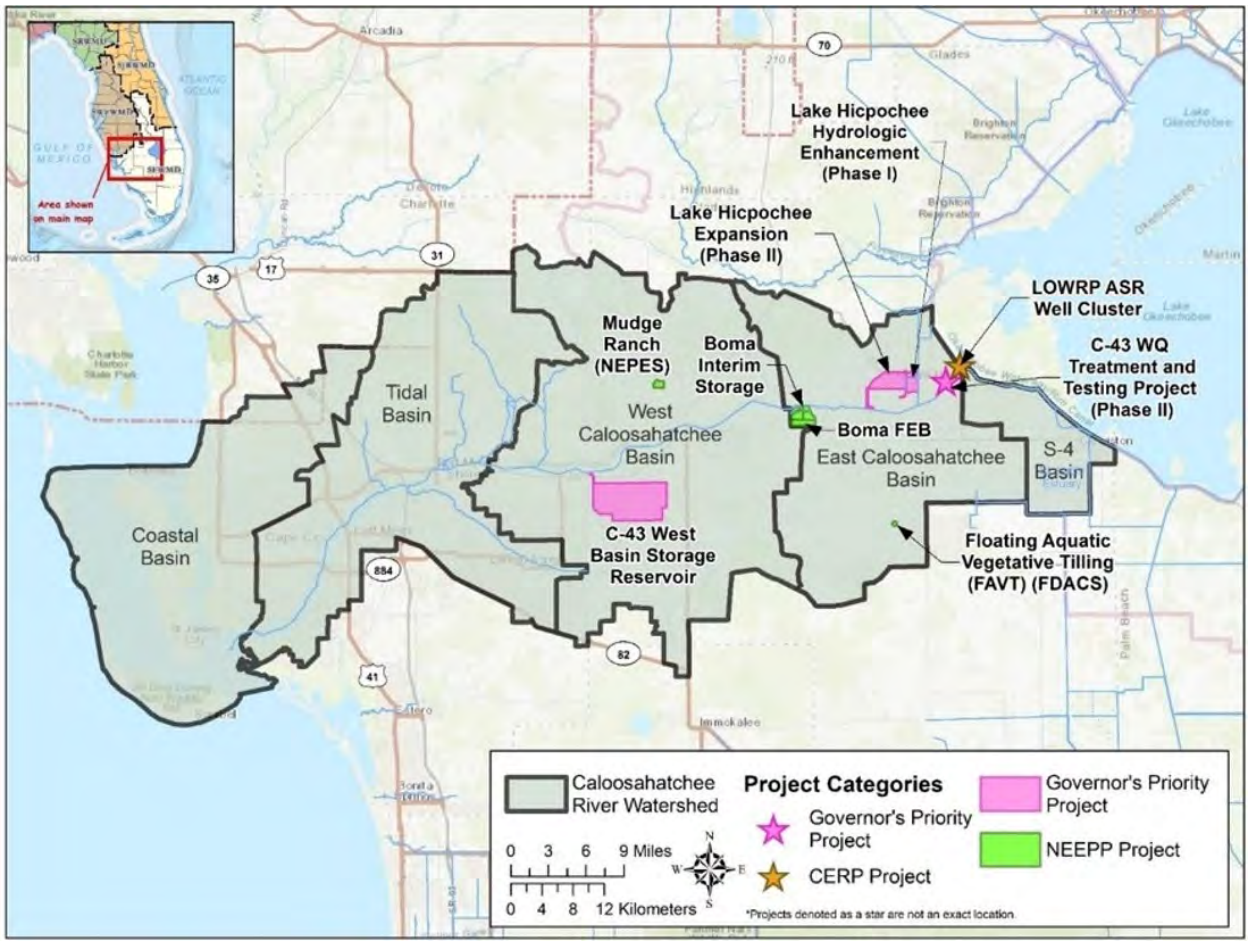

Figure 7-1. Caloosahatchee River Watershed projects.

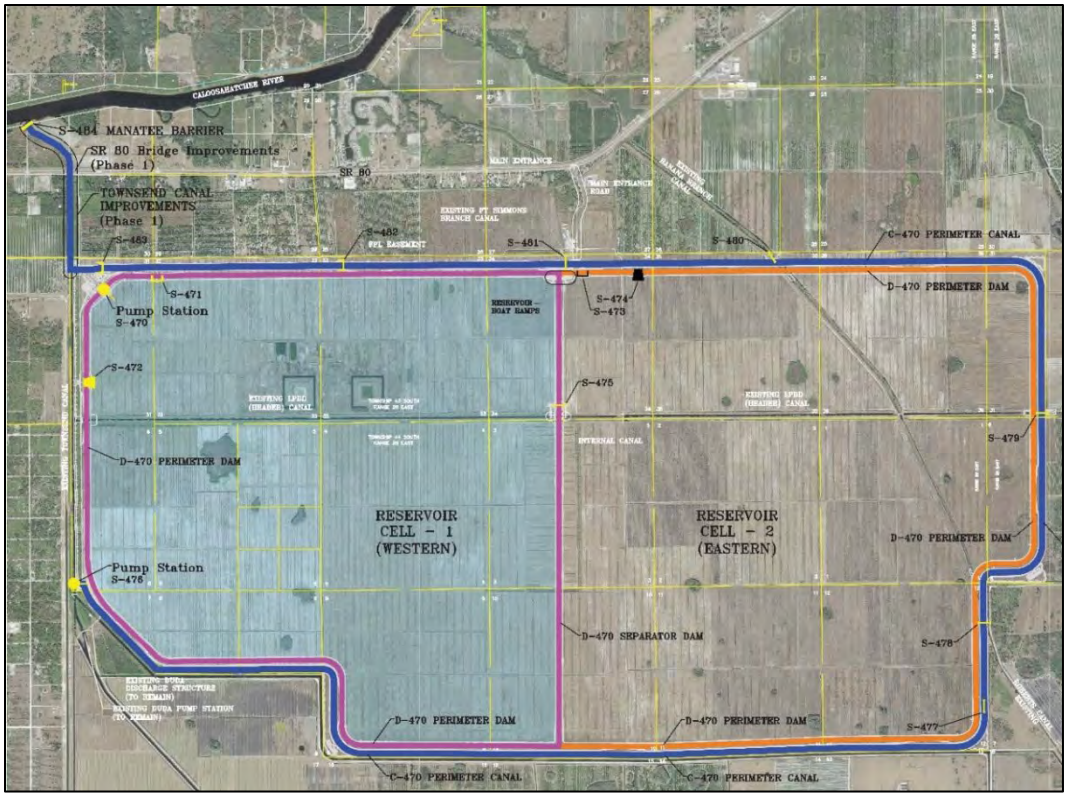

Figure 7-2. The Caloosahatchee River (C-43) West Basin Storage Reservoir site plan.

Picayune Strand Restoration Project

The Picayune Strand Restoration Project is designed to restore more than 55,000 acres of public lands by reducing overdrainage and returning natural and beneficial sheetflow to the project site and adjacent areas, including the Fakahatchee Strand Preserve State Park, Florida Panther National Wildlife Refuge, Ten Thousand Islands National Wildlife Refuge, Collier-Seminole State Park, and related estuaries. Since the filling of the Prairie Canal and removal of the roads east of the Merritt Canal in 2007, three pump stations have been constructed, the Merritt and Miller Canals and the upper 2 miles of the Faka Union Canal. Additionally, the east-west stairstep canals have been plugged. As a result, the Prairie and Merritt canal phases of the project are fully operational, resulting in the hydrologic restoration of about 11,000 acres in the northeastern corner of Picayune Strand and 9,000 acres in the northwestern area of Fakahatchee Strand Preserve State Park. Approximately 75% of roads and 93% of old logging trams have been degraded in the Picayune Strand Restoration Project. The Manatee

Merritt Pump Station

Mitigation Feature, a 2-acre warm water manatee refugium area, was completed in April 2016. Construction on the Southwestern Protection Feature levee began in 2021 and will provide flood protection for existing agricultural and residential properties with an anticipated completion date of 2023. The project cannot be operated for restoration purposes until the Southwest Protection Feature is installed and the Faka Union and Miller canals are plugged, which is anticipated by 2024.

Southwest Florida Comprehensive Watershed Plan

As part of CERP, the United States Congress authorized the Southwest Florida Feasibility Study (now known as the Southwest Florida Comprehensive Watershed Plan) in the Water Resources Development Act of 2000. The purpose of the study was to 1) perform a comprehensive assessment of all watersheds in southwest Florida, and 2) develop a regional restoration plan that addressed all water resource issues within the watersheds. Issues addressed by the study included loss of natural ecosystems, fragmentation of natural areas, degradation of wildlife habitat, alteration of natural freshwater flows to wetlands and estuaries, and water quality degradation in surface waters. The Southwest Florida Comprehensive Watershed Plan (United States Army Corps of Engineers [USACE] and SFWMD 2015) was completed in 2015.

Lake Okeechobee Watershed Restoration Project

In 2016, the USACE and SFWMD began planning efforts for the Lake Okeechobee Watershed Restoration Project (LOWRP), which aims to

- Increase water storage capacity in the watershed, resulting in improved Lake Okeechobee water levels;
- Improve the quantity and timing of discharges to the Caloosahatchee and St. Lucie estuaries;
- Restore wetlands; and
- Improve existing and future water supply.

The LOWRP preliminary project area covers a large portion of the Lake Okeechobee watershed north of the lake. Project features under consideration to meet the project goals include up to 55 ASR wells and re-establishment of former wetland areas. The planning process is anticipated to proceed through 2023.

NORTHERN EVERGLADES AND ESTUARIES PROTECTION PROGRAM

In 2007, the Florida Legislature authorized the Northern Everglades and Estuaries Protection Program (NEEPP; Section 373.4595, F.S.), which expanded the existing Lake Okeechobee Protection Act. In 2016, the Florida Legislature amended NEEPP to further clarify the roles and responsibilities, coordination, implementation, and reporting efforts among the three coordinating agencies: the SFWMD, Florida Department of Environmental Protection (FDEP), and the Florida Department of Agriculture and Consumer Services (FDACS). NEEPP was also amended to indicate that basin management action plans (BMAPs) shall be the component of

the watershed protection plans (WPPs) that addresses pollutant loading or total maximum daily loads established in accordance with Section 403.067, F.S. The legislation also requires that the WPPs for the Lake Okeechobee, Caloosahatchee River, and St. Lucie River watersheds are routinely updated as part of NEEPP. The WPPs build on existing approaches and consolidate restoration efforts throughout the Northern Everglades system. The two plans relevant to the LWC Planning Area are described below. More details about specific projects and activities under the WPPs are included in annual updates of the *South Florida Environmental Report* (https://www.sfwmd.gov/sfer). Further information about NEEPP can be found on the SFWMD webpage (http://www.sfwmd.gov/wpps).

Lake Okeechobee Watershed Protection Plan

NEEPP mandated that the SFWMD, FDEP, and FDACS develop a Lake Okeechobee Watershed Protection Plan (LOWPP). The plan initially was developed in 2004 (SFWMD et al. 2004) and was updated in 2007, 2008, 2011, 2015, and 2020 (Betts et al. 2020; SFWMD et al. 2007, 2008, 2011; Sharfstein et al. 2015). Future updates to the LOWPPs will be done in accordance with the 2016-amended NEEPP to ensure they are consistent with the state's adopted BMAP for Lake Okeechobee.

The plan includes source controls (e.g., best management practices) and several subregional and regional technologies, such as stormwater treatment areas and alternative treatment technologies, to improve the quality of water within the watershed and delivered to Lake Okeechobee. Several measures are included in the plan to improve water levels within the lake as well as the quantity and timing of discharges from Lake Okeechobee to the northern estuaries to achieve more desirable salinity ranges. These measures include reservoirs, dispersed water management projects, ASR, and deep well injection.

Caloosahatchee River Watershed Protection Plan

The Caloosahatchee River Watershed Protection Plan (CRWPP), developed by the SFWMD, FDEP, and FDACS, was submitted to the Florida Legislature on January 1, 2009 (SFWMD et al. 2009). It identified major influences that negatively affect the Caloosahatchee River Estuary's ecological health (primarily water quality, quantity, timing, and distribution) and proposed strategies to minimize those stressors. The plan was updated in 2012 (Balci and Bertolotti 2012) and 2015 (Buzzelli et al. 2015). Future updates to the CRWPPs will be done in accordance with the 2016-amended NEEPP to ensure they are consistent with the state's adopted BMAP for the Caloosahatchee River and Estuary.

The CRWPP contains the following three main components:

- **Pollutant Control Program** – This program is a multifaceted approach to reducing pollutant loads by improving the management of pollutant sources within the watershed. This component comprises source control programs implemented by the coordinating agencies, including best management practices, on-site treatment technologies, stormwater and wastewater infrastructure upgrades and master planning, and regulatory programs focused on water quality and quantity.

- **Construction Project** – This component identifies water quality and storage projects to improve hydrology, water quality, and aquatic habitats within the watershed. It includes regional, subregional, and local water quality and quantity projects (e.g., reservoirs, stormwater treatment areas, chemical treatment, local stormwater projects).
- **Research and Water Quality Monitoring Program** – This program builds on the SFWMD's existing research program and is intended to carry out, comply with, or assess the plans, programs, and other responsibilities created by the CRWPP. The program also will assess the water volumes and timing from the Lake Okeechobee and Caloosahatchee River watersheds and their relative contributions to the estuary. The primary purpose of this component is to track progress toward achieving water quality and storage targets.

Lake Hicpochee Storage and Hydrologic Enhancement Project

Lake Hicpochee was one of three lakes historically considered the headwaters of the Caloosahatchee River (**Figure 7-1**). The channelization of the C-43 Canal in the 1800s resulted in detrimental impacts to the lake. Phase 1 of the Lake Hicpochee Storage and Hydrologic Enhancement Project (completed in 2019) captures surface water from the C-19 Canal, then stores the water before distributing it via a spreader canal to the northwestern area of Lake Hicpochee. Phase 2 of the project (**Figure 7-3**) will include the construction of a flow equalization basin (FEB), a new pump station to draw water from the C-43 Canal, and associated flow features connecting to the existing project. Phase 2 of the project will increase the storage capacity of Phase 1 features and capture runoff from both the C-19 and C-43 basins. Phase 2 is currently under design, and construction is expected to be completed by September 2025.

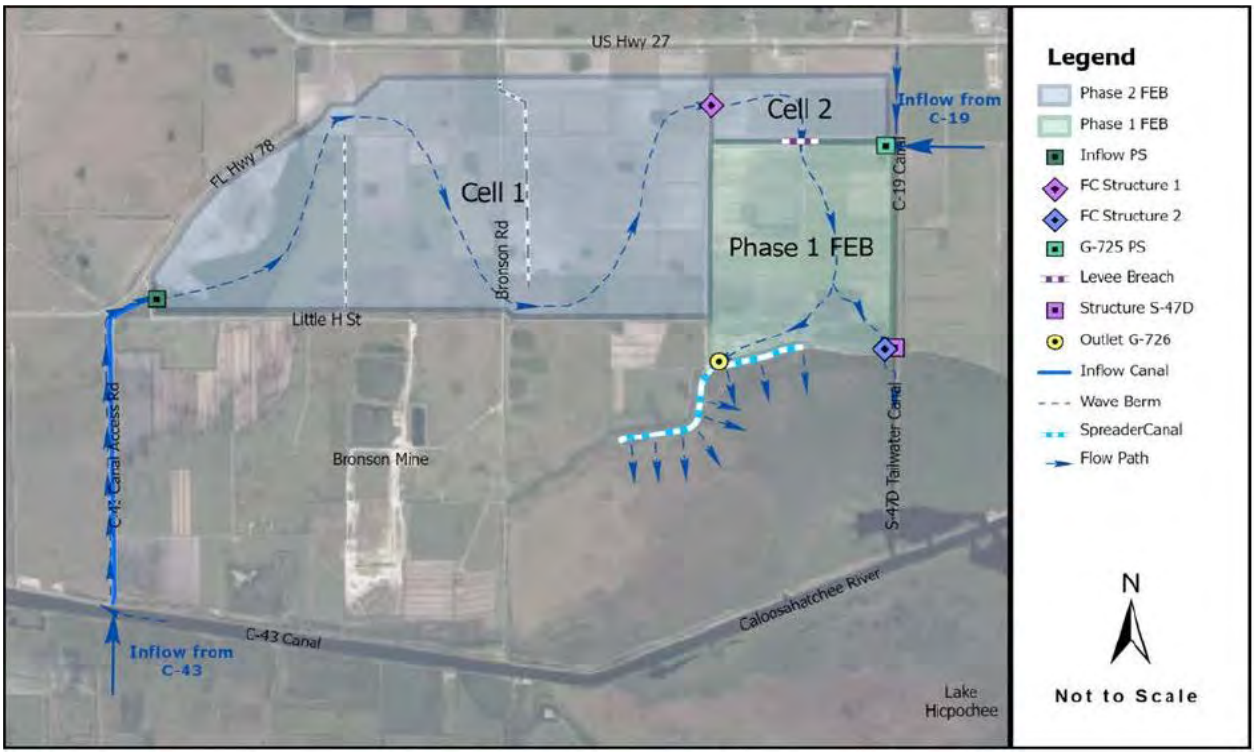

Figure 7-3. Lake Hicpochee Storage and Hydrologic Enhancement Project.

C-43 Water Quality Treatment Feature

The C-43 Water Quality Treatment Feature often referred to as the "Boma" project (**Figure 7-1**) is approximately 1,765 acres of active and fallow citrus land adjacent to the C-43 Canal that was purchased by the SFWMD and Lee County in 2008 for development of a shallow water storage and treatment system (**Figure 7-4**). The Boma property currently includes two interim storage impoundments (total 370 acres) and the C-43 Water Quality Treatment and Testing Phase I mesocosm research facility. Two permanent projects are currently in the design phase for the property and include the C-43 Water Quality Treatment and Testing Phase II test cells and the Boma FEB. Construction of the Phase II test cells project is anticipated to begin in late 2022, and the Boma FEB project is anticipated to begin in 2023.

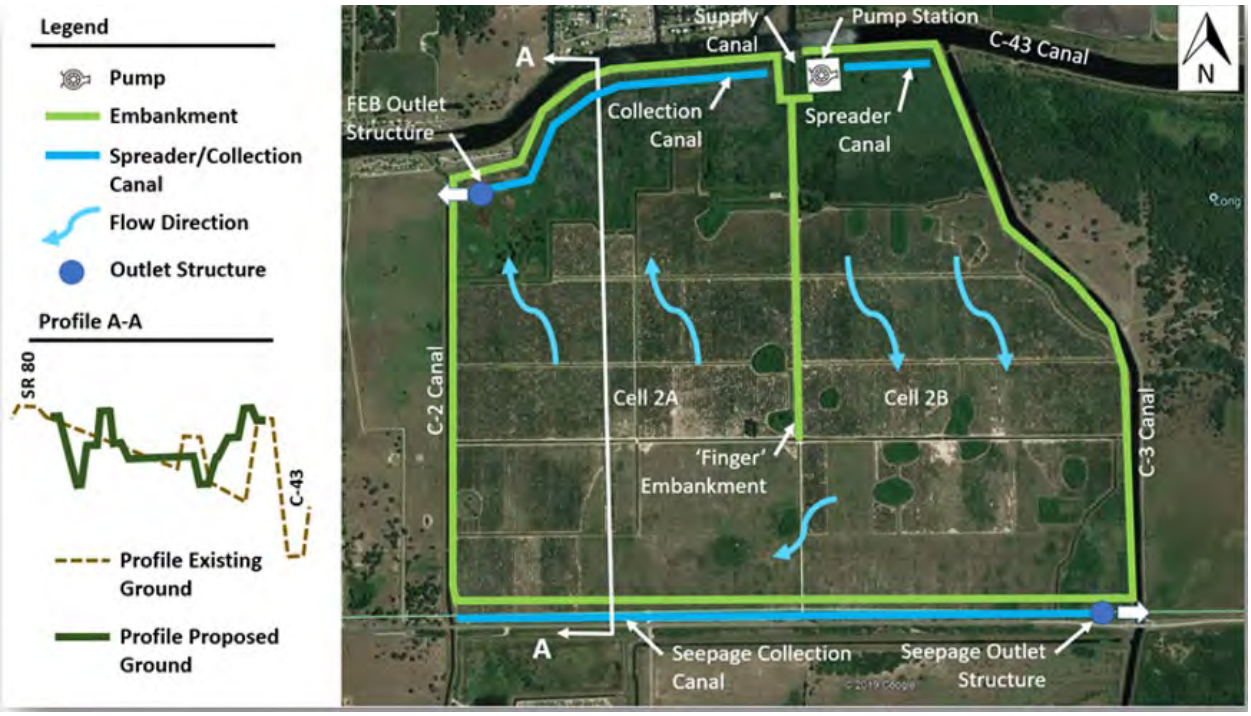

Figure 7-4. C-43 Water Quality Treatment Feature.

BIG CYPRESS BASIN PROGRAMS

The Big Cypress Basin Board is responsible for the operation, maintenance, planning, and capital improvements of approximately 140 miles of canals and 38 water control structures within Collier County and part of Monroe County. The southwest Florida representative on the District Governing Board serves as the chair of the Big Cypress Basin Board.

Big Cypress Swamp

The Big Cypress Basin Board provided cooperative funding focusing on water quality and AWS projects within the basin from 2017-2022 in an amount of $5 million. Below are some of the highlights:

- **Naples Bay Restoration and Water Quality Improvements at the Cove** – Stormwater and ecosystem restoration through the removal of nutrient-rich sediment, constructing a pollution control device, and installing a living shoreline to improve water quality.

- **City of Naples and Collier County West Goodlette-Frank Road Area Joint Stormwater and Septic Tank Replacement Project** – Conversion of residential septic tanks to a central sanitary sewer collection system and stormwater improvements. The project will increase the volume of reclaimed water available for water supply use as well as improve water quality in Naples Bay.
- **Collier County Lely Branch Water Control Structure Project** – Construction of a new weir on the Lely Branch Canal, which will limit the need for releases of floodwater during the wet season. This will result in increasing shallow groundwater levels and reducing overdrainage of wetlands and native habitats.
- **Collier County Freedom Park Water Quality Improvements** – Construction of this project included widening the bypass canal along the north side of Freedom Park to allow for enhanced flood protection and increased nutrient reduction of upstream flows before discharging to the Gordon River and into Naples Bay.
- **City of Naples Reclaimed Water System Expansion Phase 5** – Installation of 11,600 linear feet of reclaimed water mains to increase the amount of reclaimed water within the city and offset the demand of traditional water sources by approximately 0.26 million gallons per day.

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8

Water Supply Development Projects

TOPICS

- Projects Identified for This Plan Update
- Cooperative Funding Program
- Summary of Water Supply Development Projects

This chapter summarizes the proposed water supply development projects anticipated to meet water needs in the Lower West Coast (LWC) Planning Area of the South Florida Water Management District (SFWMD or District) for the 2020 to 2045 planning period. Water supply development projects include the planning, design, construction, operation, and maintenance of public or private facilities for water collection, production, treatment, transmission, or distribution for sale, resale, or end use and are proposed by water users to meet existing and future demands. Water users such as Public Supply (PS) utilities, local and tribal governments, and self-suppliers including Commercial/Industrial/Institutional (CII) and Agriculture (AG) users are primarily responsible for water supply development projects. For this *2022 Lower West Coast Water Supply Plan Update* (2022 LWC Plan Update), alternative water supply (AWS) development projects have been proposed by PS utilities that rely on nontraditional water sources.

Water use permits typically are required for most water supply development projects. Each proposed use of water must meet the conditions for permit issuance found in Section 373.223, Florida Statutes (F.S.), and the implementing criteria found in Chapter 40E-2, Florida Administrative Code (F.A.C.). Further information is provided in the *Support Document for the 2021-2024 Water Supply Plan Updates* (2021-2024 Support Document; SFWMD 2021). Regarding water supply development projects, local economic conditions and population growth may affect when water is needed, which projects are required, and how water use permits need to be obtained or modified to accommodate demand.

PROJECTS IDENTIFIED FOR THIS PLAN UPDATE

Projects proposed for inclusion in this plan update were evaluated based on the level of detail provided (e.g., project scope, cost, and schedule) and whether the project is expected to increase conservation or contribute new water supply, possibly increasing a utility's permit allocation(s) or a treatment system's rated capacity. Projects listed in this 2022 LWC Plan Update were discussed with the SFWMD's Water Use Bureau to determine if a proposed project is likely to be permitted.

Users are not required to select a project included in this 2022 LWC Plan Update. In accordance with Section 373.709(6), F.S., nothing contained in the water supply component of a regional water supply plan should be construed to require local governments, public or privately owned utilities, special districts, self-suppliers, multijurisdictional entities, or other water suppliers to select the identified projects. In addition, a proposed project may not be implemented or may be deferred if there is insufficient need.

Public Supply

PS demand includes all potable uses served by public and private utilities with an allocation of 0.10 million gallons per day (mgd) or greater. In 2020, PS demand in the LWC Planning Area was met by fresh groundwater (45%) and brackish groundwater (55%). The PS average net demand (finished water) is projected to grow from 121.06 mgd in 2020 to 163.25 mgd by 2045, a 35% increase. A combination of existing and additional capacity developed by water supply development projects will be used to meet the projected demand.

Water Treatment Facility

In addition to meeting demands, utilities may propose water supply development projects to address specific situations such as accommodating a change in treatment processes or sources or optimizing distribution systems to match future demand locations. Although water conservation of potable water does not produce potable water, it is a demand management option for utilities that can extend existing potable supplies to meet future demand. In addition, utilities can implement reuse projects for irrigation and aquifer recharge purposes that reduce or replace use of current or projected potable water sources. Proposed projects are listed in the utility profiles contained in **Appendix B** and summarized at the end of this chapter. In addition to proposed water supply development projects, each profile includes population and demand projections (**Chapter 2**, **Appendix A**), permitted water allocations, and permitted treatment capacities for potable water and wastewater. Based on planning-level screening, water supply projects are identified in this plan update to meet 2045 projected demands and generally have a likelihood of being permittable. However, each proposed use of water must meet the conditions for permit issuance found in Section 373.223, F.S., and the implementing criteria found in Chapter 40E-2, F.A.C., and will be reviewed on an application-by-application basis.

In the LWC Planning Area, 9 PS utilities have proposed 18 projects relating to source diversification, changes in treatment technology, expansion of existing plants, and construction of new production wells. In total, the proposed PS development projects could create 26.27 mgd of additional potable water treatment capacity. Combined with existing capacity (237.76 mgd), this will exceed the projected 2045 PS total net (finished) demand of 163.25 mgd.

Two PS utilities need to construct future projects to meet their projected 2045 demands. Florida Governmental Utility Authority (FGUA) – Lehigh Acres would need to construct 0.22 mgd of water supply to meet its projected 2045 demands. The existing potable water treatment capacity for FGUA – Lehigh Acres is 3.10 mgd, and the projected net demand for 2045 is 3.32 mgd (**Appendix B**). The utility has not proposed any projects but maintains an interlocal agreement with the City of Fort Myers for purchase of up to 2.00 mgd of treated bulk water. Ave Maria, in Collier County, would need to construct approximately 1.0 mgd of water supply capacity to meet its 2045 demands. The utility has proposed a combination of wellfield expansion and construction of additional potable water treatment capacity.

PS utilities also have proposed nonpotable water supply projects that could create 39.70 mgd of additional reclaimed water supply for landscape and golf course irrigation as well as groundwater recharge (**Table 8-1**). The proposed nonpotable water projects include construction and expansion of reclaimed water production facilities and construction of aquifer storage and recovery (ASR) and surface water/stormwater storage projects.

Table 8-1. Number and capacity of potable and nonpotable water supply development projects proposed by utilities for construction/implementation between 2020 and 2045.

Water Source	Number of Projects[a,b]	Capacity (mgd)	Cost ($ million)
Potable Projects			
Surficial Aquifer System	1	3.00	$24.20
Floridan Aquifer System	8	**23.27**	$180.81
Potable Total	**9**	**26.27**	**$205.01**
Nonpotable Projects			
Reclaimed Water	17	39.70	$588.40
Aquifer Storage and Recovery	1	1.00[c]	$4.00
Nonpotable Total	**18**	**40.70**	**$592.40**
LWC Planning Area Total	**27**	**66.41**	**$797.41**

mgd = million gallons per day.

[a] Projects designed to expand distribution of treated water or repair or replace existing facilities are not included because they do not generate new water. Wellfield expansion projects are not included if they do not increase treatment capacity.

[b] Many of the projects are multi-phased (e.g., more than one project at the same water treatment plant).

[c] Estimated recoverable storage capacity, not new water supply capacity.

The individual reuse inventory reports for the year 2020 (unless otherwise noted for individual facilities) filed by each wastewater utility to the Florida Department of Environmental Protection (FDEP 2021) indicated approximately 75% of wastewater generated in Charlotte County, 78% in Collier County, 0% in Glades County, 0% in Hendry County, and 74% in Lee County was reused for irrigation, and 9%, 1%, 100%, 100%, and 1% of wastewater in those counties, respectively, was reused for aquifer recharge. These percentages include supplemental flows to reclaimed water, which is discussed in some detail in **Chapter 5**. In 2020, 23.97 mgd of supplemental flows were added to reclaimed water

to meet reuse demands, while 23.42 mgd of potentially reusable wastewater effluent was disposed in the LWC Planning Area. Wastewater flows are projected to increase by 87.02 mgd from 2020 to 2045. When considering wastewater and disposal flows (excluding supplemental flows), there would be 197.86 mgd of potential alternative water supply.

Domestic Self-Supply

Domestic Self-Supply (DSS) includes potable water used by households served by small utilities (less than 0.10 mgd) or self-supplied by private wells. DSS average net (finished) demands in the LWC Planning Area are projected to increase from 24.27 mgd in 2020 to 31.66 mgd in 2045. DSS needs currently are met and are expected to continue being met with fresh groundwater from the surficial aquifer system (SAS) and the intermediate aquifer system (IAS). As stated in previous chapters, stress is occurring in IAS groundwater levels in limited areas of Cape Coral and Lehigh Acres, wholly or partially due to DSS withdrawals. The City of Cape Coral plans to extend potable water service using alternative water supplies to areas where fresh groundwater IAS withdrawals for DSS are contributing to declining water levels in aquifers approaching the maximum developable limit. The District will continue to engage Lee County to encourage development of long-range plans for a sustainable water supply in DSS areas, such as extending potable water service to other areas where DSS withdrawals are contributing to declining water levels.

Agriculture

AG water use includes self-supplied water used for crop irrigation, greenhouses, nurseries, livestock watering, pasture irrigation, and aquaculture. AG is the largest water use category in the LWC Planning Area and is projected to remain so over the planning horizon. Irrigated crop acreage is expected to increase from 291,765 acres in 2020 to 307,062 acres in 2045. Gross AG water demand is projected to increase 5%, from 592.02 mgd in 2020 to 621.40 mgd in 2045, under average rainfall conditions. **Chapter 2** and **Appendix A** provide more information about AG water use and projected demands.

The majority of AG water demand in the LWC Planning Area is supplied by fresh groundwater from the SAS and IAS and surface water primarily from the C-43 Canal and its connected canals and diversion and impoundment systems. Water availability from most surface water sources is limited by regulatory protections (**Chapter 4**).

Water supply opportunities for AG may be available in the future by capture and use of on-site water normally lost to a farm's water management system (tailwater recovery), capture and use of stormwater, and blending of brackish groundwater with fresh water. The storage and use of reclaimed water may be possible for a limited number of crops when meeting food safety and market standards, but there are no reclaimed water sources near AG areas in the region. More efficient irrigation systems could substantially reduce the amount of water needed to meet future crop demands; however, implementation of such systems can be economically and technically challenging. No specific water supply development projects for this category were provided or identified for this 2022 LWC Plan Update.

Continued use of best management practices (BMPs), including water conservation, could reduce the amount of water needed to meet crop demands (**Chapter 3**). The Florida Department of Agriculture and Consumer Services (FDACS) develops and adopts (by rule)

agricultural BMPs addressing water quality. Some BMPs contain an implicit water conservation component. Growers who enroll in the FDACS BMP program and implement the BMPs demonstrate their commitment to water resource protection, have a presumption of compliance with state water quality standards, and are eligible for technical and financial assistance towards meeting water resource protection goals.

Commercial/Industrial/Institutional

The CII water use category includes self-supplied water associated with the production of goods or provision of services by commercial, industrial, and institutional establishments. Water demands for CII in the LWC Planning Area are met primarily using traditional supplies such as fresh surface water and groundwater, and to a limited extent, reclaimed water. The projected average gross demand for this category is estimated to be 48.23 mgd by 2045, which is a slight increase from 2020 demands (37.73 mgd).

Although traditional water supplies generally are considered adequate to meet the relatively small demands projected for CII, AWS options should be considered based on local conditions. If reclaimed water is available to meet existing and/or new CII demands, the feasibility of such opportunities will be evaluated through the water use permitting process. No specific water supply development projects for this category were provided or identified for this 2022 LWC Plan Update.

Landscape/Recreational

The Landscape/Recreational (L/R) category includes self-supplied water used for irrigation of golf courses, sports fields, parks, cemeteries, and large common areas (e.g., land managed by homeowners' associations and commercial developments). Historically, irrigation supplies for this category included local fresh groundwater and surface water from canals or stormwater management system ponds. Several golf courses use brackish groundwater blended with fresh surface water in on-site lakes. Reclaimed water is used to meet approximately 37% of the irrigation demand for L/R. In the LWC Planning Area, L/R average gross demand is projected to increase from 219.17 mgd in 2020 to 268.04 mgd in 2045.

Golf Course

The projected increase in growth for this category is expected to be met, for the most part, by currently proposed reclaimed water projects, and to a lesser extent, groundwater or surface water from on-site stormwater management ponds. In the LWC Planning Area, reclaimed water is used to irrigate large, landscaped areas such as golf courses, parks, and residential and commercial parcels. Proposed projects submitted by utilities for wastewater treatment facilities are expected to add 39.70 mgd of reclaimed water treatment capacity by 2045. Additional reclaimed water supply may provide an opportunity to convert existing irrigation from traditional freshwater to reclaimed water. No specific water supply development projects for this category were provided or identified for this 2022 LWC Plan Update;

however, reclaimed water main extension projects have been proposed and will provide additional reclaimed water for L/R irrigation purposes.

Power Generation

Currently, the Power Generation (PG) water use category includes two PG facilities in the LWC Planning Area: Florida Power & Light (FPL) Fort Myers and the Lee County Solid Waste Energy Recovery Facility.

The FPL Fort Myers facility uses brackish surface water for a one-time pass-through cooling tower system which is returned to the Caloosahatchee River Estuary. Groundwater is used for makeup water for steam generators, inlet spray coolers, and other industrial uses. For the planning period 2020 to 2045, the FPL Fort Myers facility is estimated to have a constant PG demand of 0.53 mgd. This demand is based on the Fort Myers Power Plant's average daily use in 2020 from groundwater sources.

The Lee County Solid Waste Energy Recovery Facility relies entirely on reclaimed water provided by the City of Fort Myers and is anticipated to continue relying on reclaimed water through the planning horizon. In 2020, 1.01 mgd of reclaimed water was supplied to this facility, and demands are anticipated to increase to 1.50 mgd by 2045.

PG water demands are expected to increase slightly, from 2020 to 2045. Because the availability of fresh water is limited in the LWC Planning Area, AWS sources may be the most feasible options to meet future PG use if a new use is proposed. No specific water supply development projects for this category were provided or identified for this 2022 LWC Plan Update.

COOPERATIVE FUNDING PROGRAM

Funding for water supply development and water conservation at the local level is the shared responsibility of water suppliers and users. The State of Florida and the water management districts have provided funding assistance to local water users to develop AWS and measurable water conservation programs. One guideline for funding consideration is that the project must be included in, or consistent with, the appropriate regional water supply plan update. Some projects not included in this 2022 LWC Plan Update but consistent with the plan's goals may be funded. When the SFWMD deems appropriate, a plan may identify the need for multijurisdictional approaches to project options based on the ability to permit and finance the project and its technical feasibility.

For nearly two decades, the Cooperative Funding Program (CFP) has provided funding to local governments, special districts, utilities, homeowners associations, water users, and other public and private organizations for AWS, water conservation, and stormwater projects that are consistent with the District's core mission. In 2016, these cooperative funding efforts were combined under the CFP, which provides financial incentives to promote local projects that complement ongoing regional restoration, flood control, water quality, and water supply efforts within the SFWMD's 16-county jurisdiction.

Each fiscal year, the District's Governing Board determines the amount of funding to allocate to the CFP, the project priorities for that year, and the cost share to be allocated. SFWMD staff

review the proposed projects based on guidelines and priorities established by the District's Governing Board. Program funding is subject to approval by the District's Governing Board.

Alternative Water Supply

The AWS component of the CFP provides cost-share funding for projects that increase water supply. These projects include development of saltwater or brackish water, reclaimed or recycled water, surface water captured during heavy rainfalls, sources made available through addition of new storage capacity, and stormwater (for use by a water use permittee), among others. From Fiscal Year (FY) 2017 through FY2021, the SFWMD provided more than $25.7 million in AWS funding for 32 projects located throughout the District. Seven of these projects are in the LWC Planning Area, generating 9.78 mgd of AWS capacity and 40.26 mgd of additional reclaimed water distribution capacity (**Table 8-2**).

Table 8-2. AWS projects in the LWC Planning Area funded through the FDEP AWS Program and the Water Protection and Sustainability Program (FY2017 to FY2021).

Project Name	County	Fiscal Year	Total Capacity (mgd)
Ave Maria Utility Company, LLC - Phase III Reclaimed Water System Expansion – Lined Storage Pond and Reclaimed Water Main Extension along Anthem Parkway	Collier	2017-2018	0.60
Naples, City of – Reclaimed Water System Expansion, Phase 5	Collier	2017-2018	0.26
Lee County Utilities – Reclaimed Water ASR (Fort Myers Beach/ Fiesta Village)	Lee	2017-2018	0.18
Cape Coral, City of – Water North 2 Utility Extension Program – Irrigation Canal Pump Station East #10	Lee	2017-2018	7.00
Cape Coral, City of – Water North 2 Utility Extension Program – Irrigation Transmission	Lee	2017-2018	24.00
Cape Coral, City of – Reclaimed Water Expansion: Cape Coral and Fort Myers Interconnect under the Caloosahatchee River	Lee	2020	2.00
Lee County Utilities – Fiesta Village Reclaimed Water Main Extension	Lee	2021	16.00
LWC Planning Area Total			**50.04**

AWS = alternative water supply; FDEP = Florida Department of Environmental Protection; FY = Fiscal Year; mgd = million gallons per day; LWC = Lower West Coast.

Water Conservation

The water conservation component of the CFP, formerly known as the WaterSIP, provides cost-share funding for projects that reduce urban and agricultural water use. The SFWMD has provided matching funds up to 50% to water providers and users (e.g., local governments, utilities, agricultural operations, industrial groups, schools, hospitals, homeowners' associations) for water-saving technologies such as low-flow plumbing fixtures, rain sensors, fire hydrant flushing devices, and other hardware. From FY2017 to FY2021, the SFWMD approved more than $2.8 million in funding towards 60 water conservation projects Districtwide through the CFP, with an estimated water savings of 1.45 billion gallons per year, or 3.96 mgd. In the LWC Planning Area, three projects received over $40,000 in funding with an estimated water savings of 28 million gallons per year, or 0.08 mgd (**Table 8-3**). **Chapter 3** contains additional information on water conservation efforts in the LWC Planning Area.

Table 8-3. Water conservation projects in LWC Planning Area supported by the FDEP AWS Program and Water Protection and Sustainability Program (FY2017 to FY2021).

Project Name	Entity Name	Project Type	Fiscal Year	Proposed Water Savings (mgy)
Collier County				
Bayrock Grove Irrigation Monitoring	AgReserves Inc. DBA – Deseret Farms of Ruskin	Irrigation	2017-2018	20.00
Hendry County				
BWEN Irrigation Water Conservation Project	Bishopwood East of Forest Glen Neighborhood Association Inc. (BWEN)	Irrigation	2017-2018	7.50
Lee County				
High-Efficiency Toilet Rebate Program	Bonita Springs Utilities, Inc.	Indoor Plumbing	2020	0.93
Estimated Yearly Total Water Savings				**28.43**

AWS = alternative water supply; FDEP = Florida Department of Environmental Protection; FY = Fiscal Year; mgy = million gallons per year; LWC = Lower West Coast.

SUMMARY OF WATER SUPPLY DEVELOPMENT PROJECTS

Total average gross water demands within the LWC Planning Area, from all sources, are projected to increase 165.94 mgd (16%) by 2045. During the planning horizon, the PS category has a projected 35% increase in average finished water demand. While utilities proposed a total of nine potable water multiphased projects, only one utility appears to need an increase in treatment capacity before 2045, based on demand projections and treatment system requirements. The evaluation for this 2022 LWC Plan Update indicates groundwater and surface water supplies are adequate to meet the total projected demands through the planning horizon of 2045.

Twenty-four PS utilities are located within the LWC Planning Area. Lee County Utilities is the region's largest utility and is projected to serve approximately 371,422 residents by 2045. FGUA – Lehigh Acres will need to construct 0.22 mgd of additional treatment capacity to meet 2045 projected demands if the interlocal agreement to purchase water from the City of Fort Myers is not renewed. All other PS growth within the LWC Planning Area can be served with existing facilities, although nine utilities have proposed projects. The proposed water supply development projects could generate 26.27 mgd of new potable water treatment capacity to meet the 2045 net PS demand of 163.25 mgd. The new capacity consists of 23.27 mgd produced by projects using groundwater from the Floridan aquifer system (FAS) and 3.00 mgd from the SAS. Summaries of existing and proposed project capacities are provided in **Tables 8-4** and **8-5**.

Several projects are for construction of additional FAS wells without a corresponding increase in treatment capacity. These wells will increase raw water production capacity to the treatment facility and/or address water quality degradation and sustainability of the FAS as a water supply source. Current operations have shown water quality degradation caused by pumping can be managed by PS utilities through appropriate wellfield design and operating protocols, including the following activities:

- Increasing well spacing (more than 1,000 feet) to minimize interference effects and reduce stress on the FAS.
- 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.
- Rotating the operation of individual wells, thereby reducing overall pumping stress on the well's production zone.
- Plugging and abandoning individual wells that have increased chloride concentrations and replacing them with new wells elsewhere within the wellfield.
- 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.

Table 8-4. Existing and proposed increase in water supply capacities (in mgd) for Public Supply utilities in the LWC Planning Area.

County	Public Supply Utility	Surface Water/ Stormwater		SAS		IAS		FAS		ASR[a]		Reclaimed Water[b]	
		Existing	Proposed[c]	Existing	Proposed[c]	Existing	Proposed[c]	Existing	Proposed[c]	Existing	Proposed[c]	Existing	Proposed[c]
Charlotte	Charlotte Correctional			0.30									
	Town and Country			0.49		0.50			7.01			0.75	3.25
Collier	Ave Maria			0.49		0.50			2.76			0.90	1.25
	Collier County Utilities			20.80	3.00	15.60		15.60	2.00			42.35	5.25
	Everglades City			0.47								0.16	0.20
	Immokalee (IWSD)			5.60					2.50			4.00	3.00
	Marco Island	6.67				6.00				6.67		4.92	
	Naples			30.00								10.00	
	Port of the Islands			0.44								0.20	
	STOF - Immokalee[d]			0.43									
Glades	Moore Haven			0.96									
	Silver Lake - Muse Village					0.33							
Hendry	Clewiston							3.00				1.50	0.75
	LaBelle							1.50				0.75	
	Port LaBelle					0.90						0.50	
Lee	Bonita Springs			10.50				8.56	4.00			11.00	2.00
	Cape Coral							30.00			1.00	32.65	9.00
	Citrus Park – Bonita Terra			0.54								0.20	
	FGUA – Lake Fairways					0.20						0.30	
	FGUA – Lehigh Acres					3.10						2.76	
	Fort Myers							13.00				23.00	15.00
	Lee County Utilities	5.00		8.51		9.41		29.08	5.00	5.00		20.38	
	Pine Island (GPIWA)							3.29					
	Sanibel Island (IWA)							5.99				2.38	
LWC Planning Area Total		**11.67**		**79.53**	**3.00**	**36.54**		**110.02**	**23.27**	**11.67**	**1.00**	**158.7**	**39.70**

ASR = aquifer storage and recovery; FAS = Floridan aquifer system; FGUA = Florida Governmental Utility Authority; GPIWA = Greater Pine Island Water Association; IAS = intermediate aquifer system; IWA = Island Water Association; IWSD = Immokalee Water Sewer District; mgd = million gallons per day; SAS = surficial aquifer system; LWC = Lower West Coast; STOF – Immokalee = Seminole Tribe of Florida Immokalee Reservation.

[a] Estimated recoverable storage capacity, not water supply capacity.

[b] Reclaimed water is not a potable water source in the LWC Planning Area; however, it is an alternative water supply used to reduce reliance on traditional water sources.

[c] Distribution lines, wells, and other infrastructure projects that do not generate additional water supplies are not counted as adding increased capacity.

[d] The Seminole Tribe of Florida is a sovereign Indian Tribe and an independent Tribal Government separate from Collier County. However, for discussion purposes, information relating to the Seminole Tribe of Florida Immokalee Reservation is included in the calculations for Collier County.

Table 8-5. Proposed potable and nonpotable Public Supply development projects in the LWC Planning Area (2020 to 2045).

County	Implementing Agency	Project Name	Project Description	Project Capacity (mgd)	Total Capital ($M)	Estimated Completion Date
Potable – Surface Water						
Collier	Marco Island	Northwest WTP Biological Activated Filter	Construct pre-treatment system	0.00[a]	$5.70	2023
	Marco Island	Northwest WTP Nanofiltration Filtration Improvements	Improvements to WTP	0.00[a]	$10.00	2025
Potable – SAS						
Collier	Collier County Utilities	Northeast Interim WTP (three phases) and NE Lower Tamiami Aquifer Wellfield	Construct interim WTP and wellfield	2.88	$28.80	2032
	Collier County Utilities	New Northeast 3.0 mgd WTP Using Ion Exchange Phase I	Construct 3 mgd ion exchange WTP	3.00	$24.20	2037
Potable – IAS						
Collier	Ave Maria	Sandstone Aquifer Wellfield Expansion (2 wells) Ave Maria	Construct two supply wells	0.00[a]	$3.70	2023
Potable – FAS						
Charlotte	Town and Country	Phase 3 – 2.51 mgd WTP Expansion and Supply Wells (4 wells, 2 IAS, 2 FAS)	Expand WTP to include RO and construct four supply wells	2.51	$27.21	2023
	Town and Country	Phase 4 – 2.50 RO WTP Expansion, Deep Injection Well, and Supply Wells (4 FAS wells)	Expand RO WTP, construct injection well, and construct four supply wells	2.50	$14.14	2027
	Town and Country	Phase 5 – 2.0 mgd RO Expansion and Supply Wells (2 FAS wells)	Expand RO WTP and construct two supply wells	2.00	$14.38	2031
Collier	Ave Maria	2.76 mgd RO WTP Expansion	Expand RO treatment capacity	2.76	$5.00	2031
	Immokalee (IWSD)	New 2.5 mgd RO WTP	Construct new RO WTP	2.50	$12.00	2032
	Collier County Utilities	New 2.0 mgd Northeast WTP – Phase I	Construct new RO WTP	2.00	$24.20	2037

Table 8-5. Continued.

County	Implementing Agency	Project Name	Project Description	Project Capacity (mgd)	Total Capital ($M)	Estimated Completion Date
Lee	Bonita Springs	4.00 mgd Expansion RO WTP – Phase 3 and 12 FAS Wells	Expand RO WTP and construct 12 FAS wells	4.00	$45.00	2024
	Cape Coral	South RO WTP Replacement	Replace RO WTP	0.00[a]	$20.00	2028
	Cape Coral	North RO WTP Backup Deep Injection Well	Construct backup deep injection well	0.00[a]	$9.00	2023
	Cape Coral	North RO WTP New and Replacement FAS Wells	Construct new and replacement FAS supply wells	0.00[a]	$7.20	2025
	Fort Myers	FAS Wellfield Expansion (7 wells)	Construct seven FAS supply wells	0.00[a]	$14.06	2023
	Lee County Utilities	North Lee County WTP and Wellfield Expansion	Expand WTP and FAS wellfield	5.00	$38.88	2025
	Lee County Utilities	Green Meadows RO Wellfield Expansion (4 wells)	Construct four FAS wells	0.00[a]	$4.00	2025
Nonpotable – Reclaimed Water						
Charlotte	Town and Country	Phase 3 – 0.75 mgd WWTF Expansion	Expand WWTF	0.75	$40.00	2026
	Town and Country	Phase 4 – 1.16 mgd WWTF Expansion	Expand WWTF	1.16	$30.00	2029
	Town and Country	Phase 5 – 1.34 mgd WWTF Expansion	Expand WWTF	1.34	$17.00	2033
Collier	Ave Maria	Phase 2 – 1.25 mgd WWTF Expansion	Expand WWTF	1.25	$6.50	2030
	Collier County Utilities	Northeast New 1.50 mgd WWTF	Replace 0.75 with 1.50 mgd WWTF	0.75[b]	$65.00	2030
	Collier County Utilities	Foxfire Reclaimed Water Supplemental Wells	Construct supplemental reclaimed water wells in the Lower Tamiami aquifer	1.00	$1.00	2023
	Collier County Utilities	South County WWTF Supplemental Wells	Construct supplemental reclaimed water wells in the Lower Tamiami aquifer	1.00	$3.00	2030
	Collier County Utilities	Golden Gate 2.5 mgd WWTF Expansion	Expand WWTF	2.50	$86.00	2030
	Everglades City	New Rapid Infiltration Basins	Construct rapid infiltration basins	0.10	TBD	2026
	Everglades City	0.1 mgd Reclaimed Water Production Facility	Pumps and piping for public access reuse system	0.10	$3.00	2029
	Immokalee	3.0 mgd Reclaimed Water Production Facility and Water Main Extension	Reclaimed water production facility (filters and high-level disinfection) extension to Williams Ranch	3.00	$3.40	2027

Table 8-5. Continued.

County	Implementing Agency	Project Name	Project Description	Project Capacity (mgd)	Total Capital ($M)	Estimated Completion Date
Hendry	Clewiston	0.75 mgd Reclaimed Water Production Facility and Water Main Extension	Reclaimed water production facility (filters and high-level disinfection) and main extension	0.75	$0.50	2035
	LaBelle	Reclaimed Water Main Extension to Proposed Golf Course	Construct reclaimed water main extension	0.50	$3.00	2027
Lee	Bonita Springs	East 2.0 mgd WWTF Expansion	Expand WWTF	2.00	$38.00	2028
	Cape Coral	Reclaimed Water Interconnect with Fort Myers	Construct reclaimed water main interconnect with City of Fort Myers	0.00[a]	$11.80	2023
	Cape Coral	Southwest WWTF 5.0 mgd Expansion, 15 to 20 mgd	Expand WWTF	5.00	$60.00	2025
	Cape Coral	New 4.0 mgd North WWTF Phase I	Construct WWTF	4.00	$120.00	2035
	Fort Myers	South WWTF Upgrade to Reuse and Interconnect with Cape Coral	Upgrade WWTF to reuse and interconnect with Cape Coral	9.00	$55.00	2023
	Fort Myers	Central 6.0 mgd WWTF Expansion	Expand WWTF	6.00	$60.00	2026
Nonpotable – ASR						
Lee	Cape Coral	ASR Wells for Irrigation Supply	Excess surface water stored in proposed ASR wells	1.00	$4.00	2027

ASR = aquifer storage and recovery; FAS = Floridan aquifer system; IAS = intermediate aquifer system; IWSD = Immokalee Water Sewer District; mgd = million gallons per day; PS = Public Supply; RO = reverse osmosis; SAS = surficial aquifer system; LWC= Lower West Coast; WTP = water treatment plant; WWTF = wastewater treatment facility.

[a] Distribution lines, wells, and other infrastructure projects that do not generate additional water supplies are not counted as adding increased capacity.

[b] Replacing the existing 0.75 mgd WWTF, increases total capacity by 0.75 mgd.

REFERENCES

FDEP. 2021. *OCULUS Electronic Document Management System*. Florida Department of Environmental Protection, Tallahassee, FL. Available online at https://depedms.dep.state.fl.us/Oculus/servlet/login.

SFWMD. 2021. *Support Document for the 2021-2024 Water Supply Plan Updates*. South Florida Water Management District, West Palm Beach, FL. November 2021.

9

Conclusions and Future Direction

This chapter of the *2022 Lower West Coast Water Supply Plan Update* (2022 LWC Plan Update) provides conclusions and summarizes future direction for water supply in the LWC Planning Area of the South Florida Water Management District (SFWMD or District). This plan update assesses the water demands and available sources through 2045. Water demand is expected to increase by 167.43 million gallons per day (mgd) by 2045, primarily due to increases in the Public Supply (PS) and Landscape/Recreational (L/R), followed to a lesser extent by the Agriculture (AG) water use categories (**Chapter 2**). Water conservation is an important component of integrated water resource management and may reduce, defer, or eliminate the need to expand water supply infrastructure. Water conservation by all users reduces demands and is a component of meeting future water needs (**Chapter 3**).

TOPICS

- Demand Summary
- Demand Management: Water Conservation
- Natural Systems and Resource Protection
- Water Source Options
- Coordination
- Climate Change and Sea Level Rise
- Conclusions

There are several activities planned or under way to meet natural systems water needs, including Comprehensive Everglades Restoration Plan (CERP) projects and changes to lake regulation schedules, that can affect (enhance or limit) future water supplies within the LWC Planning Area (**Chapter 7**). In addition, regulatory criteria designed to protect water resources, including elements identified in minimum flow and minimum water level (MFL) recovery and prevention strategies, place limitations on water available for allocation (**Chapter 4**, **Appendix C**).

Guidance in this 2022 LWC Plan Update should be considered when developing water supply options to meet future needs. Statutory requirements, existing conditions, resource constraints (including protection tools and criteria), and the needs of water users are addressed. All water users are encouraged to continue being prudent with water use decisions and use water efficiently. The SFWMD's recommendations for water supply planning in the LWC Planning Area include continued coordination with AG stakeholders, PS utilities, and other water users; protection of natural resources; diversification of water sources; and continued monitoring of water levels and water quality in surface water and groundwater.

DEMAND SUMMARY

Total average annual demand for all water use categories for 2045 is projected to be 1,179.37 mgd (**Table 9-1**). This is a 16.37% increase from the estimated 2020 demands (1,013,43 mgd) and 3% less than the projected 2040 demands in the 2017 LWC Plan Update.

Table 9-1. Summary of estimated 2020 and projected 2045 gross water demands under average rainfall conditions in the LWC Planning Area by water use category.

Water Use Category	2020 Estimated Use (mgd)	2045 Projected Demand (mgd)	Percent Change	Percent of Projected 2045 Total Demand
PS	138.70	186.82	34.69%	15.84%
DSS	24.27	31.66	30.47%	2.68%
AG	592.02	621.40	4.90%	52.69%
CII	37.73	48.23	27.80%	4.09%
L/R	219.17	289.23	31.96%	24.52%
PG	1.54	2.03	31.80%	0.17%
LWC Planning Area Total	**1,013.43**	**1,179.37**	**16.37%**	**100.0%**

AG = Agriculture; CII = Commercial/Industrial/Institutional; DSS = Domestic Self-Supply; L/R = Landscape/Recreational; mgd = million gallons per day; PG = Power Generation; PS = Public Supply

DEMAND MANAGEMENT: WATER CONSERVATION

Water conservation programs for all water use categories offer the potential to reduce the amount of water needed to meet future demands (**Chapter 3**). All water users are urged to implement water conservation measures to reduce demands and defer construction of capital-intensive projects. The following conservation-related actions are recommended:

- The SFWMD will continue to implement its Comprehensive Water Conservation Program.
- All water users are encouraged to implement water conservation measures and practices that increase water use efficiency to help reduce future demands.
- AG water users are encouraged to install or upgrade to high-efficiency irrigation systems and advanced irrigation technology. More efficient irrigation systems could substantially reduce the amount of water needed to meet future crop demands; however, implementation of such systems can be economically and technically challenging.
- When applicable, AG water users are encouraged to use Florida Automated Weather Network irrigation tools.
- PS utilities are encouraged to develop goal-based water conservation plans and proactively implement water-saving measures and programs, such as incentives to promote replacement of older water fixtures with new high-efficiency ones.
- Local governments should evaluate whether mandated water conservation measures, such as requirements for construction of water-efficient homes and commercial properties, are appropriate for their jurisdiction.

- Local governments should adopt a year-round irrigation ordinance that fully comports with the SFWMD's Mandatory Year-Round Landscape Irrigation Conservation Measures Rule (Chapter 40E-24, Florida Administrative Code). Local governments that have not yet adopted irrigation ordinances include Clewiston, Ft. Myers Beach, Glades County, Hendry County, LaBelle, and Moore Haven.
- Local governments should develop and adopt ordinances to be consistent with Florida-Friendly Landscaping provisions (Section 373.185, Florida Statutes).
- Public education programs can help instill a year-round conservation ethic. Local and tribal governments and PS utilities are encouraged to provide conservation-related educational programs in cooperation with the SFWMD.
- Water users are encouraged to seek cost-share funding opportunities that may be available for water conservation projects.
- Landscape/Recreational (L/R) water users are encouraged to implement advanced irrigation technology, improve landscape design and management practices, and participate in recognition programs (e.g., Florida-Friendly Landscaping program) to further increase landscape water use efficiency.
- Commercial/Industrial/Institutional (CII) entities are encouraged to use the *Water Efficiency and Self-Conducted Water Audits at Commercial and Institutional Facilities, A Guide for Facility Managers* (SFWMD 2013) to improve water use efficiency and reduce operating costs.

NATURAL SYSTEMS AND RESOURCE PROTECTION

Caloosahatchee River Estuary

In addition to the protection of water resources, a wide range of activities related to natural systems can affect future water supplies within the LWC Planning Area. Such activities include construction of CERP projects; changes by the United States Army Corps of Engineers (USACE) to regulation schedules for the Everglades, Lake Okeechobee, and other water bodies; and monitoring and research projects. In addition, regulatory criteria designed to protect water resources and related natural systems, including elements identified in MFL recovery and prevention strategies, can place limitations on water available for allocation (**Chapter 4**, **Appendix C**).

CERP includes water resource development projects to improve the quality, timing, volume, distribution, and delivery of water to the natural system and can enhance water availability for other uses (**Chapter 7**). Future environmental restoration and water resource protection efforts include the following:

- The SFWMD and USACE will continue to make progress towards completion of the C-43 West Basin Storage Reservoir, C-43 Water Quality Treatment Feature (Boma), Picayune Strand Restoration, Lake Okeechobee Watershed Restoration, Lake Hicpochee Storage and Hydrologic Enhancement, and other ecosystem restoration projects.

- The USACE is anticipated to complete and implement the Lake Okeechobee System Operating Manual by 2023. The operating manual considers water needs for the environment among other benefits.
- The SFWMD will continue to partner with the USACE on planning for future CERP projects in the Lake Okeechobee and Caloosahatchee River watersheds as well as the Big Cypress Basin.
- The SFWMD will continue to monitor natural areas, including the Caloosahatchee Estuary, Corkscrew Swamp Sanctuary, the Big Cypress National Preserve, and the Picayune Strand State Forest, and provide annual updates on the ecological health of these areas in the *South Florida Environmental Report* to meet regulatory requirements.
- The SFWMD will continue to implement MFL prevention strategy components for the Caloosahatchee River and LWC aquifers and update them, if needed, in conjunction with future plan updates.

WATER SOURCE OPTIONS

The LWC Planning Area AG users rely primarily on surface water from the C-43 Canal as well as Lake Okeechobee and its connected canals and groundwater where surface water is not available. Fresh groundwater from the surficial aquifer system (SAS) and the intermediate aquifer system (IAS) and brackish water from the Floridan aquifer system (FAS) are the primary sources for PS and other urban and industrial uses (**Chapter 5**).

Withdrawals from the SAS have been maximized in many areas, especially along the coast, due to potential impacts on wetlands, potential for saltwater intrusion into freshwater sources, proximity to contamination sources, rate of recharge, and low aquifer productivity. Therefore, PS utilities are projected to continue increasing use of the IAS and FAS to meet future water demands. Additionally, blending brackish water with fresh water from the SAS or surface water is a practical solution to meet some of the region's AG needs when surface water availability is limited or during freezes. However, the suitability of supplementing water from the FAS may depend on the salt tolerance of the intended crops.

Alternative water supply (AWS) sources, such as reclaimed water, can be used to meet new uses or replace freshwater sources and potable water currently used for irrigation or industrial purposes. Additionally, water storage features such as reservoirs, aquifer storage and recovery (ASR) wells, and impoundments can capture excess stormwater, groundwater, and surface water during wet-weather periods and provide supplemental water supply for AG, PS, natural systems, and other needs during dry periods. Seawater is a potential AWS source as membrane technology costs continue to decline; however, no seawater projects are proposed in this plan update.

In addition, climate change and sea level rise can affect water resources and water demands in the LWC Planning Area. The District, local governments, and water users need to be diligent in proactively understanding potential impacts and developing resiliency strategies, including development of tools to predict potential impacts, in coordinated effort.

The following sections offer guidance for consideration by local governments, water users, and the SFWMD as a basis for the future direction of water supply planning in the LWC Planning Area.

Surface Water

Caloosahatchee River (C-43 Canal)

Surface water is the primary source for the AG water use category in the LWC Planning Area. Surface water supply sources within the LWC Planning Area primarily include the C-43 Canal and Lake Okeechobee with its connected secondary system in the Lake Okeechobee Service Area. Lake Okeechobee borders four water supply planning areas and is formally included in the Lower East Coast Water Supply Plan. Water availability in most of these systems is limited due to restricted allocation area criteria or other protective measures. Additional water storage features could enhance water availability. The following actions should be implemented:

- The SFWMD and USACE will complete the construction of the C-43 West Basin Storage Reservoir and associated project components.
- The SFWMD and USACE will complete and implement the components identified in the Lake Okeechobee Watershed Restoration Project. Part of CERP, this project will increase the watershed's storage capacity and improve the quantity and timing of water deliveries to Lake Okeechobee.
- The USACE will complete rehabilitation of the Herbert Hoover Dike and the Lake Okeechobee System Operating Manual by 2023.
- Local governments, PS utilities, and agricultural operations are encouraged to create additional storage capacity for surface water, where appropriate and feasible.
- AG users are encouraged to consider reducing or augmenting surface water use with options such as stormwater and tailwater recovery, the blending of brackish groundwater with fresh water where available, and more efficient water conservation practices.

Groundwater

Groundwater is the primary source of water for urban needs in the LWC Planning Area, with approximately 35% of the 2020 PS demand met with fresh groundwater from the SAS, 15% from the IAS, and 50% with brackish groundwater from the FAS. This 2022 LWC Plan Update supports the use of reclaimed water for urban irrigation, thereby reducing demands on the potable water system and freshwater resources.

Surficial and Intermediate Aquifer Systems

Development of the SAS and IAS has been maximized in many areas due to the potential harm to water resources and related natural systems, saltwater intrusion, and impacts to existing legal users. At current use rates and locations, water levels in the SAS and IAS appear stable — although there are localized areas within Lee County where the Sandstone and Mid-Hawthorn aquifers are under stress. Potential use of the SAS for new or increased allocations will be evaluated on an application-by-application basis to determine if the project meets the SFWMD's water use permitting criteria. The following actions are suggested:

- Water users are encouraged to reduce reliance on the SAS and IAS by diversifying water sources and developing AWS sources to meet future water demands.
- PS utilities should design wellfield locations, configurations, and pumping regimes to minimize the potential for saltwater intrusion, pollution, harm to natural systems, or increased dependence on the regional system (as demonstrated through modeling).
- PS utilities should continue to expand interconnections with other utilities for supply reliability and assess existing interconnections to confirm they operate as intended.
- The SFWMD, United States Geological Survey (USGS), and local governments should continue coordinating saltwater intrusion monitoring efforts to delineate the location and movement of the saltwater interface and identify areas of concern. The SFWMD will continue to update saltwater interface maps every 5 years.
- The SFWMD will periodically review, maintain, and enhance existing groundwater monitoring networks that collect water level and water quality data.
- The SFWMD will work with appropriate local governments to identify long-term sustainable water supply solutions in Domestic Self-Supply (DSS) areas that are currently or projected to experience aquifer stress.

Floridan Aquifer System

The FAS is expected to be the primary water source to meet increased PS demands. Brackish groundwater from the FAS is considered an AWS source in the LWC Planning Area. The following future actions are suggested:

- Local water users installing FAS wells are encouraged to collaborate with the SFWMD to gather and share hydrogeologic data. Additional data will increase knowledge of aquifer properties and could support updates to future groundwater modeling efforts of the FAS.
- The monitoring networks used to assess the SAS, IAS, and FAS are a hybrid of regional monitoring by agencies, such as the SFWMD and USGS, and monitoring performed by water use permittees as part of their permit requirements. Efforts should be made to identify wells considered critical to long-term monitoring and modeling to ensure they are maintained or replaced, as necessary.
- Local water users, other agencies, local governments, and PS utilities are encouraged to coordinate with the SFWMD to improve ongoing water level and water quality monitoring of the FAS.

- PS utilities should use an incremental approach when installing and testing production wells due to geologic variability within the FAS. Wellfields should be designed and monitored to prevent overstressing production zones and to minimize harmful changes in water quality.
- The SFWMD will continue to work with FAS stakeholders and the Southwest Florida Water Management District to further refine assumptions and data used in groundwater model simulations.
- AG water users are encouraged to consider blending brackish water from the FAS with fresh groundwater or surface water to produce acceptable irrigation-quality water. Blended water supplies depend on crop requirements, water sources, treatment type, volume of stored water, and natural system requirements. These blended supplies require monitoring to ensure acceptable water quality.

Floridan Aquifer System Monitor Well

- Landowners are encouraged to plug and abandon free-flowing inactive or nonfunctional FAS wells in accordance with existing rules and regulations. This will prevent loss of water via free-flowing wells and contamination of the overlying SAS and IAS with more saline water from the FAS.

Reclaimed Water

Reclaimed Water Piping

In the LWC Planning Area, reclaimed water has been an integral part of water supply for over three decades and is used primarily for L/R irrigation, with some used for groundwater recharge, cooling water, and environmental enhancement. Reclaimed water can be used to meet new uses or replace freshwater sources currently used for irrigation and industrial purposes, thereby decreasing the use of traditional freshwater sources. Opportunities to expand reclaimed water use include the following:

- Local governments should consider requiring construction of reclaimed water infrastructure in new development projects. Building codes, ordinances, and land development regulations are options to promote reclaimed water use.
- Local governments and PS utilities should support the installation of additional reclaimed water lines for irrigation of residential lots, road medians, common areas, and golf courses to decrease reliance on traditional freshwater sources and potable water distribution systems. When funds are available, entities are encouraged to apply for AWS grants for “shovel-ready” reclaimed water construction projects.

- Local governments should consider establishing mandatory reuse zones, where reclaimed water use is required by ordinance. The SFWMD can provide technical assistance to local governments who wish to establish mandatory reuse zones.
- PS utilities should consider using substitution credits and impact offsets (Section 373.250, Florida Statutes) during the water use permitting process to promote increased use of reclaimed water.
- Utilities should extend their reclaimed water supply by implementing feasible options such as reclaimed water augmentation, increased storage, residential customer metering, tiered rate structures, limiting landscape irrigation frequency, and interconnects with other reclaimed water utilities.

New Storage Capacity for Surface Water or Groundwater

In the LWC Planning Area, water storage options include reservoirs, ASR wells, and surface water impoundments that capture excess groundwater or surface water for later use. In addition, ASR can be used to store excess potable water and reclaimed water for seasonal or longer-term drought resilience. Proposed projects that develop new storage and create additional water supply may be considered AWS sources. Opportunities for new storage capacity include the following:

- Surface water storage systems (e.g., reservoirs) can help meet environmental, agricultural, and urban water supply needs.
- New or retrofitted surface water storage systems for agricultural operations could provide additional water supply for irrigation but may have limited availability during a 1-in-10-year drought.
- ASR systems can store water during periods of low demand and high-water levels (i.e., during the wet season) for subsequent recovery during dry periods, which could reduce withdrawals from the SAS and IAS wells.

Well Drilling Operation

Seawater

The ocean is an important source of water, but desalination is required before seawater can be used for water supply purposes. Where appropriate, utilities should consider the feasibility of desalinated seawater from the Gulf of Mexico as an additional water source option for the LWC Planning Area.

COORDINATION

Coordination and collaboration among regional and local government agencies and utility planning entities is essential to ensure the supply of water is sufficient and sustainable to meet urban, agricultural, and environmental needs. Examples of coordination activities include the following:

- Water Supply Facilities Work Plans are due within 18 months of approval of this 2022 LWC Plan Update. Local governments must provide linkages and coordination between the SFWMD's plan update and the water supply-related components of their Comprehensive Plans.
- The SFWMD will continue to work with the Florida Department of Agriculture and Consumer Services and AG stakeholders to provide data for annual updates to the Florida Statewide Agricultural Irrigation Demand simulation for future crop acreage and water demand projections.
- The SFWMD will continue to coordinate with utilities, counties, and the USGS to review, recommend improvements, and provide data and analysis for saltwater intrusion monitoring networks.
- Where wellfields are at risk of saltwater intrusion, the SFWMD will work with utilities and counties to identify additional monitoring needs and potential solutions.
- The SFWMD will coordinate with stakeholders on the development and use of regional groundwater and surface water models to evaluate water resource availability.
- The SFWMD will coordinate ongoing activities with the Southwest Florida Water Management District's planning efforts along the SFWMD boundaries.

CLIMATE CHANGE AND SEA LEVEL RISE

Climate change and sea level rise could affect hydrologic conditions, and thus water supply sources, as well as patterns of water demand. Recommendations related to climate change and sea level rise include the following:

- The SFWMD will continue to investigate climate change and sea level rise projection models for use in water supply planning and system operations.
- The SFWMD will continue to support AWS development and promote water conservation to increase the security and diversity of water sources, as withdrawing less water from aquifers helps prevent saltwater intrusion.
- The SFWMD, USACE, and coastal utilities and municipalities should identify methods to evaluate the consequences of climate change and sea level rise and use them to assess the cumulative impacts to existing structures, water resources, and legal users.
- The SFWMD will continue to provide technical assistance to local governments as they develop climate change and sea level rise adaptation strategies.
- Water users should periodically review irrigation schedules and consider installing weather-based controllers.

- PS utilities should plan for climate change and sea level rise by reducing withdrawals from the SAS and by using the IAS and FAS, employing water conservation measures to reduce overall water demands, and expanding reuse programs to reduce potable and self-supplied SAS withdrawals for irrigation.
- Local governments, utilities, and private entities should coordinate on resiliency efforts and development of adaptive strategies to address climate change and sea level rise (e.g., constructing defensive barriers, improving infrastructure, rezoning property threatened by inundation or transferring it to public ownership).

CONCLUSIONS

This 2022 LWC Plan Update concludes that future water needs of the region can continue to be met through 2045 with appropriate management, conservation, and implementation of projects identified herein. Meeting future water needs through 2045 depends on the following:

- Construction of future potable water supply development projects by two PS utilities (Ave Maria and Florida Governmental Utility Authority – Lehigh Acres).
- Implementation of the CERP C-43 West Basin Storage Reservoir and other ecosystem restoration projects.
- Completion of repairs to the Herbert Hoover Dike by the USACE and implementation of the new Lake Okeechobee System Operating Manual.

Successful implementation of this 2022 LWC Plan Update requires close coordination and collaboration with local and tribal governments, utilities, agricultural interests, and other stakeholders. This partnering should ensure water resources in the LWC Planning Area are prudently managed and available to meet future demands while also protecting the environment.

REFERENCES

SFWMD. 2013. *Water Efficiency and Self-Conducted Water Audits at Commercial and Institutional Facilities, A Guide for Facility Managers*. Second Edition. South Florida Water Management District, West Palm Beach, FL.

Glossary

1-in-10-year drought A year in which below normal rainfall occurs with a 90% probability of being exceeded in any other year. It has an expected return frequency of once in 10 years.

1-in-10-year level of certainty (see *Level of Certainty*)

Acre-foot, acre-feet The volume of water that covers 1 acre (43,560 square feet) to a depth of 1 foot. The equivalent of 43,560 cubic feet, 1,233.5 cubic meters, or 325,872 gallons.

Agricultural best management practice (Agricultural BMP) A practice or combination of agricultural practices, based on research, field testing, and expert review, determined to be the most effective and practicable means of improving water quality or quantity while maintaining or even enhancing agricultural production.

Agricultural Field-Scale Irrigation Requirements Simulation (AFSIRS) A water budget model for calculating irrigation demands that estimates demand based on basin-specific data. The AFSIRS model calculates both net and gross irrigation requirements for average and 1-in-10-year drought irrigation requirements. A crop's net irrigation requirement is the amount of water delivered to the root zone of the crop, while the gross irrigation requirement includes both the net irrigation requirement and the losses incurred in the process of delivering irrigation to the crop's root zone.

Agriculture (AG) Self-supplied water used for commercial crop irrigation, greenhouses, nurseries, livestock watering, pasture, and aquaculture.

Alternative water supply Salt water; brackish surface water and groundwater; surface water captured predominately during wet-weather flows; sources made available through the addition of new storage capacity for surface water or groundwater; water that has been reclaimed after one or more public 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 planning region in the applicable regional water supply plan (Section 373.019, Florida Statutes [F.S.]).

Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District **(Applicant's Handbook)** Read in conjunction with Chapter 40E-2, Florida Administrative Code (F.A.C.), the Applicant's Handbook further specifies the general procedures and criteria used by SFWMD staff for review of water use permit applications to ensure water uses permitted by the SFWMD are reasonable-beneficial, do not interfere with existing legal users, and are in the public interest.

Aquifer A geologic formation, group of formations, or part of a formation that contains sufficient saturated, permeable material to yield significant quantities of water to wells and springs.

Aquifer storage and recovery (ASR) The underground storage of potable water, stormwater, surface water, fresh groundwater, or reclaimed water, which is appropriately treated to potable standards and injected into an aquifer through wells. The aquifer (typically the Floridan aquifer system in South Florida) acts as an underground reservoir for the injected water, reducing water loss to evaporation.

Aquifer system A heterogeneous body of (interbedded or intercalated) permeable and less permeable material that functions regionally as a water-yielding hydraulic unit and may be composed of more than one aquifer separated at least locally by confining units that impede groundwater movement, but do not greatly affect the hydraulic continuity of the system.

Average rainfall year A year having rainfall with a 50% probability of being exceeded over a 12-month period.

Base condition A specified period of time during which collected data are used for comparison with subsequent data.

Basin There are two types of basins: 1) a groundwater basin is a hydrologic unit consisting of one large aquifer, or several connecting and interconnecting aquifers; and 2) a surface water basin is a tract of land drained by a surface water body or its tributaries.

Below land surface Depth below land surface regardless of land surface elevation.

Boulder Zone A highly transmissive, cavernous zone of dolomite within the Lower Floridan aquifer used to dispose of secondary-treated effluent from wastewater treatment facilities and concentrate from membrane water treatment plants via deep injection wells.

Brackish water Water with a chloride concentration greater than 250 milligrams per liter (mg/L) and less than 19,000 mg/L.

Canal A manmade waterway used for draining or irrigating land or for navigation by boat.

Capacity The ability to treat, move, or reuse water. Typically, capacity is expressed in millions of gallons per day (mgd).

Central and Southern Florida Flood Control Project (C&SF Project) A complete system of canals, storage areas, and water control structures spanning the area from Lake Okeechobee to the east and west coasts and from Orlando south to the Everglades. It was designed and constructed during the 1950s by the United States Army Corps of Engineers (USACE) to provide flood control and improve navigation and recreation.

Commercial/Industrial/Institutional (CII) Self-supplied water associated with the production of goods or provision of services by industrial, commercial, or institutional establishments.

Comprehensive Everglades Restoration Plan (CERP) The federal-state partnership framework and guide for the restoration, protection, and preservation of the South Florida ecosystem. CERP also provides for water-related needs of the region, such as water supply and flood protection.

Confined aquifer An aquifer containing groundwater that is confined under pressure and bounded between substantially less permeable materials such that water will rise in a fully penetrating well above the top of the aquifer. In cases where the hydraulic head is greater than the elevation of the overlying land surface, a fully penetrating well will naturally flow at the land surface without means of pumping or lifting.

Confining unit A body of significantly less permeable material than the aquifer, or aquifers, that it stratigraphically separates. The hydraulic conductivity may range from nearly zero to some value significantly lower than that of the adjoining aquifers, and impedes the vertical movement of water.

Conservation (see *Water conservation*)

Consumptive use Any use of water that reduces the supply from which it is withdrawn or diverted**.**

Control structure An artificial structure designed to regulate the level/flow of water in a canal or other water body (e.g., weirs, dams).

Cubic feet per second (cfs) A rate of flow (e.g., in streams and rivers) equal to a volume of water 1 foot high and 1 foot wide flowing a distance of 1 foot in 1 second. One cfs is equal to 7.48 gallons of water flowing each second.

DBHYDRO The SFWMD's corporate environmental database, storing hydrologic, meteorologic, hydrogeologic, and water quality data.

Demand The quantity of water needed to fulfill a requirement.

Demand management Reducing the demand for water through activities that alter water use practices, improve efficiency in water use, reduce losses of water, reduce waste of water, alter land management practices, and/or alter land uses.

Dike An embankment to confine or control water, especially one built along the banks of a river or lake to prevent overflow of lowlands; a levee.

Discharge The rate of water movement past a reference point, measured as volume per unit of time (usually expressed as gallons per minute, cubic feet per second, or cubic meters per second).

Disinfection The process of inactivating microorganisms that cause disease. All potable water requires disinfection as part of the treatment process prior to distribution. Disinfection methods include chlorination, ultraviolet radiation, and ozonation.

Disposal Effluent disposal involves the practice of releasing treated effluent back to the environment using ocean outfalls, surface water discharges, or deep injection wells.

Domestic Self-Supply (DSS) Potable water used by households served by small utilities (less than 0.10 mgd) or self-supplied by private wells.

Domestic wastewater Wastewater derived principally from residential dwellings, commercial buildings, and institutions; sanitary wastewater; sewage.

Drainage basin The land area where precipitation ultimately drains to a particular watercourse (e.g., river, stream) or body of water (e.g., lake, reservoir). Drainage basins in South Florida are defined by rule and periodically are redefined to reflect changes in the regional drainage network.

Drawdown 1) The vertical distance between the static water level and the surface of the cone of depression. 2) A lowering of the groundwater surface caused by pumping.

Drought A long period of abnormally low rainfall, especially one that reduces water supply availability.

Ecology The study of the inter-relationships of plants and animals to one another and to their physical and biological environment.

Ecosystem Biological communities together with their environment, functioning as a unit.

Ecosystem restoration The process of reestablishing to as near its natural condition as possible, the structure, function, and composition of an ecosystem.

Elevation The height in feet above mean sea level according to National Geodetic Vertical Datum of 1929 (NGVD29) or North American Vertical Datum of 1988 (NAVD88). May also be expressed in feet above mean sea level as reference datum.

Environmental impact statement An evaluation of the positive and negative environmental effects of a proposed agency action required under United States environmental law by the National Environmental Policy Act for federal government agency actions "significantly affecting the quality of the human environment."

Estuary A body of water found where a river meets the ocean that is characterized by fresh water mixing with salt water.

Evapotranspiration (ET) The total loss of water to the atmosphere by evaporation from land and water surfaces and by transpiration from plants.

Exceedance The violation of the pollutant levels permitted by environmental protection standards.

Exceedance (MFL) As defined in Rule 40E-8.021(17), F.A.C., to fall below a minimum flow or level, which is established in Parts II and III of Chapter 40E-8, F.A.C, for a duration greater than specified for the MFL water body.

Finished water Water that has undergone a purification or treatment process; water that has passed through all the processes in a water treatment plant and is ready to be delivered to consumers. Contrast with *Raw water*.

Finished water demand (see *Net water demand*)

Fiscal Year (FY) The South Florida Water Management District's fiscal year begins on October 1 and ends on September 30 the following year.

Florida Administrative Code (F.A.C.) The Florida Administrative Code is the official compilation of the administrative rules and regulations of state agencies.

Florida Department of Agriculture and Consumer Services (FDACS) An executive department of the Government of Florida. FDACS supports and promotes Florida agriculture, protects the environment, safeguards consumers, and ensures the safety and wholesomeness of food.

Florida-Friendly Landscaping Quality landscapes that conserve water, protect the environment, are adaptable to local conditions, and are drought tolerant. The principles of such landscaping include planting the right plant in the right place, efficient watering, appropriate fertilization, mulching, attraction of wildlife, responsible management of yard pests, recycling yard waste, reduction of stormwater runoff, and waterfront protection.

Florida Statutes (F.S.) The Florida Statutes are a permanent collection of state laws organized by subject area into a code made up of titles, chapters, parts, and sections. The Florida Statutes are updated annually by laws that create, amend, or repeal statutory material.

Floridan aquifer system (FAS) A highly used, deep aquifer system composed of the Upper and Lower Floridan aquifers. It is the principal source of water supply north of Lake Okeechobee and is highly mineralized south of the lake, requiring membrane treatment prior to use.

Flow The actual amount of water flowing by a particular point over some specified time. In the context of water supply, flow represents the amount of water being treated, moved, or reused. Flow is frequently expressed in millions of gallons per day (mgd).

Fresh water An aqueous solution with a chloride concentration less than or equal to 250 mg/L.

Geologic unit A geologic unit is a volume of rock or ice of identifiable origin and age range that is defined by the distinctive and dominant, easily mapped and recognizable petrographic, lithologic, or paleontologic features that characterize it.

Gross (raw) water demand The amount of water withdrawn from a water resource to meet a particular need of a water user or customer. Gross demand is the amount of water allocated in a water use permit. Gross or raw water demands are nearly always higher than net or user/customer water demands to account for treatment and distribution losses.

Groundwater Water beneath the surface of the ground, whether or not flowing through known and definite channels. Specifically, that part of the subsurface water in the saturated zone, where the water is under pressure greater than the atmosphere.

Groundwater recharge (see *Recharge*)

Harm As defined in Chapter 40E-8, F.A.C., the temporary loss of water resource functions that results from a change in surface or groundwater hydrology and takes a period of one to two years of average rainfall conditions to recover.

Headwater(s) 1) Water that is typically of higher elevation (with respect to tailwater) or on the controlled side of a structure. 2) The waters at the highest upstream point of a natural system that are considered the major source waters of the system.

Hydrogeologic unit Any rock unit or zone that because of its hydraulic properties has a distinct influence on the storage or movement of groundwater.

Hydrogeology The geology of groundwater, with emphasis on the chemistry and movement of water.

Hydrologic condition(s) The state of an area pertaining to the amount and timing of water present.

Hydrologic model A conceptual or physically based procedure for numerically simulating a process or processes that occur in a watershed.

Hydrology The scientific study of the properties, distribution, and effects of water on the earth's surface, in the soil and underlying rocks, and in the atmosphere.

Impoundment Any lake, reservoir, or other containment of surface water occupying a depression or bed in the earth's surface and having a discernible shoreline.

Infiltration The movement of water through the soil surface into the soil under the forces of gravity and capillarity.

Inflow 1) The act or process of flowing in or into. 2) The measured quantity of water that has moved into a specific location.

Injection well Refers to a well constructed to inject treated wastewater directly into the ground. Wastewater is generally forced (pumped) into the well for dispersal or storage in a designated aquifer. Injection wells are generally drilled below freshwater levels, or into unused aquifers or aquifers that do not contain drinking water.

Irrigation The application of water to crops and other plants by artificial means to supplement rainfall.

Landscape irrigation The outside watering of shrubbery, trees, lawns, grass, ground covers, vines, gardens, and other such flora, not intended for resale, which are planted and are situated in such diverse locations as residential and recreational areas, cemeteries, public, commercial and industrial establishments, and public medians and rights-of-way.

Landscape/Recreational (L/R) Self-supplied and reclaimed water used to irrigate golf, courses, sports fields, parks, cemeteries, and large common areas such as land managed by homeowners' associations and commercial developments.

Levee An embankment to prevent flooding or a continuous dike or ridge for confining the irrigation areas of land to be flooded.

Level of certainty A water supply planning goal to assure at least a 90% probability during any given year that all the needs of reasonable-beneficial water uses will be met, while sustaining water resources and related natural systems during a 1-in-10-year drought event.

Marsh A frequently or continually inundated unforested wetland characterized by emergent herbaceous vegetation adapted to saturated soil conditions.

Million gallons per day (mgd) A rate of flow of water equal to 133,680.56 cubic feet per day, 1.5472 cubic feet per second, or 3.0689 acre-feet per day. A flow of one million gallons per day for one year equals 1,120 acre-feet (365 million gallons).

Minimum flow and minimum water level (MFL) A flow or level established by the SFWMD pursuant to Sections 373.042 and 373.0421, F.S., for a given water body, at which further withdrawals would be significantly harmful to the water resources or ecology of the area.

Mobile irrigation lab (MIL) A vehicle furnished with irrigation evaluation equipment that is used to carry out on-site evaluations of irrigation systems and to provide recommendations on improving irrigation efficiency.

Model Models are used for evaluating, planning, and simulating the implementation of operations within the SFWMD's water management system under different climatic and hydrologic conditions. Water quality and ecological models are also used to evaluate other processes vital to the health of ecosystems. Groundwater flow models are a numerical representation of water flow and water quality within an aquifer or aquifer system.

Monitor well Any human-made excavation by any method to monitor fluctuations in groundwater levels, quality of underground waters, or the concentration of contaminants in underground waters.

National Geodetic Vertical Datum of 1929 (NGVD29) A geodetic datum derived from a network of information collected in the United States and Canada. It was formerly called the "Sea Level Datum of 1929" or "mean sea level." As technology has improved and the demand for greater accuracy increased, inherent inaccuracies were uncovered in NGVD29. As a result, NGVD29 has been superseded by the North American Vertical Datum (NAVD) of 1988.

Natural system(s) A self-sustaining living system that supports an interdependent network of aquatic, wetland-dependent, and upland living resources.

Outflow The measured quantity of water that has left an area or water body (through pumping or gravity) during a certain period of time.

Per capita use 1) The average amount of water used per person during a standard time period, generally per day. 2) Total use divided by the total population served.

Permeability The capacity of a porous rock, sediment, or soil for transmitting a fluid.

Planning Area The SFWMD is divided into five areas within which planning activities are focused: Upper Kissimmee Basin (part of the Central Florida Water Initiative), Lower Kissimmee Basin, Upper East Coast, Lower West Coast, and Lower East Coast.

Potable water Water that is suitable for drinking, culinary, or domestic purposes.

Potentiometric head The level to which water will rise when a well is placed in a confined aquifer.

Power Generation (PG) The difference in the amount of water withdrawn by electric power generating facilities for cooling purposes and the water returned to the hydrologic system near the point of withdrawal.

Priority Water Bodies List and Schedule Required in Section 373.042(2), F.S. of the state's five water management districts to provide the Florida Department of Environmental Protection with an annual list and schedule of specific surface waters and groundwaters with minimum flows and levels and water reservation rules that will be adopted to protect them from the effects of consumptive use allocations.

Process water Water used for nonpotable industrial use, e.g., mixing cement.

Public Supply (PS) Water supplied by water treatment facilities for potable use (drinking quality) with projected average pumpages greater than 0.10 million gallons per day.

Public Supply (PS) demand All potable (drinking quality) water supplied by water treatment plants with projected average pumpages of 0.10 million gallons per day or greater to all types of customers, not just residential.

Rapid infiltration basin A disposal method by which treated wastewater is applied in deep and permeable deposits of highly porous soils for percolation.

Raw water 1) Water that is direct from the source—groundwater or surface water—without any treatment. 2) Untreated water, usually that entering the first unit of a water treatment plant. Contrast with *Finished Water*.

Raw water demand The amount of water that must be withdrawn from the groundwater or surface water system to meet a particular need. Withdrawal demands are almost always higher than user/customer demands because of treatment and process losses, and inefficiencies associated with delivering water from the source to the end user.

Reasonable-beneficial use Use of water in such quantity as is needed for economic and efficient use for a purpose, which is both reasonable and consistent with the public interest.

Recharge (groundwater) The natural or intentional infiltration of surface water or reclaimed water into the ground to raise groundwater levels.

Reclaimed water Water that has received at least secondary treatment and basic disinfection and is reused after flowing out of a domestic wastewater treatment facility (Rule 62-610.200, F.A.C.).

Recovery The rate and extent of return of a natural population or community to some aspect(s) of its previous condition. Because of the dynamic nature of ecological systems, the attributes of a "recovered" system should be carefully defined.

Reservoir An artificial or natural water body used for water storage. Reservoirs can be above or below ground.

Restoration The recovery of a natural system's vitality and biological and hydrological integrity to the extent that the health and ecological functions are self-sustaining over time.

Restricted allocation area An area designated within the South Florida Water Management District boundaries for which allocation restrictions are applied regarding the use of specific sources of water. The water resources in these areas are managed in response to specific sources of water in the area for which there is a lack of water availability to meet the projected needs of the region from that specific source of water.

Retrofit 1) Indoor: The replacement of existing water fixtures, appliances, and devices with more efficient fixtures, appliances, and devices for the purpose of water conservation. 2) Outdoor: The replacement or changing out of an existing irrigation system with a more efficient irrigation system, such as a conversion from an overhead sprinkler system to a micro-irrigation system. May also include rain or soil moisture sensors to increase efficiency.

Reuse The deliberate application of reclaimed water for a beneficial purpose. Criteria used to classify projects as "reuse" or "effluent disposal" are contained in Rule 62-610.810, F.A.C. The term "reuse" is synonymous with "water reuse."

Reverse osmosis A treatment process for desalting water using applied pressure to drive the feed water (source water) through a semipermeable membrane.

Rule(s) Of or pertaining to the SFWMD's regulatory programs, which are set forth in various statutes, codes, and criteria.

Runoff That component of rainfall, which is not absorbed by soil, intercepted and stored by surface water bodies, evaporated to the atmosphere, transpired and stored by plants, or infiltrated to groundwater, but which flows to a watercourse as surface water flow.

Salinity Of or relating to chemical salts, usually measured in milligrams per liter (mg/L), or practical salinity units.

Salt water (see *Seawater or Salt water*)

Saltwater interface The hypothetical surface of chloride concentration between fresh water and seawater where the chloride concentration is 250 mg/L at each point on the surface.

Saltwater intrusion The invasion of a body of fresh water by a body of salt water due to its greater density. It can occur either in surface water or groundwater bodies. The term is applied to the flooding of freshwater marshes by seawater, the upward migration of seawater into rivers and navigation channels, and the movement of seawater into freshwater aquifers along coastal regions.

Seawater or **Salt water** Water with a chloride concentration at or above 19,000 mg/L.

Seepage The passage of water or other fluid through a porous medium, such as the passage of water through an earth embankment or masonry wall. Groundwater emerging on the face of a stream bank; the slow movement of water through small cracks, pores, interstices, etc., of a material into or out of a body of surface or subsurface water.

Seminole Tribe of Florida A federally recognized Indian Tribe organized pursuant to Section 16 of the Indian Reorganization Act of 1934 and recognized by the State of Florida pursuant to Chapter 285, Florida Statutes.

Serious harm As defined in Chapter 40E-8, F.A.C., the long-term, irreversible, or permanent loss of water resource functions resulting from a change in surface water or groundwater hydrology.

Service area The geographical region in which a water supplier has the ability and the legal right to distribute water for use.

Significant harm As defined in Chapter 40E-8, F.A.C., the temporary loss of water resource functions that results from a change in surface water or groundwater hydrology and takes more than 2 years to recover, but which is considered less severe than serious harm.

Stormwater Water that does not infiltrate but accumulates on land as a result of storm runoff, snowmelt, irrigation, or drainage from impervious surfaces.

Stormwater discharge Precipitation runoff from roadways, parking lots, and roof drains that is collected in gutters and drains. A major source of nonpoint source pollution to water bodies and sewage treatment facilities in municipalities where stormwater is combined with the flow of domestic wastewater (sewage) before entering the wastewater treatment facility.

Stormwater treatment area (STA) A system of constructed water quality treatment wetlands that use natural biological processes to reduce levels of nutrients and pollutants from surface water runoff.

Surface water Water above the soil or substrate surface, whether contained in bounds, created naturally or artificially, or diffused. Water from natural springs is classified as surface water when it exits from the spring onto the earth's surface.

Surficial aquifer system (SAS) Often the principal source of water for urban uses. This aquifer is unconfined, consisting of varying amounts of limestone and sediments that extend from the land surface to the top of an intermediate confining unit.

Treatment facility Any facility or other works used for the purpose of treating, stabilizing, or holding water or wastewater.

Tributary A stream that flows into a larger stream or other body of water.

United States Army Corps of Engineers (USACE) As part of the Department of the Army, the USACE has responsibilities in civil and military areas. In civil works, the USACE has authority for approval of dredge and fill permits in navigable waters and tributaries thereof; the USACE enforces wetlands regulations, and constructs and operates a variety of water resources projects, mostly notably levee, dams, and locks.

United States Geological Survey (USGS) The federal agency chartered in 1879 by Congress to classify public lands, and to examine the geologic structure, mineral resources, and products of the national domain. As part of its mission, the USGS provides information and data on the nation's rivers and streams that are useful for mitigation of hazards associated with floods and droughts.

Utility Any legal entity responsible for supplying potable water for a defined service area.

Violation (MFL) As defined in Rule 40E-8.021(18), F.A.C., to fall below an adopted minimum flow or level criterion for a duration and frequency greater than specified for the MFL water body. Unless otherwise specified herein, in determining the frequency with which water flows and levels fall below an established MFL for purposes of determining an MFL violation, a "year" means 365 days from the last day of the previous MFL exceedance.

Wastewater The combination of liquid and water-carried pollutants from residences, commercial buildings, industrial plants, and institutions together with any groundwater, surface runoff, or leachate that may be present.

Water conservation The permanent, long-term reduction of daily water use. Permanent water use reduction requires the implementation of water saving technologies and measures that reduce water use while satisfying consumer needs. Water conservation is considered a demand management measure because it reduces the need for future expansion of water supply infrastructure (see *Demand management*).

Water conservation rate structure A water rate structure designed to conserve water. Examples of conservation rate structures include increasing block rates, seasonal rates, and quantity-based surcharges.

Water management The general application of practices to obtain added benefits from precipitation, water or water flow in any of a number of areas, such as irrigation, drainage, wildlife and recreation, navigation, water supply, watershed management, and water storage in soil for crop production. Watershed management is the analysis, protection, development, operation, or maintenance of the land, vegetation, and water resources of a drainage basin for the conservation of all its resources for the benefit of its residents. Watershed management for water production is concerned with the quality, quantity and timing of the water which is produced.

Water quality 1) A term used to describe the chemical, physical, and biological characteristics of water, usually in respect to its suitability for a particular purpose. 2) The physical, chemical, and biological condition of water as applied to a specific use. Federal and state guidelines set water quality standards based on the water's intended use, whether it is for recreation, fishing, drinking, navigation, shellfish harvesting, or agriculture.

Water reservation A legal mechanism to set aside water for the protection of fish and wildlife or the public health and safety from consumptive water use. The reservation is composed of a quantification of the water to be protected, which includes a seasonal and a location component.

Water resource development The formulation and implementation of regional water resource management strategies, including collection and evaluation of surface water and groundwater data; structural and nonstructural programs to protect and manage the water resources; development of regional water resource implementation programs; construction, operation and maintenance of major public works facilities to provide for flood control, surface and groundwater storage, and groundwater recharge augmentation; and related technical assistance to local governments and to government-owned and privately owned water utilities (Section 373.019, F.S.).

Water reuse (see *Reuse*)

Watershed A region or area bounded peripherally by a water parting and draining ultimately to a particular watercourse or body of water. Watersheds conform to federal hydrologic unit code standards and can be divided into subwatersheds and further divided into catchments, the smallest water management unit recognized by SFWMD Operations. Unlike drainage basins, which are defined by Rule, watersheds are continuously evolving as the drainage network evolves.

Water Shortage Plan(s) This effort includes provisions in Chapters 40E-21 and 40E-22, F.A.C., and identifies how water supplies are allocated to users during declared water shortages. The plan allows for supply allotments and cutbacks to be identified on a weekly basis based on the water level within Lake Okeechobee, demands, time of year, and rainfall forecasts.

Water supply development The planning, design, construction, operation, and maintenance of public or private facilities for water collection, production, treatment, transmission, or distribution for sale, resale, or end use (Section 373.019, F.S.).

Water Supply Plan Detailed water supply plan developed by the water management districts under Section 373.709, F.S., providing an evaluation of available water supply and projected demands at the regional scale. The planning process projects future demand for at least 20 years and recommends projects to meet identified needs.

Water table The surface of a body of unconfined groundwater at which the pressure is equal to that of the atmosphere; defined by the level where water within an unconfined aquifer stands in a well.

Water use Any use of water that reduces the supply from which it is withdrawn or diverted.

Water use permitting The issuance of permits by the South Florida Water Management District, under the authority of Chapter 40E-2, F.A.C., allowing a specified quantity of water withdrawal for consumptive use over a specified time period.

Wellfield One or more wells producing water from a groundwater source. A tract of land that contains a number of wells for supplying a large municipality or irrigation district.

Wetland An area that is inundated or saturated by surface water or groundwater with vegetation adapted for life under those soil conditions (e.g., swamps, bogs, marshes).

Withdrawal Water removed from a groundwater or surface water source for use.

Yield The quantity of water (expressed as rate of flow or total quantity per year) that can be collected for a given use from surface or groundwater sources.

ATTACHMENT 3

2023 Lee County Water Supply Facilities Work Plan

2023 LEE COUNTY
WATER SUPPLY FACILITIES WORK PLAN

Lee County
Southwest Florida

December 2023

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1.0 INTRODUCTION

The purpose of the Lee County Water Supply Facilities Work Plan (Work Plan) is to identify and plan for the water supply sources and facilities needed to serve existing and new development within LEE COUNTY'S jurisdiction. Chapter 163, Part II, Florida Statutes (F.S.), requires local governments to prepare and incorporate 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 South Florida Water Management District's 2022 Lower West Coast Regional Water Supply Plan Update (LWCWSP) was approved by the District's Governing Board on December 8, 2022.

Residents of unincorporated LEE COUNTY obtain their water from the following public water supply Utilities:

- Lee County Utilities (Serves a portion of the Village of Estero and the City of Ft. Myers)
- Florida Government Utility Authority (Lehigh Acres and Lake Fairways)
- Greater Pine Island Water Authority
- Island Water Association (Serves a portion of unincorporated Lee County)
- Bonita Springs Utilities (Serves a portion of unincorporated Lee County and the Village of Estero)
- Gasparilla Island Water Association (Serves a portion of unincorporated Lee County)

These public water supply utilities ensure enough capacity is available for existing and future customers. Other public water supply utilities within Lee County exclusively serve the incorporated areas and are responsible for their work plans.

This Work Plan will reference the initiatives already identified to ensure adequate water supply for LEE COUNTY. According to state guidelines, this Work Plan and the comprehensive plan must address the development of traditional and alternative water supplies, service delivery, conservation, and reuse programs necessary to serve existing and new development for at least a 10-year planning period. This Work Plan has a planning schedule consistent with the comprehensive plan and the LWCWSP Update.

This Work Plan is divided into seven sections:
Section 1 – Introduction
Section 2 – Background Information
Section 3 – Data and Analysis
Section 4 – Work Plan Projects/Capital Improvement Element/Schedule
Section 5 – Goals, Objectives, and Policies
Section 6 – Regional Issues
Section 7 – Summary Analysis of Lee County's Water Supply

1.1 Statutory History

The Florida Legislature has enacted bills 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, 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 Statutory Requirements

LEE COUNTY has considered the following statutory provisions when updating the Water Supply Facilities Work Plan (Work Plan):

1. Coordinate appropriate aspects of its comprehensive plan with the South Florida Water Management District's LWCWSP [163.3177(4) (a), F.S.].

2. Ensure the future land use plan is based upon the 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. For local governments subject to a regional water supply plan, revise the General Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Aquifer Recharge Element (the "Infrastructure Element"), within 18 months after the water management district approves an updated regional water supply plan, to:

a. Identify and incorporate the alternative water supply project(s) selected by the local government from projects identified in the South Florida Water Management District's 2022 LWCWSP, 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 South Florida Water Management District's LWCWSP. [s. 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 [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, maintain the Conservation Element to assess projected water needs and sources for at least a 10-year planning period, considering the South Florida Water Management District's 2022 LWCWSP, 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 South Florida Water Management District's LWCWSP [s.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 their 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.].

2.0 BACKGROUND INFORMATION

Included in this section is a brief overview of LEE COUNTY, including information on land use and population.

2.1 Overview

Lee County is located in Southwest Florida, where it is bordered by Charlotte Harbor and the Gulf of Mexico on the west and by Charlotte, Hendry, and Collier counties on the north, east, and south, respectively. (See Figure 2-1). The county was established from Monroe County in 1887. The Caloosahatchee River bisects the county. Lee County has 237 square miles of inland water and 172 square miles of coastal/territorial water. The county has a total land area of 804 square miles. Its population in 2022 was 802,178, growing 29.6% from 2010 (Florida Legislative Office of Economic and Demographic Research). During season, winter residents may increase the Region's population by 22% (Southwest Florida Regional Planning Council, Strategic Regional Policy Plan). In addition, in the calendar year 2022, Lee County hosted an estimated 4.4 million total visitors (Lee County VCB 2022 Annual Report). Table 2-1 shows the University of Florida's Bureau of Economic and Business Research population estimates for Lee County and what percentage the unincorporated and incorporated areas represent.

TABLE 2-1
BEBR 2022 Population Estimates

Lee County (overall)	802,178	
Unincorporated Lee County	391,952	48.86%
City of Cape Coral	208,053	25.94%
City of Fort Myers	96,755	12.06%
City of Bonita Springs	55,502	6.92%
Village of Estero	37,842	4.72%
City of Sanibel	6,485	0.81%
Town of Fort Myers Beach	5,589	0.70%

Figure 2-1 Lee County Location Map

2.2 Relevant Regional Issues

This section presents a brief narrative discussing the overarching regional issues impacting water supply planning at the local level, such as the Regional Availability of Water Rule or the Central Florida Water Initiative (CFWI) planning effort. The issues are listed below.
The Summary of Issues identified for 2045 from the South Florida Water Management District's 2022 Lower West Coast Water Supply Plan, Chapter 6: Water Resource Issues and Analysis are as follows:

Traditional freshwater sources in the LWC Planning Area are not sufficient to meet 2020 and 2045 projected water use demands. Past analyses indicate that fresh groundwater from the SAS and IAS, and surface water from the Caloosahatchee River Basin are not adequate to meet the growing needs of the LWC Planning Area during 1-in-10-year drought conditions. As stated in Chapter 5, because development of the SAS and IAS has been maximized in many areas, most utilities have already tapped the deeper FAS to meet portions of current demands, and most of their increased needs in the future. The following water supply issues continue to influence water supply planning efforts in the LWC Planning Area:

1. *Increased withdrawals from the SAS and the freshwater portions of the IAS are generally limited due to potential impacts on wetlands and existing legal water uses, including Domestic Self-Supply (DSS); the potential for saltwater intrusion; and the possibility of reaching aquifer maximum developable limits (MDLs). New or increased allocations will be evaluated on an application-by-application basis to determine if a project meets water use permitting criteria.*
    a. *In some areas, such as Cape Coral and Lehigh Acres, cumulative demands are negatively affecting aquifer water levels.*
2. *Increases in surface water allocations from Lake Okeechobee and hydraulically connected surface waters are limited by the Lake Okeechobee Service Area (LOSA) restricted allocation area (RAA) criteria. Water availability from Lake Okeechobee is discussed comprehensively in the Lower East Coast Water Supply Plan.*
3. *Peak freshwater discharges of surface water during the wet season are affecting the health of the Caloosahatchee River Estuary. Additional storage is required in the basin and in the regional system to attenuate damaging peak flow events.*
4. *During dry conditions, surgace water availabililty and current storage capacity sometimes are insufficient to meet water demands and environmental needs for the C-43 Canal and Caloosahatchee River Estuary.*
5. *Withdrawals from the FAS are expected to increase to meet future demands. Monitoring water levels and water quality in the FAS will be needed to ensure long-term sustainability of the resource.*
6. *Climate change and sea level rise could impact the availability of freshwater resources in the LWC Planning area.*

3.0 DATA AND ANALYSIS

The intent of this section of the Work Plan is to describe information Lee County needs to provide to the state planning and regulatory agencies as part of proposed comprehensive plan amendments, particularly those changing the Future Land Use Map (FLUM) to increase density and intensity.

3.1 Population Information

This section provides information regarding the population for Lee County Utilities. Population information for other water supply utilities within unincorporated Lee County will be presented in Section 3.4.

In 2019, Lee County Utilities (LCU) completed a Water Master Plan (WMP). The plan projected water system demands to 2040 and identified all necessary improvements to the water system facilities over a 20-year planning horizon. The Lee County Planning Department developed the projection for the WMP. In December 2022, the South Florida Water Management District (SFWMD) completed their Lower West Coast Water Supply Plan (LWCWSP). LCU participated with the SFWMD throughout the processes of developing the LWCWSP. LCU personnel worked with SFWMD staff during the development of the population and demand projections for LCU's service area. This coordination resulted in a population and demand projection for LCU's service area that reflects the changing growth patterns from the 2019 WMP. The population projection included in the WMP and the LWCWSP are summarized in Table 3-1.

TABLE 3-1
Lee County Utilities
Potable Water Service Area
Population Projections

Year	WMP	SFWMD	Difference
2020	247,423	273,284	10.1%
2025	267,119	295,691	10.7%
2030	288,418	309,828	7.4%
2035	311,455	322,221	3.5%
2040	336,374	334,614	-0.5%
2045	N/A	347,999	N/A

Source: LCU 2019 WMP & 2022 LWCWSP

3.2 Maps of Current and Future Areas Served

Figure 3-1 shows the service areas of water supply utilities within unincorporated Lee County. A more detailed map of Lee County Utilities service area is shown in Figure 3-2. More detailed service area maps of other water supply utilities will be presented in Section 3.6, Water Supply Provided by Other Entities. In addition to the water supply utilities shown in Figure 3-1, there are several smaller water supply utilities within unincorporated Lee County. The service areas of these smaller utilities will also be presented in Section 3.6.

Figure 3-1
Water Suppliers Service Areas in Un-Incorporated Lee County

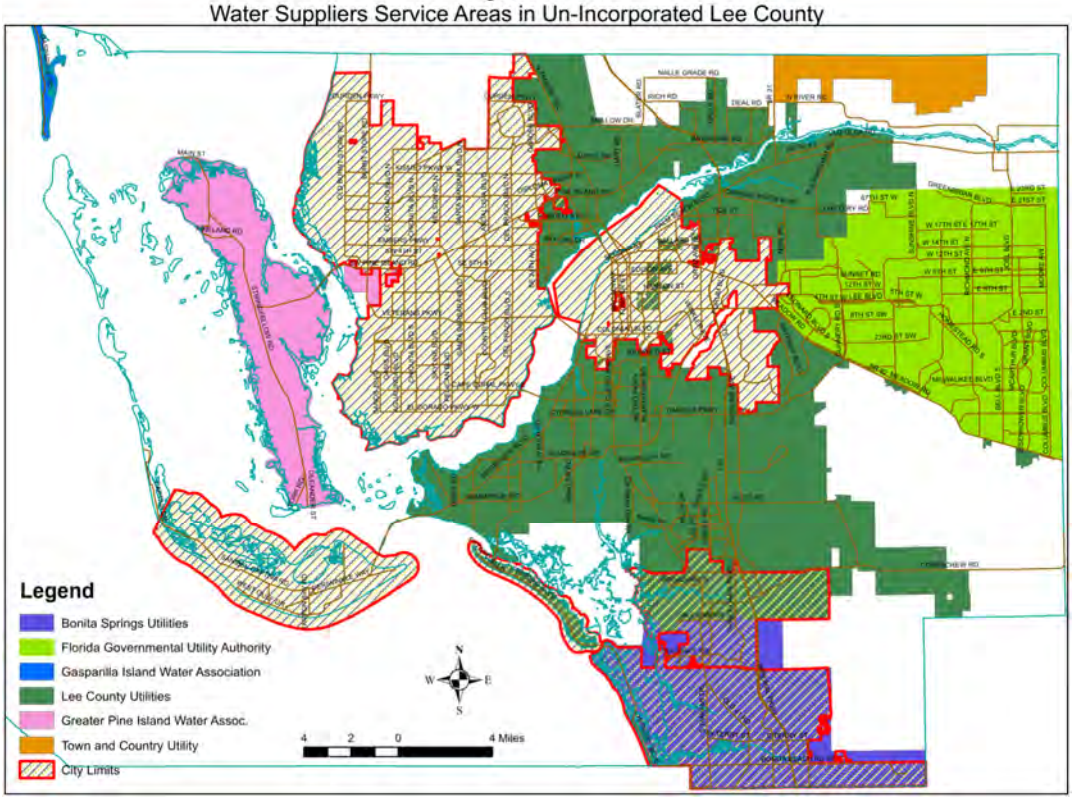
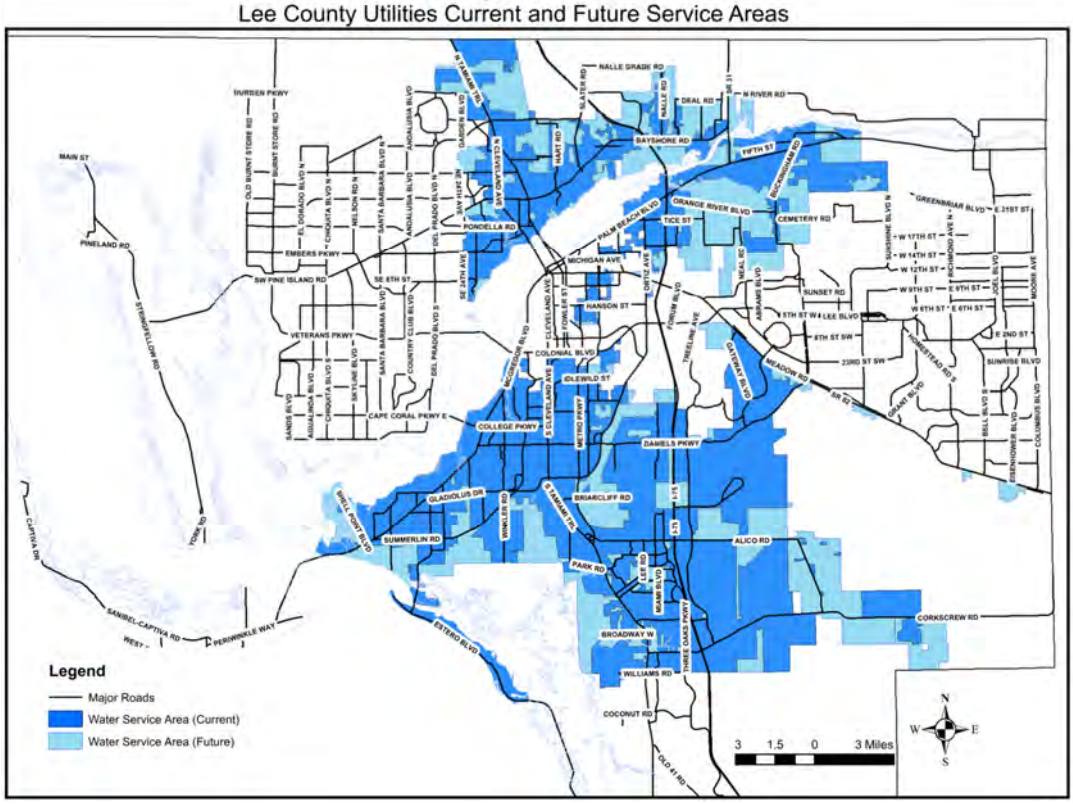


Figure 3-2
Lee County Utilities Current and Future Service Areas



3.3 Potable Water Level of Service Standard

The Lee County Comprehensive Plan (Lee Plan) contains Policy 95.1.3 regarding the level of service for Potable Water and are included in Appendix A for reference.

Regarding Policy 95.1.3, it should be noted that no private utility within unincorporated Lee County has petitioned for an alternative level of service standard within their respected franchise or certificated areas, to be included in the Lee Plan. Therefore, the level of service adopted for Lee County Utilities (Policy 95.1.3) applies to these private utilities for use in the concurrency management system.

An analysis was performed to determine LCU's historical water use as it relates to the level of service specified in the Lee Plan. Raw water demand data from 2017 through 2022 was compared to the number of Equivalent Residential Connections (ERC's) served for each year.

For each year, the annual total, the maximum monthly, and the maximum daily water system demands were determined from flow records maintained by LCU's Operations. The Lee County Utilities Engineer of Record report provides the number of Equivalent Residential Connections (ERC's) for each year. Table 3-2 presents a summary of the analysis that was performed.

As seen in Table 3-2, the maximum month gallons per day per equivalent residential connection ranged from 168.065 gpd/erc to 196.319 gpd/erc over this period of record. Further, the maximum day gallons per day per equivalent residential connection ranged from 183.803 gpd/erc to 213.747 gpd/erc over this period of record. The result of this analysis suggests that raising the current level of service from its current 250 gpd/erc is not warranted at this time.

TABLE 3-2

Lee County Utilities

Raw Water System Level of Service Analysis 2017-2022

	2017	2018	2019	2020	2021	2022
Annual Total (MG)	9,513.364	10,360.67	10,360.674	10,392.607	11,132.789	11,454.04
Max Month (MG)	969.343	988.919	999.712	1,038.452	1,080.977	1,140.072
Max Day (MG)	34.045	33.977	35.834	36.207	40.174	41.616
ERC's	159,277	184,856	191,883	193,526	197,422	199,291
AADF gpd/erc	163.639	153.554	147.931	146.725	154.495	157.463
MMADF gpd/erc	196.319	172.570	168.065	173.095	176.628	190.688
Max Day gpd/erc	213.747	183.803	186.091	187.091	203.493	208.820

LEGEND		
MG = Million Gallons	AADF = Annual Average Daily Flow	ERC = Equivalent Residential Connection
	MMADF = Max Month Average Daily Flow	gpd/erc = gallons per day per ERC

3.4 Population and Potable Water Demand Projections by Each Local Government or Utility

The population estimates and projections and the potable water demand projections from the 2022 LWCWSP are presented below in Table 3-3. The projections are through the year 2045. The population projections are consistent with the other elements of the comprehensive plan. The water demands are for finished water.

TABLE 3-3

WATER SUPPLY UTILITY SERVICE WITHIN UNINCORPORATED LEE COUNTY POPULATION AND DEMAND PROJECTIONS

	Population Projections						Water Supply Demands (mgd)					
Utility Service Area	2020	2025	2030	2035	2040	2045	2020	2025	2030	2035	2040	2045
Lee County Utilities	273,284	295,691	309,828	322,221	334,614	347,999	28.47	30.80	32.27	33.56	34.85	36.25
Bonita Springs Utilities	66,897	74,256	80,197	85,009	89,259	92,829	11.26	12.50	13.50	14.31	15.02	15.62
FGUA Lehigh Acres	27,467	30,488	32,927	34,903	36,648	38,114	2.46	2.73	2.95	3.13	3.28	3.42
Greater Pine Island Water	12,841	13,419	13,848	14,254	14,492	15,072	1.68	1.76	1.82	1.87	1.90	1.98
Island Water Assn.	7,354	7,508	7,627	7,719	7,796	7,862	4.87	4.97	5.05	5.11	5.16	5.20
FGUA Lake Fairways	1,187	1,463	1,580	1,675	1,759	1,829	0.08	0.10	0.10	0.11	0.11	0.12

*Gastparilla Island Water was deleted from Table 3-3 due no information provided in the LWCWSP or the Southern Planning Region of the SWFWMD Plan.

3.4.1 Comprehensive Plan Amendments Approved Following Projections

It should be noted that several Comprehensive Plan Amendments have been approved since the demand projections were performed for the LWCWSP. These approved amendments will result in additional demand on the LCU water system in the future. In an effort to capture this increase in future demands, Table 3-4 will list these amendments and provide an associated projected demand.

TABLE 3-4

Comprehensive Plan Amendments Approved With Demand Projections

Development Name	CPA #	Demand mgd (AADF)
River Hall	CPA2021-00016	0.122
Daniels Parkway South	CPA2021-00017/18	0.435
Barrett Park	CPA2022-00016	0.033
Grand Bay	CPA2022-00006/7	0.063
Daniels Falls	CPA2022-00003	0.048
Greenwell 31	CPA2021-00015	0.029
Total		**0.730**

3.5 Water Supply Provided by Local Government

This section provides information pertaining to water provided by Lee County Utilities. The information for any future water supply facilities needed is included in the discussion below and in the Capital Improvements section. This section includes the following information:

• Water Use Permit (WUP) Information and Number
• Raw Water Allocation Information
• Average Annual Daily and Maximum Monthly (Daily) Allocations
• Applicable Source Limitations (dry season, wellfields, and priority)
• Required Off-sets
• Expiration Date(s) by Source
• Treatment Facilities and Planning Schedules
• Treatment Methods and Losses in the WUP
• Permitted Florida Department of Environmental Protection (FDEP) Capacities
• Interlocal Agreements and Bulk Sales
• Interconnects, Distribution, and Associated Responsibilities (emergency or ongoing)
• Outstanding Compliance Issues (required upgrades or expansion, etc.)

3.5.1 Water Use Permit Information

Lee County Utilities holds three water use permits issued by the South Florida Water Management District (SFWMD) for public water supply. Table 3-5 below presents the following information regarding these permits: The water treatment plant covered under each water-use permit, the FDEP permitted treatment capacity for each facility, the water use permit number, raw water allocation information, the annual and maximum month allocation specified in the water use permit, Source limitations specified in the water use permit, permit expiration dates. Lee County Utilities' water use permits do not include any required offsets.

TABLE 3-5

LEE COUNTY UTILITIES WATER USE PERMIT INFORMATION AND PLANT TREATMENT CAPACITIES

									Source Limitations	
Water Treatment Facility	FDEP Treatment Plant Capacity (MGD)	Water Use Permit Number	Expiration Dates	Raw Water Allocation (MGY)	Annual Average Daily Allocation (MGD)	Maximum Month Allocation (MGM)	Source	Wells	Raw Water Allocation (MGY)	Maximum Month Allocation (MGM)
Corkscrew WTP	15.0	36-00003-W	6/15/2031	12,508	34.27	1,355	Surficial Aquifer	32	1,684	182.4
Green Meadows WTP	16.0						Sandstone Aquifer	21	2,245	243.2
Olga WTP	5.0						Corkscrew UFAS	2	808	87.6
							Water Table Aquifer	14	1,179	127.68
							Green Meadows SSA	12	1,628	176.3
							Green Meadows UFAS	13	4,378	474.2
							SFWMD Canal (C-43)		1,616	152
North Lee County WTP	11.6	36-00152-W	8/20/2032	5,886	16.13	592.9	Lower Hawthorn Aquifer	17	168	32
							Surficial Aquifer		32.1	14.4
Pinewoods WTP	5.3	36-00122-W	12/01/2034	2,685.76	7.36	268.43	Water Table Aquifer	11	676.50	69.90
							Sandstone Aquifer	4	217.80	22.50
							Lower Hawthorn Aquifer	5	1,791.40	176.00
Totals	52.9			21,079.76	57.76	2,216.33				

MGD = Million Gallons per Day

MGM = Million Gallons per Month

MGY = Million Gallons per Year

SSA = Sandstone Aquifer System

UFAS = Upper Floridan Aquifer System

3.5.2 Treatment and Distribution System Losses

The percentage of treatment systems losses were calculated for the years 2013 through 2017 utilizing the Unaccounted-For Water Reports required by SFWMD from these years. The percentage was calculated using the monthly average amount of raw water withdrawn and the finished water produced. This report was also utilized to provide the unaccounted water or distribution system loss percentage for each year. The results of this calculation are shown in Table 3-6.

TABLE 3-6
LEE COUNTY UTILITIES
WATER DISTRIBUTION SYSTEM LOSSES &
WATER TREATMENT LOSSES
PERCENTAGES 2013-2017

Year	Distribution System Losses Percent	Treatment Losses Percent
2017	5.48%	6.68%
2018	4.48%	12.10%
2019	7.99%	9.70%
2020	7.68%	10.82%
2021	7.53%	11.26%
2022	7.67%	11.19%
Average	6.81%	10.29%

3.5.3 Treatment Facilities and Planning Schedules

3.5.3.1 Olga Water Treatment Plant:

The Olga plant is permitted as a Class "A," Category I potable water treatment facility by the FDEP and is staffed 24 hours a day, 365 days a year. The current designed and permitted capacity of the Olga WTP is 5.0 mgd. The plant processes water through lime softening, coagulation, filtration, and disinfection.

3.5.3.2 Corkscrew Water Treatment Plant:

The Corkscrew plant is permitted as a Class "A," Category I potable water treatment facility by the FDEP and is staffed 24 hours a day, 365 days a year. The current designed and permitted capacity of the Corkscrew WTP is 15.0 mgd. The plant processes water through lime softening, coagulation, filtration, and disinfection.

3.5.3.3 Green Meadows Water Treatment Plant

The Green Meadows plant is permitted as a Class "A," Category I potable water treatment facility by the FDEP and is staffed 24 hours a day, 365 days a year. The current designed and permitted capacity of the Green Meadows WTP is 16.0 mgd. The plant processes are Reverse Osmosis (Lower Hawthorn Aquifer), Ion Exchange (Water Table Aquifer), and Blend (Sandstone Aquifer) with degasification and chlorination of the combined output.

The Green Meadows Lime Softening Plant was taken offline and the new treatment facility was put into service in May 2018.

3.5.3.4 Pinewoods Water Treatment Plant

The Pinewoods facility consists of two treatment plants. The original Water Treatment Plant is a 2.12 mgd plant, permitted with the FDEP as a Class "B," Category II, potable water treatment facility. The plant processes water through nano-filtration membrane treatment and disinfection and treats raw water from the water table and sandstone aquifers. The second plant, which was completed in 2007, treats water withdrawn from the Lower Hawthorne aquifer and produces 3.0 mgd through low-pressure reverse osmosis.

3.5.3.5 North Lee County Water Treatment Plant

The North Lee County Water Treatment Plant is an 11.6 mgd plant, permitted with the FDEP as a Class "A," Category I, potable water treatment facility. The plant processes raw water from the Lower Hawthorne aquifer through low-pressure reverse osmosis. Lee County Utilities has an expansion of the plant and wellfield from the current 11.6 mgd to 15.0 mgd under construction.

3.5.4 Storage Facilities

Lee County Utilities currently operates 15 potable water storage facilities. These existing storage facilities have the capacity to store a total of 33.5 million gallons. An additional three million gallons is available but are either owned by others or not in service. These storage facilities are located throughout the water distribution system. A list of these storage facilities is provided in Table 3-7.

TABLE 3-7
Lee County Utilities Potable Water Storage Facilities

Name	Existing / Proposed	Type	Material	Capacity Million Gallons
North Tower	E	Elevated Tank	Steel	0.2
North Reservoir	E	Ground Storage	Concrete	2.0
South Reservoir	E	Ground Storage	Concrete	2.0
Tice Tower	E	Elevated Tank	Steel	0.3
Miners Corner Reservoir	E	Ground Storage	Concrete	2.0
Alico Reservoir	E	Ground Storage	Concrete	1.0
41 Reservoir	E	Ground Storage	Steel	1.0
Airport Haul Road	E	Ground Storage	Concrete	10.0
North Lee County WTP	E	Ground Storage	Concrete	5.0
Olga WTP	E	Ground Storage	Concrete	1.0
Corkscrew WTP	E	Ground Storage	Concrete	2.0
Corkscrew WTP	E	Ground Storage	Concrete	4.0
South Beach Tank*	E	Ground Storage	Concrete	1.0
North Beach Tank*	E	Ground Storage	Concrete	0.5
Waterway Estates WTP	E	Ground Storage	Concrete	1.0
College Pkwy WTP**	E	Ground Storage	Concrete	1.5
Pinewoods WTP	E	Ground Storage	Concrete	2.0
Total System Storage				**36.5**

* Owned by the Town of Fort Myers Beach ** Not currently in service

3.5.5 Interlocal Agreements and Bulk Sales

3.5.5.1 Charlotte County Interlocal Agreement

Lee County entered into an Interlocal Agreement with Charlotte County Utilities in February 2004. The agreement allows Charlotte County Utilities to provide water service to approximately 900 customers in the Burnt Store Marina area located within unincorporated Lee County. The agreement was amended in January 2016 in order to expand the service area. The area is located on the east side of Burnt Store Road at the extreme North boundary of Lee County along the Charlotte County line.

3.5.5.2 Gateway Services Community Development District

Lee County has an Interlocal Agreement with Gateway Services Community Development District (GSCDD) for the sale of bulk water. For planning purposes, the GSCDD area is included in Lee County Utilities (LCU) service area boundary. The population and demand projections for the GSCDD are included in the projections for LCU. In November 2023, LCU and GSCDD entered into an agreement to allow GSCCD to sell up to 500,000 GPD of bulk potable water to FGUA Lehigh Acres for two years. GSCCD has a separate agreement with FGUA to supply the bulk water.

3.5.5.3 Town of Fort Myers Beach

Lee County has an Interlocal Agreement with the Town of Fort Myers Beach for the sale of bulk water. For planning purposes, the Town of Fort Myers Beach is included in Lee County Utilities (LCU) service area boundary. The population and demand projections for the Town of Fort Myers Beach are included in the projections for LCU.

3.5.5.4 Florida Governmental Utility Authority (Pine Lakes)

On August 27, 2013, Lee County entered into an Interlocal Agreement with Florida Governmental Utility Authority (FGUA) to provide bulk water service to FGUA's Pine Lakes and Harper McNew service areas. LCU provides water to the Pine Lakes area for the sale of bulk water, and therefore this area has been included in LCU's service area. The demand projections for this area are included in the LCU projections.

The Harper Mcnew service area, however, is not currently within LCU's service area. Further, this area is in Charlotte County. The service area is located on the east side of US 41, abutting the Lee County – Charlotte County line. LCU will be providing bulk water service to FGUA for FGUA to provide water service to this area in the future. The projected build-out water system demand for this development is 0.851 mgd.

3.5.6 Outstanding Compliance Issues

Lee County Utilities has no outstanding compliance issues related to water supply.

3.6 Water Supply Provided by Other Entities

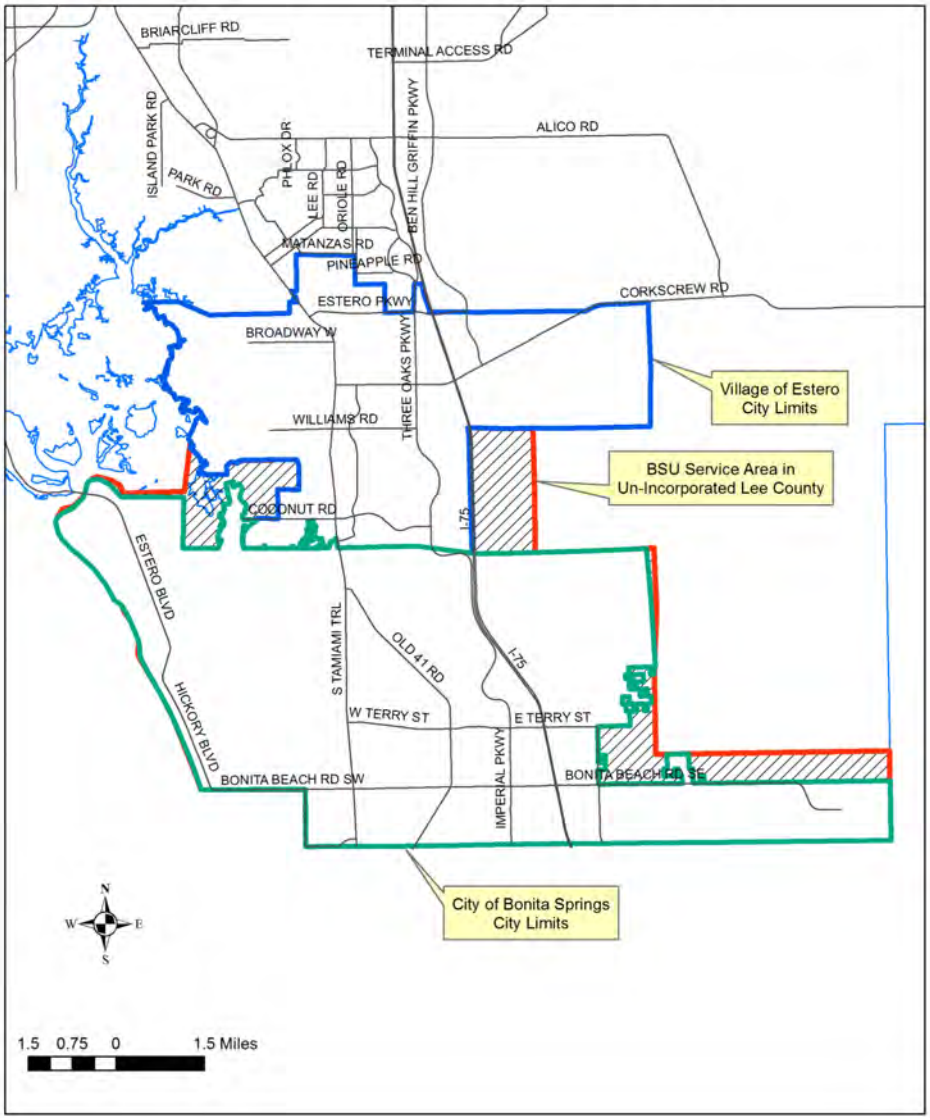
The following section presents information about water utilities other than Lee County Utilities that provide water within unincorporated Lee County.

3.6.1 Bonita Springs Utilities

3.6.1.1 Service Area

Bonita Springs Utilities (BSU) provides potable water service within the City of Bonita Springs, Villages of Estero, and areas within unincorporated Lee County. The BSU service area within unincorporated Lee County is shown in Figure 3.6.1-1. The information provided in this plan is for BSU's entire service area; however, approximately 5% of the BSU service area is within unincorporated Lee County.

FIGURE 3.6.1-1
Bonita Springs Utilities Water Service Area
Within Unincorporated Lee County



3.6.1.2 Consumptive Use Permits

BSU has two Consumptive Use Permits issued by the SFWMD. A summary of the general permit information is presented below.

Permit Number: 36-00008-W
Issued: March 24, 2023
Expires: March 1, 2042
Annual Allocation: 5,986million gallons (5,986/365=16.40 mgd)
Maximum Month Allocation: 618.30 million gallons (618.30/30=20.61 mgd)
Source Limitation Annual:
From Feb. 1, 2022 to Jan. 31, 2027: 1,197 mg (Lower Tamiami-West Wellfield) and 1,454 mg (Lower Tamiami-East Wellfield)
From Feb. 1, 2027 to Dec. 2041: 983 mg (Lower Tamiami-West Wellfield) and 1,111 mg (Lower Tamiami-East Wellfield)
Upper Floridan: None
Source Limitation Maximum Daily:
From Feb. 1, 2022 to Jan. 31, 2027: 124 mg (Lower Tamiami-West Wellfield) and 150 MG (Lower Tamiami-East Wellfield)
From Feb. 1, 2027 to Dec. 2041: 98.58 mg (Lower Tamiami-West Wellfield) and 123.7 mg (Lower Tamiami-East Wellfield)
Upper Floridan: None

3.6.1.3 Description of Water Sources

BSU operates 19 freshwater wells that range in depth from 80 to 115 feet (Lower Tamiami aquifer) and 15 brackish water wells with depths averaging 700 to 1,120 feet (Upper Floridan aquifer). An expansion of 11 brackish water wells will come online in 2023.

3.6.1.4 Treatment Facilities

BSU currently operates a lime softening plant permitted by FDEP for 9 mgd and a reverse osmosis (RO) plant permitted for 8.56 mgd on a single site located at 11860 East Terry Street, providing a combined treatment capacity of 17.56 mgd. The facility allows expansion to meet additional needs consistent with permit specifications.

3.6.1.5 Interconnects

BSU maintains emergency interconnects with Lee County Utilities and Collier County Utilities.

3.6.1.6 Bulk Service Agreements

BSU has no contracts for bulk potable water purchases. BSU has emergency interconnect agreements (with associated rates) with Lee County Utilities and Collier County Utilities.

3.6.1.7 Planned Water Supply Projects

An RO plant expansion of 4 mgd is anticipated for 2023.

3.6.1.8 Reclaimed Water Use

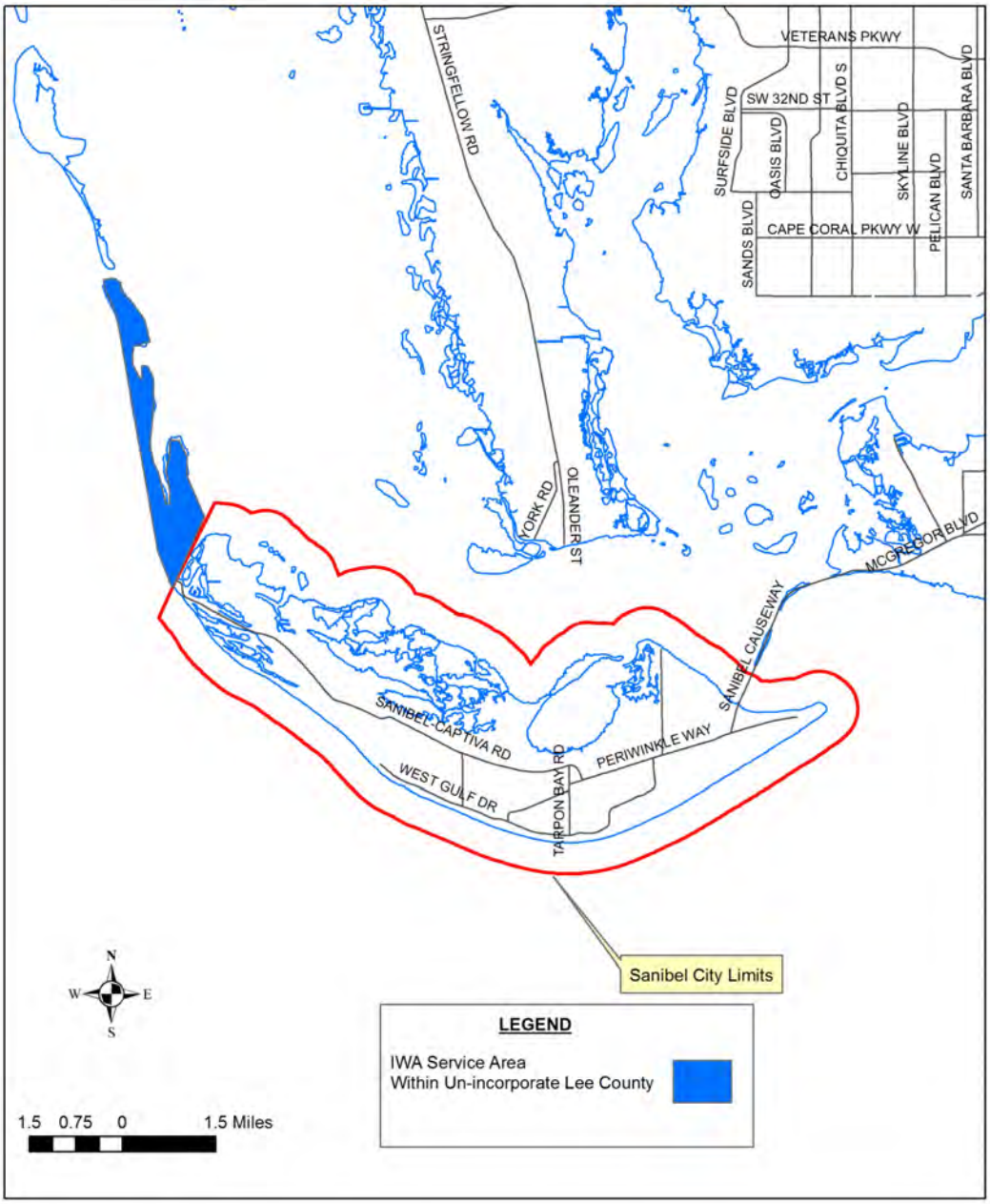
BSU's two wastewater treatment plants have produced reclaim water since their construction, and they are therefore called water reclamation facilities. A long term contract (30-year rolling contract) between BSU and Resource Conservation System (RCS) has been in place since the completion of BSU's first plant. Bulk reclaimed water is delivered to RCS at the plant site. Storage, distribution, and billing of reclaimed water are handled by RCS. BSU's current water reclamation capacity is 11 mgd, and the bulk sales contract with RCS is also up to 11 mgd, depending on flows received. Nearly all water received is reclaimed and sold.

3.6.2 Island Water Association

3.6.2.1 Service Area

The Island Water Association (IWA) provides water service to the City of Sanibel Island and unincorporated Lee County at Captiva Island. The IWA service area located within unincorporated Lee County is shown in the figure below. The information provided in this plan is for IWA entire service area; however, IWA has calculated that the unincorporated Lee County portion of its service area accounts for 25% of its potable water demand.

FIGURE 3.6.2-1
Island Water Association Water Service Area
Within Unincorporated Lee County



3.6.2.2 Consumptive Use Permit

IWA has a Consumptive Use Permit issued by the South Florida Water Management District (SFWMD). A summary of the general permit information is presented below.

Permit Number: 36-00034-W
Issued: June 15, 2017
Expires: June 15, 2037
Annual Allocation: 1,905 Million Gallons (1,905/365 = 5.22 mgd AADF)
Maximum Monthly Allocation: 179.24 mg
Specific Source Limitations: None
Required Offsets: None

3.6.2.3 Description of Water Sources

The IWA wellfield on Sanibel Island consists of 8 Floridan aquifer wells and 7 Lower Hawthorne aquifer wells. These wells range in diameter from 6" to 12". The capacity of the wells ranges from 300 gallons per minute (gpm) to 600 gpm. The total capacity of the 15 wells is 6,900 gpm. The depths of these wells range from 500 feet to 900 feet.

3.6.2.4 Treatment Facility

Raw water from the brackish water wellfield is treated at the IWA's Reverse Osmosis Treatment Plant. The plant has a permitted capacity of 5.99 mgd.

3.6.2.5 Interconnects

Island Water Association has no interconnects with neighboring Utilities.

3.6.2.6 Bulk Service Agreements

Island Water has no contracts for bulk potable water purchases or sales with other water utilities.

3.6.2.7 Planned Water Supply Projects

Island Water Association has sufficient capacity to meet projected demands, therefore, has no water supply projects planned at this time.

3.6.2.8 Reclaimed Water Use

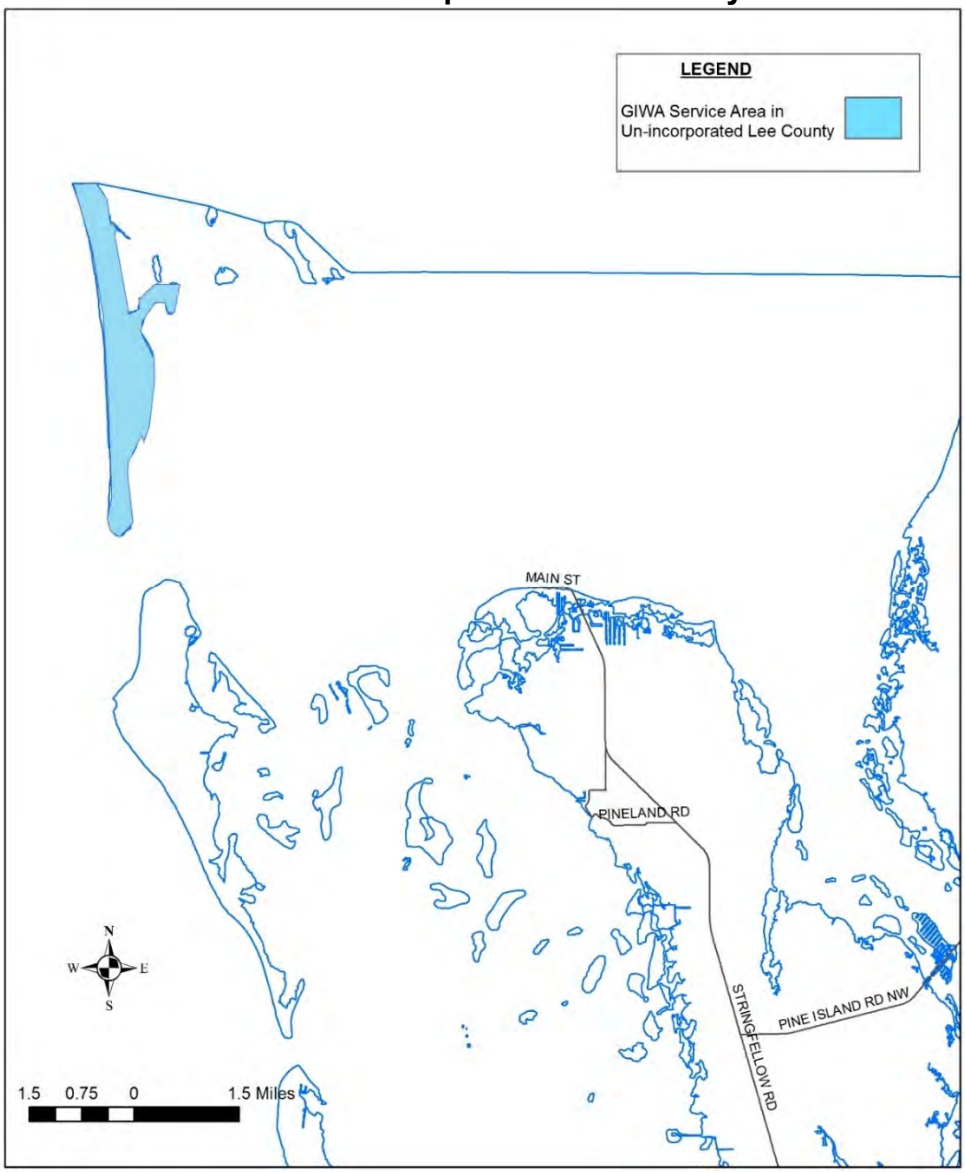
Island Water Association doesn't operate any water reclamation facilities. The sewer is collected by the City of Sanibel Sewer and distributes reclaimed through a public access irrigation system.

3.6.3 Gasparilla Island Water Association

3.6.3.1 Service Area

The Gasparilla Island Water Association (GIWA) serves potable water to the Gasparilla Island and a small portion of the mainland in Charlotte County. GIWA serves water customers in both Charlotte County and unincorporated Lee County. The GIWA service area within unincorporated Lee County is shown below. The information provided in this plan is for GIWA entire service area; however, approximately 75% of the GIWA service area is within unincorporated Lee County. GIWA is located in the Southern Planning Region of the Southwest Florida Water Management District and discussed in their Regional Water Supply Plan that was updated in 2020.

FIGURE 3.6.3-1
Gasparilla Island Water Association Water Service Area Within Unincorporated Lee County

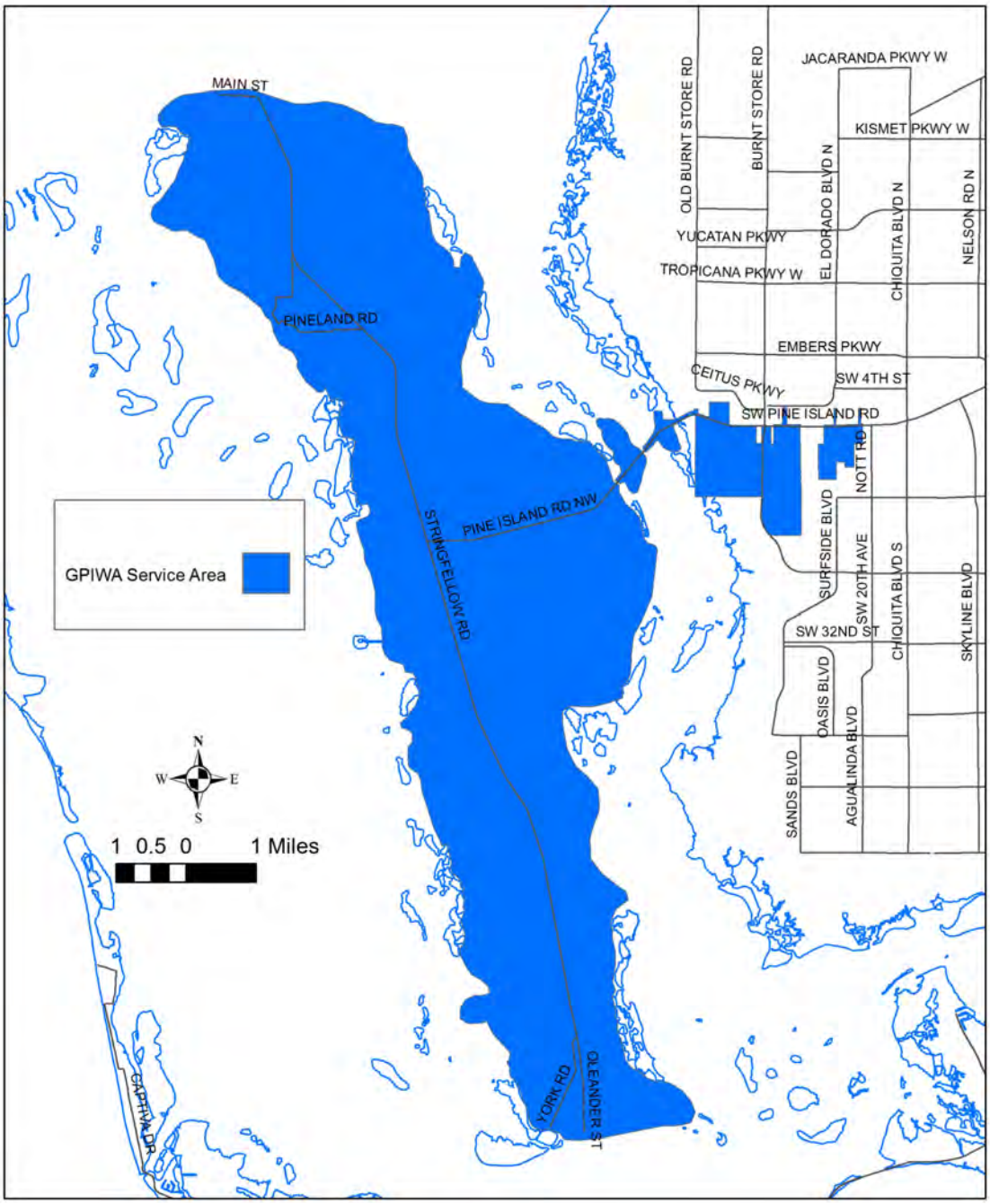


3.6.4 Greater Pine Island Water Association

3.6.4.1 Service Area

The Greater Pine Island Water Association (GPIWA) serves potable water to the unincorporated Lee County at the islands of Matlacha as well as Pine Island and a portion of the City of Cape Coral. Also included in the GPIWA service area is a small portion of the mainland. The GPIWA service area is shown below.

FIGURE 3.6.4-1
Greater Pine Island Water Association Water Service Area



3.6.4.2 Consumptive Use Permit

GPIWA has a Consumptive Use Permit issued by the SFWMD. A summary of the general permit information is presented below.

Permit Number: 36-00045-W
Issued: September 21, 2015
Expires: September 21, 2035
Annual Allocation: 908.10 Million Gallons (908.10/365= 2.49 mgd AADF)
Maximum Monthly Allocation: 98.4 Million Gallons

3.6.4.3 Description of Water Sources

The GPIWA wellfield on Pine Island consists of 5 Lower Hawthorne wells that are 12" in diameter. Each well is rated at 700 gallons per minute for a total well capacity of 3,500 gallons per minute.

3.6.4.4 Treatment Facility

Raw water from the wellfield is treated at GPIWA's Reverse Osmosis Treatment Plant (Permit # FL5360322). The plant is permitted to treat 3.29 mgd. An expansion of the water treatment plant's current capacity is anticipated to be needed near the end of the 20-year permit duration.

3.6.4.5 Interconnects

GPIWA has two interconnections, one at Island Water Association on Sanibel Island, located at St. James City, and traversing San Carlos Bay via a ten-inch diameter pipe and has not been used for several years. The second interconnection is at the City of Cape Coral via an 8-inch diameter pipe. The maximum anticipated short-term emergency water supply that could be obtained from either interconnect is about 1.0 MG on a daily basis.

3.6.4.6 Bulk Service Agreements

GPIWA has a bulk water service agreement with the City of Cape Coral and receives water from the City as needed in emergencies.

3.6.4.7 Planned Water Supply Projects

GPIWA has no water supply projects planned at this time.

3.6.4.8 Reclaimed Water Use

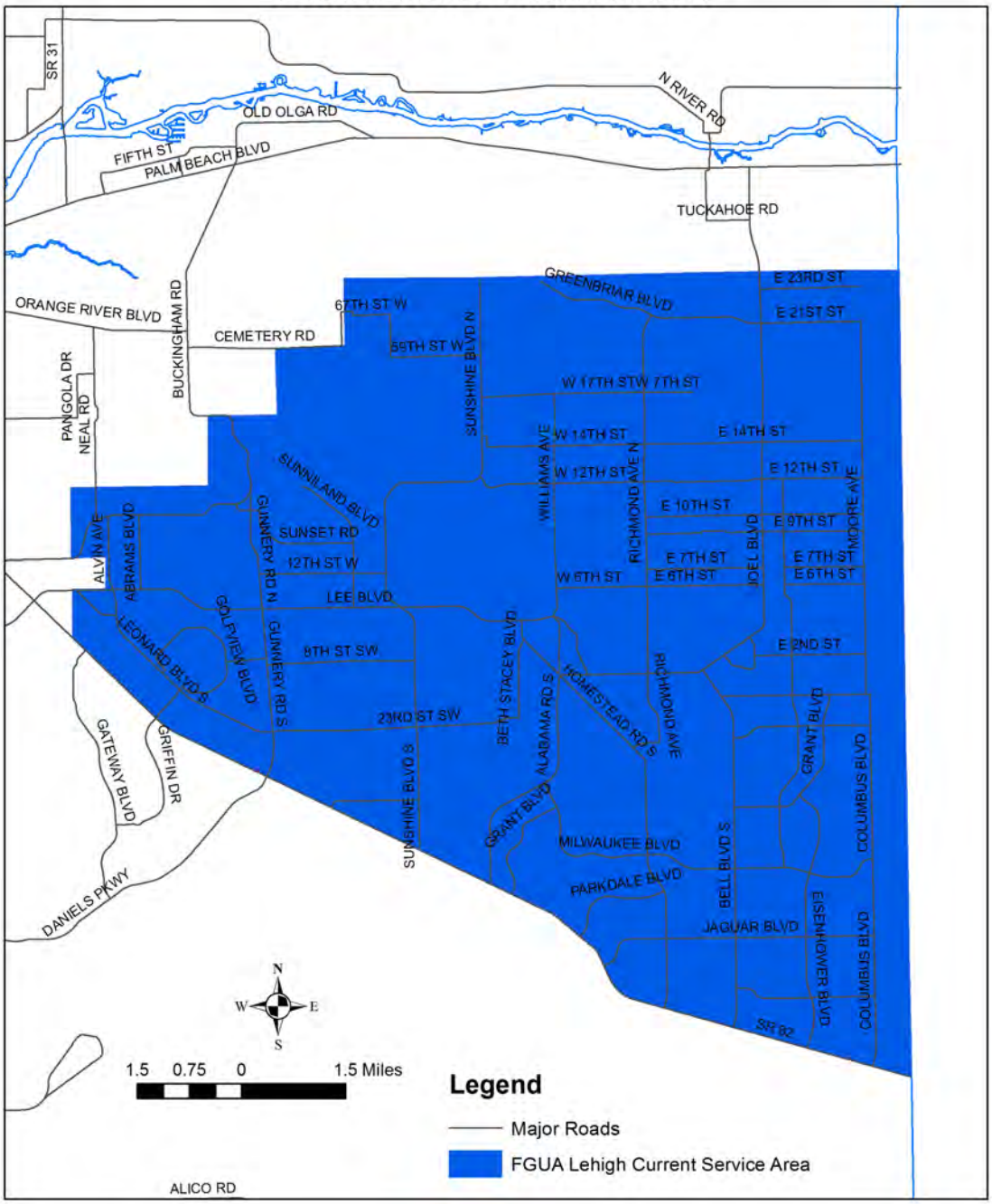
GPIWA does not provide wastewater service and, therefore, does not produce reclaimed water. Lee County's Pine Island Water Reclamation Facility provides wastewater treatment service for Pine Island and Matlacha area.

3.6.5 Florida Governmental Utility Authority (Lehigh Acres)

3.6.5.1 Service Area

The Florida Governmental Utility Authority (FGUA) has a franchise area that generally encompasses the area of unincorporated Lee County, known as the community of Lehigh Acres. The franchise area (future service area) is shown in Figure 3.6.5-1.

FIGURE 3.6.5-1
Florida Governmental Utility Authority (Lehigh Acres)
Future Water Service Area



3.6.5.2 Existing Consumptive Use Permit

FGUA has a Consumptive Use Permit issued by the SFWMD. A summary of the general permit information is presented below.

Permit Number: 36-00166-W
Issued: December 7, 2017
Expired: February 9, 2035
Annual Allocation: 1,150.71 Million Gallons (1,150.71/365= 3.153 mgd AADF)
Maximum Monthly Allocation: 115.97 Million Gallons mg
Specific Source Limitation: None

3.6.5.3 Description of Water Sources

The existing FGUA Lehigh Acres wellfield consists of 20 Sandstone aquifer wells that vary in diameter from 6" to 12" in diameter. The wells are rated at capacities between 150 gallons per minute (gpm) and 500 gpm. The wells have a total capacity of 5,250 gpm.

3.6.5.4 Treatment Facility

FGUA's Treatment Plant #1 is rated at 3.15 mgd and treats raw water from the Sandstone aquifer wells referenced above. FGUA's Treatment Plant #2 has a permitted capacity of 1.10 MDG but is offline and used as a repump station.

3.6.5.5 Interconnects

FGUA Lehigh Acres has an 8" diameter interconnect with the City of Fort Myers with a capacity of 0.5 mgd. An interconnect with the Gateway Services Community Development District (GSCDD) is in design and permitting.

3.6.5.6 Bulk Service Agreements

FGUA Lehigh Acres has a bulk service agreement with the City of Fort Myers to provide up to 1.0 mgd of finished water from the City of Fort Myers. In 2023, FGUA Lehigh entered into an agreement with GSCDD to provide up to 0.5 mgd in bulk water for two years. GSCDD is a bulk customer of LCU's and has amended our agreement to increase their capacity to accommodate the FGUA Lehigh service.

3.6.5.7 Planned Water Supply Projects

FGUA includes WTP #2 recommission and upgrades to 2 mgd with associated wells in their 2024 budget. Additionally, FGUA includes converting WTP #1 from lime softening to Nano filtration in their 2025 budget.

3.6.5.8 Reclaimed Water Use

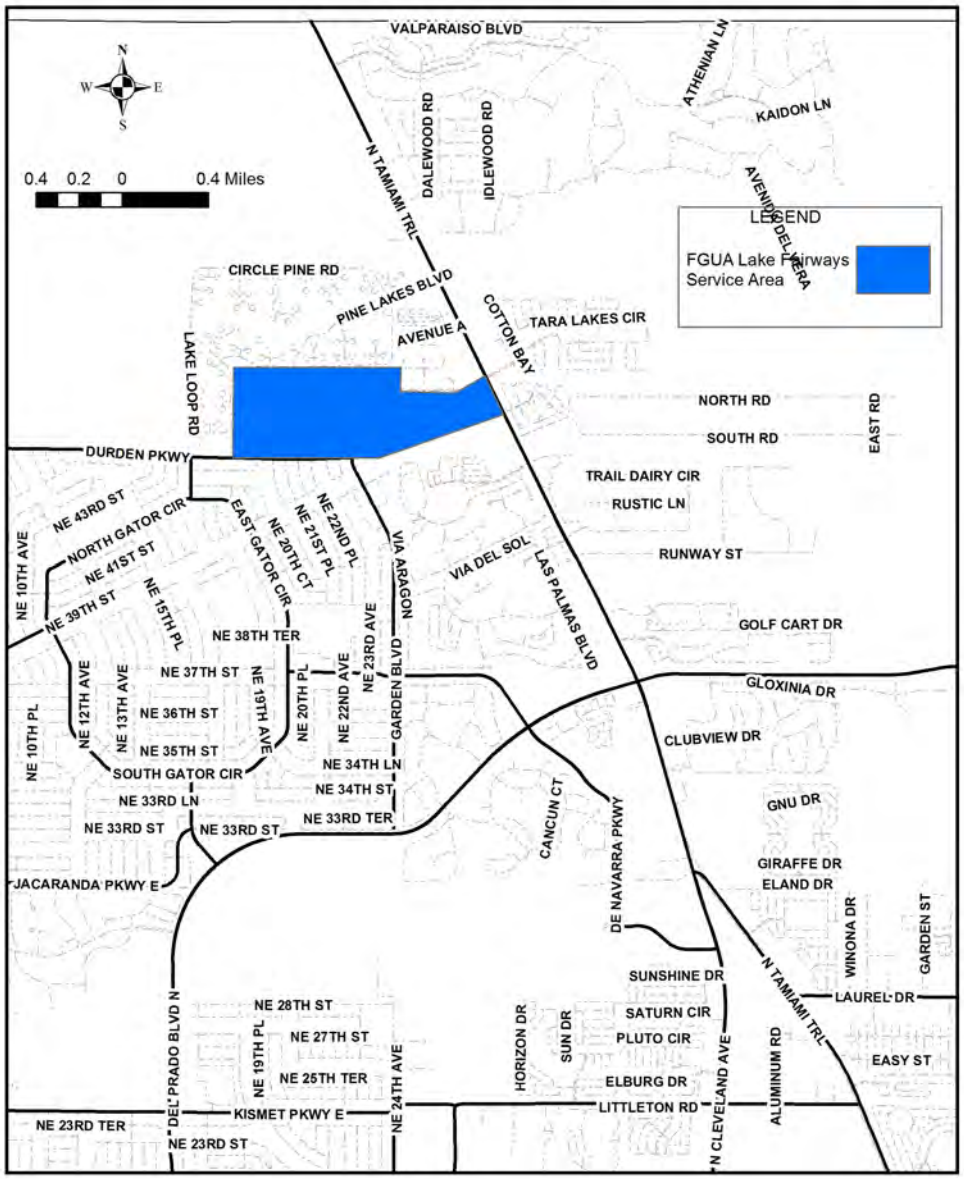
FGUA Lehigh Acres reuses its wastewater that is reclaimed through a public access reclaimed water irrigation system.

3.6.6 <u>Florida Governmental Utility Authority (Lake Fairways)</u>

3.6.6.1 Service Area

The Florida Governmental Utility Authority (FGUA) provides water service to the Lake Fairways community in North Fort Myers. The FGUA (Lake Fairways) service area is shown in Figure 3.6.6-1 below.

FIGURE 3.6.6-1
Florida Governmental Utility Authority (Lake Fairways)
Water Service Area



3.6.6.2 Consumptive Use Permit

FGUA (Lakes Fairways) has a Consumptive Use Permit issued by the South Florida Water Management District (SFWMD). A summary of the general permit information is presented below.

Permit Number: 36-00081-W
Issued: November 28, 2005
Expires: November 28, 2025
Annual Allocation: 37 Million Gallons
Maximum Daily Allocation: 4.3667 mgd
Specific Source Limitations: None
Required Offsets: None

3.6.6.3 Description of Water Sources

The FGUA (Lake Fairways) wellfield consists of 2 Mid-Hawthorn aquifer wells. These are wells 3" in diameter, and the capacity of each well is 150 gallons per minute (gpm), for a total capacity of 300 gpm. The depths of these wells are 168 feet.

3.6.6.4 Treatment Facility

The FGUA (Lake Fairways) aeration /chlorination water treatment plant has a permitted capacity of 0.20 mgd.

3.6.6.5 Interconnects

FGUA (Lake Fairways) has no interconnects with neighboring Utilities.

3.6.6.6 Bulk Service Agreements

FGUA (Lake Fairways) no contracts for bulk potable water purchases or sales with other water utilities.

3.6.6.7 Planned Water Supply Projects

FGUA (Lake Fairways) has sufficient capacity to meet projected demands; therefore, it has no water supply projects planned at this time.

3.6.6.8 Reclaimed Water Use

FGUA (Lake Fairways) is reusing approximately 50% of the wastewater that is reclaimed through a public access irrigation system.

3.6.7 Small Water Supply Utilities Serving Lee County

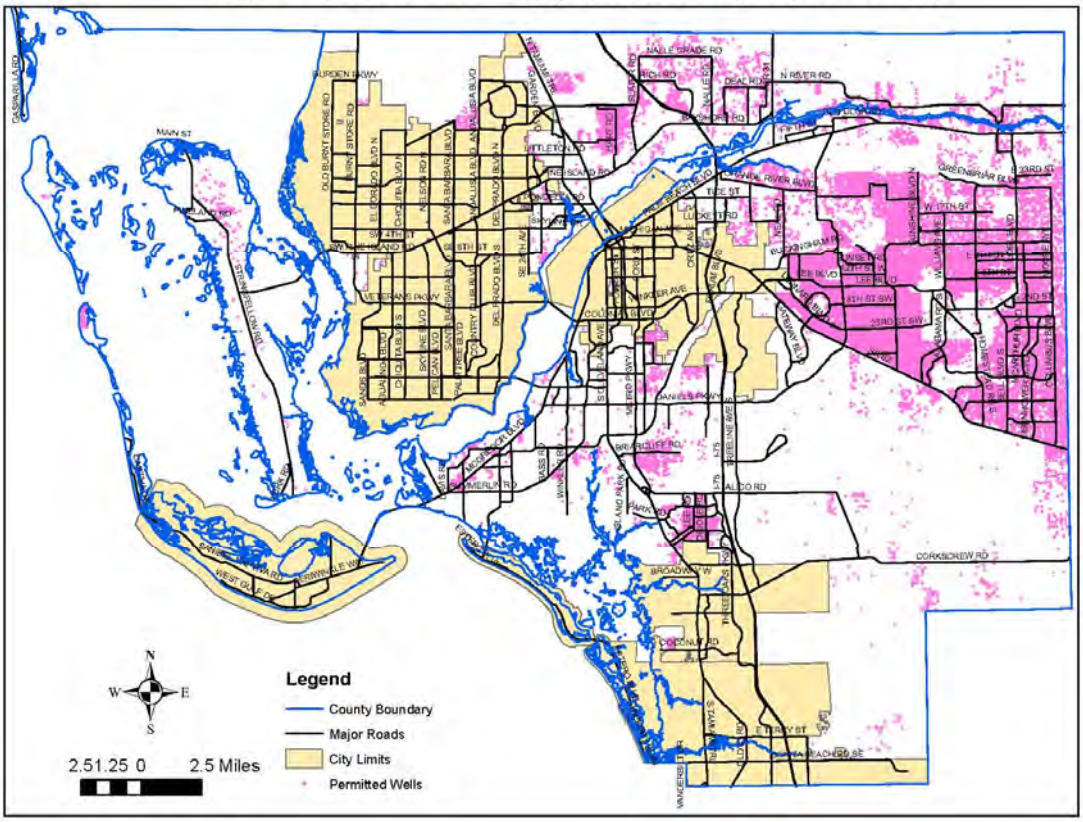
There are several small water supply utilities providing water service to small areas within unincorporated Lee County. These water supply utilities are classified as Multiple User/Single Development Water Treatment Plants in the Lee County Annual Concurrency Report. These systems include:

- Charleston Park
- Fountain View RV Park
- Oak Park Mobile Home Village
- Useppa Utility Company

3.6.8 Domestic Self Supply

Areas within unincorporated Lee County that are not currently served by a central water system utilized individual groundwater wells for water service. These are referred to as domestic self-supply. The Lee County Division of Natural Resources maintains a database of all permitted wells within unincorporated Lee County. Based on a query of this database, there are approximately 34,500 domestic self-supply wells within unincorporated Lee County. Figure 3.6.8 shows the location of the domestic self-supply wells included in the database. Assuming an occupancy rate of 2.5 persons per average residential unit within unincorporated, these domestic self-supply wells provide potable water to a population of 86,250.

Figure 3.6.8 Domestic Self Supply Wells in Unincorporated Lee County



3.7 Conservation

This section includes information regarding Lee County's efforts in water conservation. It includes specific actions, programs, regulations, or opportunities that Lee County has enacted to promote water conservation.

3.7.1 Local Government Specific Actions, Programs, Regulations, or Opportunities

Lee County has implemented a number of water conservation elements including restrictions on permitted water usage, use of Florida-friendly planting principles, the requirement of ultra-low volume plumbing in new construction, a water conservation-based rate structure, a meter replacement program, rain sensor over-rides for new lawn sprinkler systems and public educational programs. Summary information on each of these elements is provided below.

3.7.1.1 Restrictions on Permitted Water Use

Mandatory Year-Round Irrigation Conservation Measures

Lee County Ordinance 17-04, known and cited as the Water Conservation Ordinance, adopts by reference the irrigation restrictions included in 40E-24 Florida Administrative code, the Mandatory Year-Round Irrigation Conservation Measures. The restrictions included in the ordinance are more stringent than 40E-24FAC by limiting irrigation days to two days per week. The ordinance allows the Division of Natural Resources Director to impose additional restrictions on irrigation in response to extreme climatic conditions. The ordinance also adopts by reference Florida Administrative code 40E-21, the South Florida Water Management District's Water Shortage Plan. The ordinance provides for enforcement penalties for non-compliance. The ordinance applies to all areas within unincorporated Lee County.

Use of Florida-Friendly Landscape Principles

Lee County has included Florida-Friendly Landscaping in the Lee Plan Objective 117.2 and related policies.

Requirement of Ultra-Low Volume Plumbing in New Construction

Lee County Ordinance 92-36 adopts standard plumbing code in addition to other building codes in Lee County. The Ordinance address plumbing fixtures related to water conservation. Table 901.2.2, titled, "Maximum Allowable Water Usage for Plumbing Fixtures," establishes maximum flow rates for plumbing fixtures.

Water Conservation Based Rate Structure

Lee County Utilities has a conservation-based water rate structure, which includes an increasing rate with increasing use, as a means of reducing demand. The block rate structure is outlined in Section Four (B), titled "Lee County Utilities Water System Customer Rates," of Lee County Resolution 23-06-33, establishing customer rates for Lee County Utilities. An additional wellfield development surcharge of $0.54 per Equivalent Residential Unit is assessed for those customers

whose monthly water consumption exceeds their initial water conservation block during the monthly billing period. Also included is a water restriction surcharge adjustment of an additional 18% if the SFWMD declares a water shortage requiring a mandatory water use reduction of 15%.

Meter Replacement Program

Unaccounted for water summaries are submitted to the District annually. The average annual estimated unaccounted water loss for the distribution system for the years 2017-2022 was 6.81% percent (see Table 3-6).

Although LCU has a very low unaccounted-for water percentage, LCU has replaced most water meters in its water distribution system with remote read meters (AMI) to monitor continually.

Rain Sensor Overrides for New Lawn Sprinkler System

Chapter 10, Division 6 (Lee County Landscape Code), Section 10-414, requires an irrigation plan. One of the requirements for an irrigation plan includes the following:
"A moisture (rain) sensor will be included in the irrigation system and located on the site so that it will receive direct rainfall, not impeded by other objects."

Public Information Program

Lee County Utilities has a website that contains several pages devoted to water conservation and water restrictions. The address for this site is http://www.leegov.com/utilities/. In addition, Lee County Utilities periodically prints water conservation tips on the water bills. These messages direct the customer to the website for additional information. The annual Consumer Confidence Report is also used to direct customers to the website for additional information. During times of water restrictions, Lee County Utilities has run public service announcements in cooperation with the South Florida Water Management District. LCU also provides conservation presentations to organizations when requested.

Lee County Utilities will coordinate future water conservation efforts with other water supply utilities in Lee County and the SFWMD. In addition, Lee County Utilities will continue to support and expand existing goals, objectives, and policies in the comprehensive plan, promoting water conservation in a cost-effective and environmentally sensitive manner. LCU will continue to actively support the SFWMD and its water supplier(s) in the implementation of new regulations or programs designed to conserve water during the dry season.

3.7.2 Identify any Local Financial Responsibilities as Detailed in the Capital Improvement Program

Currently, there are no water conservation projects included in the Lee County Capital Improvement Program.

3.8 Reuse

State law supports reuse water efforts. 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."

3.8.1 Local Government Specific Actions, Programs, Regulations, or Opportunities

Lee County supports water reuse initiatives under consideration by both the SFWMD and other local governments in the region and the implementation of new regulations or programs designed to increase the volume of reclaimed water used and public acceptance of reclaimed water. Lee County's water conservation program encourages both conservation of water and the use of alternative water supplies, such as reclaimed water for irrigation. In 2017, Lee County approved the Ordinance 17-03 to regulate, optimize, and control the reclaimed water usage by means of a permit system. The ordinance established uniform requirements and the flexibility of better allocation distributions in accordance with customer's rates, maximizing reclaimed water use opportunities. Also, the ordinance established restrictions, prohibitions, and enforcement mechanisms to protect the environment and public health and safety. The permit system was fully implemented by June 2020. Lee County Utilities reuse program is described below:

3.8.1.1 Lee County Utilities Reclaimed Water Systems

Lee County Utilities owns and maintains several reclaimed water systems. These systems provide many benefits. They reduce the amount of groundwater that is withdrawn in their respective service areas and recharge the local aquifers. Increasing the utilization of reclaimed water reduces the amount of water lost "to tide" or lost through disposal in a deep injection well. Lee County Utilities plans to take several steps to mitigate these losses. LCU has installed interconnects between reclaimed water systems to enable systems with low demand to provide reclaimed water to systems with high demands. LCU has installed storage facilities and enacted supplemental supply to manage reclaimed water better and increase utilization. Table 3-8 breaks down the LCU reclaimed water utilization for each facility for fiscal year 2022.

TABLE 3-8
FY22 LCU Reclaimed Water Utilization

Facility	Permitted Users	Sewer Flow	Reclaimed Flow	Percent Reclaimed
Fort Myers Beach WRF	24	1,184.353	817.129	68.99%
Fiesta Village WRF	12	1,025.418	905.756	88.33%
Three Oaks WRF	19	1,482.645	1,021.159	68.87%
Pine Island WRF	5	51.113	0.000	0.00%
Gateway WRF	1	542.409	542.409	100.00%
High Point WWTP	0	4.704	0.000	0.00%
Totals	**61**	**4,290.641**	**3,286.453**	**76.59%**

In addition to reclaimed water users, the Fort Myers Beach WRF has four percolation ponds with a deep injection well for alternative disposal.

In an effort to increase the reclaimed water utilization for the Fiesta Village WRF and eliminate the reclaimed water discharged to the Caloosahatchee River, an interconnect between the Fiesta Village reuse system and the Fort Myers Beach reuse system was recently upgraded. This interconnect allows for a transfer of reclaimed water from the Fiesta Village system to the Fort Myers Beach system. Additionally, a new deep injection well is under construction.

The Three Oaks WRF is currently under construction to expand from 6 mgd to 9 mgd in 2024. This expansion will ultimately lead to more available reclaimed water to the service area.

The Pine Island WRF has a permitted capacity of 0.383 mgd (AADF) with a shared deep injection well and spray fields for disposal. In addition to five agreements, Lee County Utilities has one on-site spray field. In 2017, it was determined to exclusively dispose of effluent water through the deep injection well that is shared with GPIWA.

The High Point plant is a small package plant in North Fort Myers that produces approximately 0.008 mgd of reclaimed water. The plant has a permitted capacity of 0.025 mgd. The reclaimed water from this plant is sent to percolation ponds where it recharges the local shallow aquifer. LCU intends to decommission the facility and send all flows to the FGUA Del Prado facility by 2025.

The Gateway WRF currently consists of 1 reuse site, the Gateway community. The plant has a permitted capacity of 3.0 mgd. All of the reclaimed water produced by this facility is utilized by the Gateway Community for irrigation. Reclaimed water utilization for this facility is 100%.

3.8.1.2 Lee County Land Development Code and Reclaimed Water

The Lee County Land Development Code (LDC), Chapter 10, Article III, Division 4, Section 10-354 states the following:

(a) Mandatory connection to central reuse water system required for certain developments. New developments meeting Lee Plan Standard 4.1.3 criteria must connect to a central reuse water system providing the quality and quantity of reuse water necessary for the reasonably anticipated irrigation needs of the proposed development or future phases of existing developments with a separate entrance.

(b) For projects meeting the requirements of Subsection (a) of this section and delineated on Map 4B of the Lee Plan, the irrigation of grassed or landscaped areas must occur through the use of a second water distribution system supplying treated wastewater effluent or reuse water. This reuse water system must be constructed and operated in accordance with Florida Administrative Code 62-610 and the County Reclaimed Water Ordinance.

(c) Additional permissible uses of reuse water include exterior fountains and other landscape water features.

Division 6, Section 10-417 – Irrigation Design Standards states:
… *Irrigation water sources shall be evaluated in the following order:*

(1) When and where available, reuse water;
(2) Surface water;
(3) Groundwater;
(4) Any other nonpotable water;
(5) Potable water.

Additionally, Lee Plan Standard 4.1.3 and Policy 61.1.6 (see Appendix A) reference reuse requirements for new developments.

4.0 CAPITAL IMPROVEMENTS

This section provides a brief description of Lee County's Capital Improvements Program and Policies for Water Supply.

4.1 Work Plan Projects

This section includes the list of the Work Plan Projects, which includes all public, private, and regional water supply projects and programs necessary to serve Lee County, including all development of traditional and alternative water supply sources, reuse, and conservation for at least the next 10-year period. These are the water supply projects identified in the SFWMD Lower West Coast Water Supply Plan.

TABLE 4.1-1
WORK PLAN PROJECTS

LCU WATER SUPPLY PROJECTS INCLUDED IN THE LOWER WEST COAST WATER SUPPLY PLAN			
Water Supply Project	Source	Total Capital Cost ($ M)	Design Capacity (mgd)
Potable Water			
Green Meadows RO Wellfield Expansion (4 wells)	Brackish	$4	0.00
North Lee County Water Treatment Facility 5 mgd RO and Wellfield Expansion from 11.6 mgd to 15.0 mgd	Brackish	$38.88	5.00
BSU WATER SUPPLY PROJECTS INCLUDED IN THE LOWER WEST COAST WATER SUPPLY PLAN			
Water Supply Project	Source	Total Capital Cost ($ M)	Design Capacity (mgd)
4.0 mgd Expansion RO WTP – Phase 3 and 12 FAS Wells	Brackish	$45	4.00
East 2.0 mgd WWTF Expansion	Brackish	$3	0.50

4.2 Capital Improvements Element/Schedule

The work plan identifies and addresses: All public, private, and regional water supply facilities needed within the jurisdiction and necessary during the next five years to achieve and maintain adopted level of service standards and reflect the identified projects and programs in Lee County's Five-Year Schedule of Capital Improvements. Table 4.2-1 presents the water supply development and alternative water supply capital improvement projects approved for fiscal year 2023/2024 for Lee County Utilities (to be adopted via Ordinance into the Lee Plan as Table 5).

TABLE 4.2-1
CAPITAL IMPROVEMENT PROJECTS
APPROVED LEE COUNTY CIP FY 23/24

CIP #	Lee County Project Name / LWCWSP Project Name	Description	Project Status	Total CIP Budget	Estimated Completion Date
WATER SUPPLY DEVELOPMENT PROJECTS					
200633	North Lee County WTP Expansion to 15.0 MGD	Expand the existing North Lee County WTP from 10 mgd to 15 mgd treatment capacity. The expansion will utilize a reverse osmosis treatment system.	Under Construction	$50,300,000	2025
207619	North Lee County Wellfield Expansion to 15 mgd, Phase IIIA	Design, permitting, land/easement acquisition and construction of six additional Lower Hawthorn Wells to provide the necessary raw water source for the North Lee County WTP expansion to 15.0 mgd	Under Construction	$23,531,307	2024
207619	North Lee County Wellfield Expansion to 15 mgd, Phase IIIB	Design, permitting, land/easement acquisition and construction of six additional Lower Hawthorn Wells to provide the necessary raw water source for the North Lee County WTP expansion to 15.0 mgd	Design	$27,889,632	2025/2026
200749	Green Meadows WTP	Construct 12 (6 SSA & 6 LHA) new wells to supplement existing under performing wells and provide redundance.	Design	$35,000,000	2027
200779	Corkscrew Feasibility Study	Analysis for potential plant and source water expansion.	Planning	$500,000	2024
200784	Pinewoods Wellfield – 3 Well Expansion	Three wells to provide reliable capacity and allow expansion farther south into Kiker Preserve.	Planning	$7,750,000	2028
ALTERNATIVE WATER SUPPLY PROJECTS					
200723	Three Oaks WRF Expansion	Design/Build project to expand the plant capacity by 3 mgd for a total of 9 mgd. The expansion is to accommodate growth in the service area.	Under Construction	$44,200,000	2024
207467	Southeast WRF	Design, permitting, and construction of a new 6 mgd water reclamation facility to address growth in the Southeast area of the County.	Planning/Design	$163,148,281	2028

5.0 GOALS, OBJECTIVES, AND POLICIES

5.0 GOALS, OBJECTIVES, AND POLICIES

The Lee County Comprehensive Plan (Lee Plan) goals, objectives, and policies (GOPs) have been reviewed for consistency with the Work Plan and the following changes, shown in strikethrough and underline, are proposed to be made to the Lee Plan:

Text Amendments:

II Future Land Use Element

POLICY 1.4.5: The Density Reduction/Groundwater Resource (DR/GR) future land use category includes upland areas that provide substantial recharge to aquifers most suitable for future wellfield development. These areas also are the most favorable locations for physical withdrawal of water from those aquifers. ~~Only minimal public facilities exist or are programmed.~~ (Ord. No. 91-19, 94-30, 99-16, 02-02,10-20, 12-24, 15-13, 18-18, 19-13, 20-06)

(no further changes to paragraphs 1-3)

OBJECTIVE 2.2: DEVELOPMENT TIMING. ~~Direct~~ Encourage new growth in ~~to those~~ portions of the future urban areas where adequate public facilities exist or are assured and where compact and contiguous development patterns can be created. Development orders and permits (as defined in §163.3164, Fla. Stat.) will be granted only when consistent with the provisions of §163.3202(2)(g) and § 163.3180, Fla. Stat. and the concurrency requirements in the LDC. (Ord. No. 94-30, 00-22, 17-19)

POLICY 20.3.2: Central water lines may be extended along roads of the Buckingham Community Plan area upon request of property owners, with extension and connection fees paid by the person(s) receiving the water service. The County may also extend central water lines through the Buckingham Community Plan area, if necessary. Connection to this expanded water service network will be on a voluntary basis for existing customers, unless required by state or federal regulations. Under no circumstances will the availability of central water be accepted as justification for a density or intensity increase, or reduction of lot size requirements (except as provided in Policy 20.1.5), within the Buckingham Community Plan area. (Ord. No. 10- 15, 18-18)

POLICY 24.1.9: Lee County will support the use of central sanitary sewer service to reduce potential contamination to groundwater or the surrounding estuarine systems from on-site septic systems. (Ord. No. 16-07, 18-18)

POLICY 25.9.3: Lee County will support the expansion of water and sewer facilities throughout Lehigh Acres. ~~work with Florida Governmental Utilities Authority (FGUA) to prioritize areas for the expansion of utilities.~~ (Ord. No. 10-16, 18-18)

IV. Community Facilities and Services Element

a. Potable Water

POLICY 54.1.13: Encourage and pursue the use of funding assistance provided by the South Florida Water Management District for the development of alternative water supply and water conservation projects.

POLICY 54.1.14: Encourage water uses that reduce reliance on the surficial aquifer system (SAS) and intermediate aquifer system (IAS) through the use of alternative water systems to meet future water demands.

POLICY 54.1.15: Consider the feasibility of desalinated seawater from the Gulf of Mexico as an additional water source option.

POLICY 55.1.2: Perform groundwater modeling and analysis, as needed, to assess the potential impact of land use changes on water resources of the County. Analysis will focus on adequacy of water supply, including groundwater level draw-down and avoidance of adverse impacts on natural systems from water supply withdrawals, declining water levels, and harmful movement of saline water. Modeling and analysis performed by the County does not eliminate any site specific requirements that are part of an application for new or proposed development. (Ord. No. 00-22, 03-04, 17-19)

POLICY 55.1.3: Actively implement and utilize the Water Supply Facilities Work Plan, Lee County, Florida, ~~May 2019~~November 2023, adopted by reference, as a guide to potable water supply facility planning consistent with the Ten Year Water Supply Development Projects (Table 5), potable water resources, and water conservation. (Ord. No. 94-30, 00-22, 03-04, 09-13, 16-01, 17-19, 19-02)

VI. Capital Implements Element

POLICY 95.1.1: Incorporate the schedule of capital improvements adopted as part of the annual operating budget on an annual basis. Table 3(a) includes estimated costs, timing of need, location, and revenue sources for all public facility projects to be undertaken during the ensuing five-year period. CIP project priorities for public facilities will be based on:

1. System preservation/maintenance of assets;
2. Operation at or below the applicable minimum LOS, existing or projected, based on approved development orders;
3. Provision of system continuity;
4. Removal of a direct and immediate threat to the public health or safety;
5. Donation or matching fund offers;
6. Return on investment; and

7 Other considerations (e.g. improving facilities in urban areas, state or federal regulations, consistency with applicable adopted government plans, emergency evacuation, regulatory or non-regulatory LOS, competition with other governmental or private sector facilities, revenue-generating potential, similar projects in planning and commission districts).
(Ord. No. 94-30, 00-22, 07-16, 16-03, 17-19)

- Implementation and incorporation of the Work Plan is addressed in Policies 55.1.3 and 151.5.1
- Concurrency for water supply availability is addressed in Objective 53.2 and Policy 53.2.1
- Water conservation programs are addressed in Goal 54, Objective 54.1, Policies 54.1.1 through 54.1.15, and Policies 126.2.2 to 126.2.3.
- Alternative water supply projects are addressed in Policies 13.4.8, 61.1.2, and 126.1.2.
- Reclaimed water projects are addressed in Standard 4.1.3, Objective 57.1, Policy 57.1.4, and Policy 57.1.5.
- Level of service standards are addressed in Policy 95.1.3, Objective 151.2 and Policies 151.2.1 through 151.2.3.
- Population projections are related to Policy 63.2.3 and Objective 126.1.
- Inter-governmental coordination is addressed in Objective 151.5, Policy 151.5.2, Policy 126.1.5, and Policy 126.1.7

6.0 REGIONAL ISSUES IDENTIFIED IN REGIONAL WATER SUPPLY PLANS

A summary of the regional issues identified in the Lower West Coast Water Supply Plan (LWCWSP) can be found in Chapter 6 of that document on the South Florida Water Management District's website.

The primary regional issues are:
1. Increased withdrawals from the Surficial Aquifer and Intermediate Aquifer Systems are limited.
2. Lake Okeechobee Service Area Restricted Surface Water Allocation Area criteria.
3. Freshwater discharges to the Caloosahatchee Estuary.
4. Surface water availability during dry conditions.
5. Increased withdrawals from the Floridan Aquifer System.
6. Climate change and sea level rise impacting freshwater availability.

7.0 SUMMY ANALYSIS OF LEE COUNTY'S WATER SUPPLY

Based on the unincorporated Lee County population projection in 10 years, which equates to a total projected 33.56 million gallons per day (MGD). Lee County Utilities (LCU) is permitted to distribute 52.9 MGD. In 2045, the demand will be 36.25 MGD. The LCU capital improvement projects listed in the Work Plan will generate an additional water supply of 5 MGD for a total of 57.9 MGD.

In summary, LCU will have the ability to serve future demand as the population grows along with development.