LEE COUNTY BOARD OF COUNTY COMMISSIONERS

ZONING
and
COMPREHENSIVE PLAN AMENDMENT HEARING
AGENDA

Wednesday, May 22, 2024
9:30AM

DCI2023-00046 **Z-24-011**	KELLY TRACTOR IPD AMENDMENT FOR SIGNAGE
DCI2022-00044 **Z-24-007**	KELLY ROAD RPD
CPA2023-00008	WATER SUPPLY PLAN UPDATE - ADOPTION
CPA2022-00017 & CPA2022-00018	CALOOSA 80 - TRANSMITTAL

NOTICE OF PUBLIC HEARING

The Lee County Board of County Commissioners will hold a public hearing at 9:30 am on Wednesday, May 22, 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 cases below.

DCI2023-00046 / Kelly Tractor IPD Amendment for Signage

Request to amend the Kelly Tractor IPD (Resolution Z-91-095) to incorporate deviations to allow one 60-foot-tall pylon sign along the I-75 frontage.

Located at 9651 Kelly Tractor Dr., Fort Myers Shores Planning Community, Lee County, FL.

DCI2022-00044 / Kelly Road RPD

Request to rezone 4.6± acres from Residential Multi-Family (RM-10) to Residential Planned Development (RPD) to permit a maximum of 69 multi-family dwelling units, including 23 bonus density units.

Located at 11070, 11100, 11088 Kelly Rd. & access undetermined, Iona/McGregor 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 Raphaela Morais-Peroba, (239) 533-8782, 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 (ADOPTION HEARING)

The Lee County Board of County Commissioners will hold a public hearing to consider the adoption of proposed amendments to the Lee County Comprehensive Land Use Plan (Lee Plan) on Wednesday, May 22, 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.

The Board proposes to adopt an ordinance amending the Lee Plan as follows:

> CPA2023-00008 Water Supply Plan Update: Amend the Comprehensive Plan to incorporate the Lee County Water Supply Facilities Work Plan (Work Plan) by reference as required by Florida Statutes (F.S.) §163.3177(6) and text amendments to ensure consistency with regional water supply plans and water use planning.

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 Ordinance 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.

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, May 22, 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:

> CPA2022-00017 and CPA2022-00018 Caloosa 80 Text and Map Amendments - Add the 192.3 +/- acre subject property to Lee County Utilities Future Water and Sewer Service Areas as depicted on Maps 4-A and 4-B, respectively. Amend the Future Land Use Map to redesignate approximately 92.71 +/- acres of the subject property from the Rural future land use category to the Sub-Outlying Suburban future land use category. Amend Table 1(b) to accommodate residential development on the subject property, 19190 Palm Beach Boulevard, Alva, FL 33920.

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.

DCI2023-00046 KELLY TRACTOR IPD AMENDMENT FOR SIGNAGE

Staff Summary

CASE NUMBER & NAME:	DCI2023-00046 / Kelly Tractor IPD Amendment for Signage
REQUEST:	Request to amend the Kelly Tractor IPD (Resolution Z-91-095) to incorporate deviations to allow one 60-foot-tall pylon sign along the I-75 frontage.
RESOLUTION NUMBER:	Z-24-011
LOCATION:	9651 Kelly Tractor Drive, Fort Myers Shores Planning Community, Lee County, FL
OWNER:	Kelly Tractor Co
APPLICANT:	Kelly Tractor Company
AGENT:	Fred Drovdlic RVi Planning + Landscaping Architecture 1514 Broadway, Ste. 201 Fort Myers, FL 33901
HEARING EXAMINER RECOMMENDATION:	Approval, subject to the conditions and deviations set forth in Exhibit B
PARTICIPANTS: (0)	NONE



DCI2023-00046

Aerial

Subject Property

City Limits

N

W E

S

0 500 1,000 1,500

Feet

Lee County

Southwest Florida

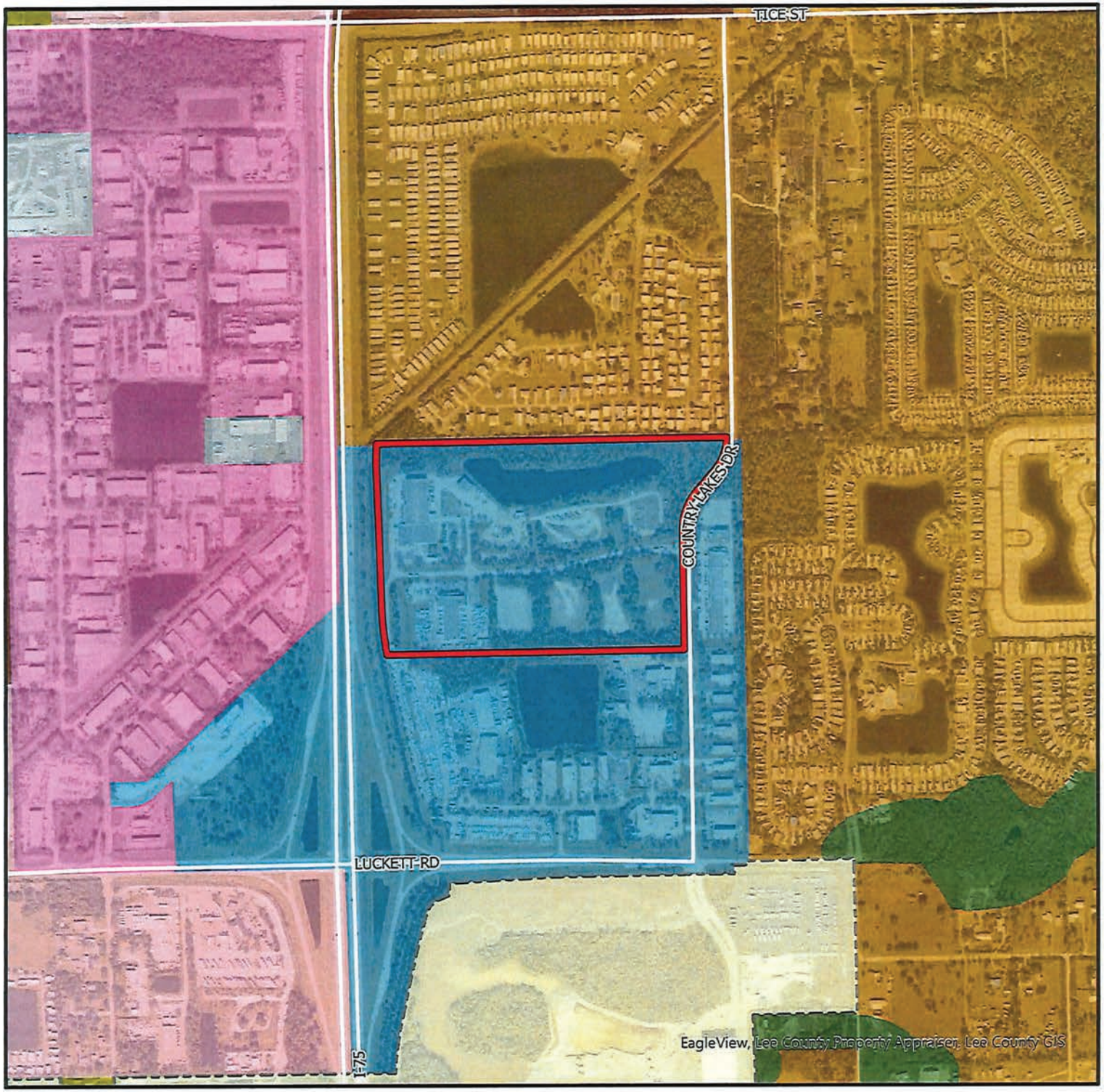
Summary of Hearing Examiner Recommendation

KELLY TRACTOR IPD AMENDMENT

The request seeks to add two deviations to an approved Industrial Planned development to replace a ground mounted identification sign with a 60 foot tall pylon sign including an electronic changing message center. The I-75 right-of-way is vegetated with mature trees and dense understory that obscures the existing sign.

The proposed replacement sign is necessary to improve visibility along the interstate.

Detailed recommendation follows



DCI2023-00046

Future Land Use

- Subject Property
- Intensive Development
- Central Urban
- Urban Community
- Suburban
- Industrial
- Public Facilities
- Industrial Interchange
- Wetlands
- City Limits

N
W E
S

0 500 1,000 1,500
Feet

Lee County
Southwest Florida



DCI2023-00046

Aerial

Subject Property

City Limits

N
W E
S

0 500 1,000 1,500

Feet

Lee County
Southwest Florida

OFFICE OF THE HEARING EXAMINER, LEE COUNTY, FLORIDA

HEARING EXAMINER RECOMMENDATION

REZONING: DCI2023-00046

Regarding: **KELLY TRACTOR IPD AMENDMENT**

Location: Northwest Quadrant of Intersection of Kelly Tractor Drive and Country Lakes Drive

Fort Myers Shores Planning Community
(District 5)

Hearing Date: April 24, 2024

I. Request

Amend the 58.54 acre Kelly Tractor Industrial Planned Development (IPD) to include two deviations from Land Development Code Chapter 30, to allow a 60 foot tall ground mounted identification sign and 616 square feet of sign area, including an electronic changing message center, along the project's frontage on interstate I-75.

The property 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 amend the Kelly Tractor Industrial Planned Development (IPD) zoning resolution.

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

[1] LDC §34-145(d)(4) a.

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

Request

The request seeks to amend the Kelly Tractor IPD to incorporate two new deviations to permit one 60 foot high pylon sign along the property's frontage on Interstate 75. The pylon sign will host an electronic message center and a second fixed sign face.

Requested deviations address obstacles visibility along the property's frontage on the interstate. Specifically, Applicant seeks relief from height and sign area criteria to surmount obstructions created by mature pine trees and palmettos.

Staff recommended approval of the request subject to conditions.

History

The Board approved IPD zoning on the 58.54 acre site in 1991.[2] The resolution approved 500,000 square feet of industrial commercial and other uses including two deviations.[3]

The Department of Community Development approved three additional deviations via administrative amendment in 2015.

The Master Concept Plan (MCP) divides the property into 9 lots/development tracts. Lots 1-3 accommodate the Kelly Tractor operation, which includes a 73,000 +/- square foot building. Lots 7 and 8 are improved with an RV service and repair business across Kelly Tractor Drive.[4] The remainder of the IPD lots are vacant and partially cleared.

The Kelly Tractor site features a lake and preserve area along the north boundary.

Character of Area

The IPD lies at the northwest quadrant of the intersection of Kelly Tractor Drive and Country Lakes Drive in east Lee County. The IPD is accessible from the Luckett Road interchange and Tice Street.

---

[2] Resolution Z-91-095 approved November 25, 1991.

[3] The Board approved two deviations from excavation and landscape buffer criteria in the original zoning request. *Id.* The Department of Community Development administratively approved three more deviations in 2015 to accommodate a second identification sign on the property. ADD 2015-00114 approved September 10, 2015.

[4] The RV service and repair operation include a 31,000 +/- square foot building surrounded by paved areas accommodating several RVs.

The Kelly Tractor site is fenced, and mature landscape vegetation borders Kelly Tractor Drive. Development improvements are clustered on the western edge of the IPD adjacent to the interstate. Open storage of vehicles and equipment is scattered throughout the site.[5]

Crystal Lakes Manufactured Home community and the Cypress Trail RV Resort lie to the north. Across Kelly Tractor Drive to the south is an RV service and repair facility and vacant property.[6] Country Lakes Drive bordered the IPD on the east and hosts several parcels zoned and developed with light industrial uses. Further east is Cypress Woods RV Resort. Interstate 75 lies to the west. Its right-of-way contains mature trees and dense understory adjacent to the Kelly Tractor site.

Lee Plan

The Lee Plan regulates land development in the County.[7] Its Future Land Use Map divides the County into future urban, nonurban, and environmentally sensitive areas. All development must be consistent with the Lee Plan including the Future Land Use Map.[8]

The future land use designation is Industrial Interchange.[9] Interstate Highway Interchange Areas are special areas designated for a specific primary role.[10] Industrial Interchange Areas allow combinations of light industry, research, and office uses.[11]

The zoning designation is IPD. The purpose of the IPD district is to accommodate development of the manufacture of goods/materials, and storage and wholesale distribution of those goods/materials. The Kelly Tractor operation consists of a 73,000 +/- square foot building, paved parking, and unpaved open storage areas.

The property is in the Fort Myers Shores Planning District. and the Caloosahatchee Shores Community planning area. The Board approved the Kelly Tractor IPD prior to the adoption of the Caloosahatchee Shores community plan.[12] The LDC states

---

[5] The site is improved with a large building with paved parking on three sides. The building features an office area and four large vehicle bays for service and deliveries. A fence lines the perimeter of the property and there is mature vegetation along Kelly Tractor Drive. Roadside landscaping screens much of the Kelly Tractor site, but vehicles and equipment are visible from the roadway.

[6] La Mesa RV & Motorhome Service lies in the southwest portion of the IPD.

[7] LDC 34-491.

[8] Lee Plan Policy 2.1.2; LDC §§34-411(a), 34-491: Rezonings must be consistent with Lee Plan goals, objectives, and policies. Potential conflicts between the Lee Plan and the LDC must be resolved in favor of the Lee Plan.

[9] Lee Plan Map 1-A.

[10] Lee Plan Objective 1.3.

[11] Lee Plan Policy 1.3.1.

[12] The Board adopted the Caloosahatchee Shores Community Plan Lee Plan amendments on October 23, 2003, and adopted the corresponding LDC amendments on January 10, 2012 (Lee County Ordinance 12-01).

existing MCPs may be voluntarily brought into compliance with the community plan, but new development applications must comply.[13] The County's planning expert opined the provisions of the Community Plan do not apply to industrial land uses, highlighting text referencing only residential and commercial land uses.[14] Accordingly, the requested deviations are not required to meet variance standards imposed by the community plan.

Compatibility

Compatibility exists when land uses exist in proximity, and no one use *unduly impacts* the other in a negative manner.[15] The planned development zoning district is a means to integrate new development with surrounding land uses.[16] Planned development zoning also furthers Lee Plan goals while providing flexibility in planning/design.[17]

The proposed pylon sign will be in the corner of the site adjacent to the interstate. Applicant demonstrated with line of sight exhibits that the sign will not be visible from residential land uses in the area. Staff conditioned approval of the deviations to ensure compatibility with surrounding land uses.[18]

LDC

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

The desire to install a pylon sign along the I-75 frontage motivates the request for deviations from the LDC.

A "deviation" is a departure from a land development regulation.[19] Requests for deviations must demonstrate that the deviation will enhance the planned development and not cause a public detriment.[20]

The requested sign deviations seek a 60 foot tall ground mounted identification sign with 616 square feet of sign area, including an electronic changing message center along the site's road frontage along the interstate. The signs mounted on the pylons do not exceed 292 square feet when each sign is measured separately.[21] However LDC measurement criteria require inclusion of the space

[13] LDC §33-1483.
[14] Testimony of Adam Mendez, Senior Planner, Department of Community Development.
[15] Florida Statutes s.163.3164(9).
[16] LDC §§34-411(a), 34-612(2).
[17] *Id.*
[18] Lee Plan Policies 2.2.1, 7.1.2, 7.1.3.
[19] LDC §34-2.
[20] LDC §34-373(a)(9).
[21] This square footage is consistent with LDC §30-153(5)e.

between the signs when calculating sign area. This nuance of the code triggers the need for the deviations.

Applicant supplied testimony in support of both deviations based on the LDC standard of review.[22] To summarize, the LDC limits ground mounted identification signs on the property to 144 square feet and a height of 20 feet.[23] Obstructions created by mature vegetation along the I-75 frontage prompted Applicant to seek relief from code criteria to permit a 616 square foot pylon sign 60 feet in height. The sign mounted on the upper portion of the pylon structure will be a traditional sign copy. The sign mounted beneath will be an Electronic Changing Message Center 96 square feet in area with electronically changeable sign copy.[24] These heights and dimensions will not negatively impact residential land uses.[25]

Staff recommends approval of both deviations subject to conditions.

The Hearing Examiner must recommend approval, approval with modifications, or denial of requested deviations based upon findings that the deviations (1) enhance the planned development and, (2) preserve/promote public health, safety, and welfare.[26] The Hearing Examiner agrees with staff's finding that the requested deviations meet LDC approval criteria.

Projects in the Caloosahatchee Shores Planning Community must conduct one advertised public information session within the planning community.[27] Applicant hosted a meeting at the Riverdale Public Library.[28]

Environmental/Natural Resources

Zoning requests must not adversely affect environmentally critical/sensitive areas or natural resources. The proposed amendments to the IPD have no impact on open space areas, indigenous vegetation, or landscaped buffers.

The Hearing Examiner finds the proposed amendments to the IPD will not harm environmentally critical/sensitive areas or natural resources.

---

[22] LDC §34-377(a)(4).
[23] LDC §30-153(3).
[24] It is noteworthy that based on their individual measurements, the signs mounted on the pylons do not exceed 292 square feet when measuring each sign separately. This square footage is consistent with LDC §30-153(5)e. Further, the community plan requirement that departures from sign criteria must be approved by variance or deviations meeting variance standards is inapplicable to industrial developments. *See* Staff Report page 8. This rationale extends to the prohibition of Electronic Changing Message Centers in the community. Accordingly, the requested sign deviations are subject to traditional deviation standards for approval.
[25] Lee Plan Objective 21.1.
[26] LDC §34-377(a)(4).
[27] LDC §33-1482(a).
[28] The meeting was held on January 30, 2024, but there were no members of the public in attendance.

Transportation/Traffic

Zoning requests 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.

The requested amendments to the IPD do not affect trip generation rates.

Public Services and Infrastructure

Public services are the services, facilities, capital improvements, and infrastructure necessary to support development. The Lee Plan requires an evaluation of the availability of public services during zoning.[29]

Prior zoning approvals found adequate public services and infrastructure in place to serve the IPD. The proposed sign deviations do not impact this finding.

Conditions

The County must administer the zoning process so proposed land uses minimize adverse impacts on adjacent property and protect County's water resources.[30] Conditions must plausibly relate to anticipated impacts, and pertinent to mitigating impacts to public health, safety, and welfare.[31] The IPD is subject to existing conditions of approval designed to address impacts reasonably anticipated from development.[32] Staff recommends additional conditions be placed on the requested sign deviations.

Public

No members of the public attended the hearing.

Conclusion

The Hearing Examiner recommends approval of the proposed amendment subject to the conditions in Exhibit B.

The Lee Plan Economic Element directs the County to encourage and support existing businesses.[33] The requested deviations will increase visibility of the Kelly Tractor operation thereby enhancing its commercial viability. Accordingly, the Hearing Examiner finds the requested sign deviations meet LDC criteria and are consistent with the Lee Plan and compatible with surrounding development.

---

[29] Lee Plan Policy 2.2.1.
[30] Lee Plan Policies 2.2.1, 7.1.3; LDC 34-145(d)(4) a.2.(b), LDC §§34-377(a)(3), 34-411, and 34-932(c).
[31] LDC §34-932(b).
[32] LDC §§34-83(b)(4) a.3, 34-377(a)(2)c.
[33] Lee Plan Policies 159.2.2, 159.2.4.

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

IV. Findings and Conclusions

Based on the testimony and exhibits in the record, the Hearing Examiner recommends approval of the request subject to conditions, and makes the following findings and conclusions:

The request to amend the Kelly Tractor IPD zoning approvals complies with the Lee Plan. Lee Plan Goals 2, 7, 21, 77; Objectives 1.3, 2.1, 2.2, 4.1, 7.1, 77.2, and Policies 1.3.1, 1.6.5, 2.1.1, 2.1.2, 2.2.1, 7.1.1, 7.1.2, 7.1.3, 7.1.8, 39.2.1, 159.2.2, 159.2, Lee Plan Maps 1-A, 1-B, 2-A.

A. As conditioned herein, the proposed amendments:

1. Meet standards in the LDC and other regulations or qualifies for deviations. Lee Plan Goals 2, 4, 7, 21; Objectives 2.2 and Policy 7.1.2; and LDC Chapters 2, 10, 33, 34.

2. Is compatible with existing and planned uses in the surrounding area. Lee Plan Goal 2, Objectives 2.1, 2.2, and Policies 2.2.1, 7.1.2, 7.1.3, 7.1.6, 39.1.3. and LDC 34-411(j).

3. Provides access to support the proposed development intensity. Lee Plan Policies 7.1.1, 39.2.1, 39.1.3; and LDC 34-411(d).

4. Existing regulations and conditions of approval address expected impacts on transportation facilities.

5. Will not adversely affect environmentally critical areas or natural resources. Lee Plan Objective 77.2, Policy 7.1.6, and Standard 4.1.4; and LDC 34-411(h); and

6. Will be served by public services including potable water and sewer, paved streets, police, fire and emergency services, and urban surface water management. Lee Plan Objectives 2.1, 2.2, 4.1, Policy 2.2.1; and Standards 4.1.1, 4.1.2.

B. The proposed use is appropriate at the location. Lee Plan Goals 2, 7, 21, Objectives 1.1, 2.1, 2.2, Policies 2.1.1, 2.2.2, 7.1.3, 7.1.6, 7.1.7, 39.1.3, Table 1(b); and LDC 34-411.

C. The recommended conditions of approval and applicable regulations provide sufficient safeguards to protect the public interest. *See* LDC 34-411.

D. The recommended conditions are reasonably related to the impacts expected from the proposed development.

F. The deviations recommended for approval:

1. Enhance the objectives of the planned development; and

2. Promote the intent of the LDC to protect public health, safety, and welfare.

Date of Recommendation: April 26, 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

LEGAL DESCRIPTION

CASE NUMBER: DCI2023-00046

LOTS 1 – 9 AND TRACTS A & B, KELLY TRACTOR COMMERCE CENTER, SECTION 10, TOWNSHIP 44 SOUTH, RANGE 25 EAST, ACCORDING TO THE MAP OR PLAT THEREOF ON FILE IN THE OFFICE OF THE CLERK OF THE CIRCUIT COURT, RECORDED IN PLAT BOOK 60, PAGE 18, PUBLIC RECORDS OF LEE COUNTY, FLORIDA.

STRAP NUMBER

10-44-25-08-00000.0020

10-44-25-08-00000.0060

10-44-25-08-00000.0080

10-44-25-08-00000.0030

10-44-25-08-00000.0050

10-44-25-08-00000.0010

10-44-25-08-00000.0070

10-44-25-08-00000.0040

10-44-25-08-0000B.00CE

10-44-25-08-0000A.00CE

REVIEWED
DCI2023-00046
Rick Burris, Principal Planner
Lee County DCD/Planning
4/2/2024

INK ENGINEERING INC.
6320 BEAU DRIVE
NORTH FT. MYERS, FLORIDA
(813) 995-8500

KELLY TRACTOR COMMERCE CENTER

A SUBDIVISION IN
SECTION 10, TOWNSHIP 44 S., RANGE 25 E.
LEE COUNTY, FLORIDA

PLAT BOOK 60 PAGE 18

SHEET 1 OF 2
MAY 12, 1997
JOB NO. 9031
FILE NO.: 9031P1

VAC2005-00032 a 10-foot wide public utility easement between Lots 8 and 9, Kelly Tractor Commerce Center Plat Book 60 Page 18 Approvd 11/22/05 Resolution No. 05-11-76 CCMB/Page 2005R-823

PETITION TO VACATE: VAC2019-00024
DESCRIPTION: VACATION OF PORTION OF KELLY TRACTOR DR RIGHT-OF-WAY, KELLY TRACTOR COMMERCE CENTER, SEC 10, TWP 44 S, RGE 25 E
PLAT BOOK AND PAGE: 60/18-19
DATE OF APPROVAL: 12/15/2020 – 9:30 AM PHO
RESOLUTION NO. 20-12-31
INSTRUMENT # 2021000022137

DESCRIPTION

TRACT OR PARCEL OF LAND IN THE SE 1/4 OF SECTION 10, TOWNSHIP 44 SOUTH, RANGE 25 EAST, LEE COUNTY, FLORIDA WHICH IS DESCRIBED AS FOLLOWS: FROM THE SOUTHEAST CORNER OF SAID SECTION 10; THENCE N.00°52'52"W. ALONG THE EAST LINE OF SAID SECTION 10 FOR 1323.36 FEET; THENCE S.89°08'21"W. ALONG THE 1/4-1/4 SECTION LINE OF SAID SECTION 10 FOR 371.16 FEET TO THE POINT OF BEGINNING.

THENCE CONTINUE S.89°08'21"W.FOR 1832.85 FEET TO THE NON-RADIAL INTERSECTION WITH A CURVE, CONCAVE TO THE EAST, RADIUS 1740.66 FEET, CENTRAL ANGLE 10°02'51", CHORD 304.89 FEET, CHORD BEARING N.06°01'19"W.. SAID CURVE BEING THE EASTERLY RIGHT OF WAY OF INTERSTATE I-75; THENCE NORTHERLY FOR 305.26 FEET ALONG THE ARC OF SAID CURVE; THENCE N.03°58'44"W. FOR 900.18 FEET ALONG A NON-TANGENT LINE BEING THE EASTERLY RIGHT OF WAY OF INTERSTATE I-75; THENCE N.00°59'59"W. FOR 120.48 FEET ALONG THE EASTERLY RIGHT OF WAY OF INTERSTATE I-75; THENCE N.89°09'28"E. FOR 2161.44 FEET TO THE WESTERLY RIGHT OF WAY OF COUNTRY LAKES DRIVE S.E.; THENCE S.00°55'48"E. FOR 0.07 FEET ALONG THE WESTERLY RIGHT OF WAY OF COUNTRY LAKES DRIVE S.E. TO THE POINT OF CURVATURE OF A CURVE TO THE RIGHT, RADIUS 310.00 FEET, CENTRAL ANGLE 41°30'27", SAID CURVE BEING THE WESTERLY RIGHT OF WAY OF COUNTRY LAKES DRIVE S.E. ; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE FOR 224.56 FEET TO THE POINT OF TANGENCY; THENCE S.40°33'39"W. FOR 150.00 FEET ALONG THE WESTERLY RIGHT OF WAY OF COUNTRY LAKES DRIVE S.E. TO THE POINT OF CURVATURE OF A CURVE TO THE LEFT, RADIUS 390.00 FEET, CENTRAL ANGLE 41°26'31", SAID CURVE BEING THE WESTERLY RIGHT OF WAY OF COUNTRY LAKES DRIVE S.E. THENCE SOUTHERLY ALONG THE ARC OF SAID CURVE FOR 282.09 FEET TO THE POINT OF TANGENCY; THENCE S.00°52'52"E. FOR 739.62 FEET ALONG THE WESTERLY RIGHT OF WAY OF COUNTRY LAKES DRIVE S.E. TO THE POINT OF BEGINNING.

CONTAINING 58.536 ACRES MORE OR LESS.

SURVEYORS NOTES

1. BEARINGS SHOWN HEREON ARE BASED ON THE SOUTH LINE OF COUNTRY LAKES SUBDIVISION, UNIT 1, BEING S.89°09'28" W., PLAT BOOK 38, PAGES 11 -15 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA
2. LINES INTERSECTING CURVES ARE RADIAL UNLESS OTHERWISE NOTED.

EASEMENT DESCRIPTIONS

PUBLIC UTILITY EASEMENTS ARE HEREBY GRANTED OVER, UNDER AND ACROSS THE FOLLOWING:

1. THAT STRIP OF LAND LYING 10 FEET OUTSIDE OF TRACT "A". (ROADWAY) ACROSS LOTS AND TRACTS.
2. THOSE STRIPS OF LAND OTHERWISE LABELED AS SUCH EASEMENTS ON THIS PLAT.
3. ALL PRIVATE ROADS (TRACT "A") ARE PUBLIC UTILITY EASEMENTS.

4227318

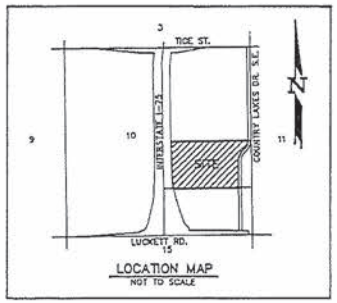
CLERK'S CERTIFICATE

I HEREBY CERTIFY THAT THE ATTACHED PLAT OF KELLY TRACTOR COMMERCE CENTER A SUBDIVISION LOCATED IN SECTION 10, TOWNSHIP 44 SOUTH, RANGE 25 EAST, LEE COUNTY, FLORIDA, HAS BEEN EXAMINED BY ME AND FROM MY EXAMINATION I FIND THAT SAID PLAT COMPLIES WITH THE REQUIREMENTS OF CHAPTER 177, LAWS OF FLORIDA. I FURTHER CERTIFY THAT THIS PLAT WAS FILED FOR RECORD AT 3:58 P.M., THIS 29TH DAY OF AUGUST, 1997 AND DULY RECORDED IN PLAT BOOK 60 AT PAGES 17 THROUGH 18, PUBLIC RECORDS OF LEE COUNTY, FLORIDA.

Charlie Green
CLERK OF CIRCUIT COURT IN
AND FOR LEE COUNTY, FLORIDA

Charlie Green
PRINT NAME

SEAL



LOCATION MAP
NOT TO SCALE

NOTICE:

LANDS DESCRIBED IN THIS PLAT ARE SUBDIVIDED BY THE DEVELOPER WITHOUT THE ROADS, DRAINAGE AND SEWER FACILITIES BEING ACCEPTED FOR MAINTENANCE BY LEE COUNTY. ANY PURCHASER OF A LOT IN THIS SUBDIVISION IS ADVISED THAT HE MAY BE SUBJECT TO ASSESSEMENT OR CALLED UPON TO BEAR A PORTION OR ALL OF THE EXPENSE OF CONSTRUCTION, MAINTENANCE OR IMPROVEMENT OF ROADS, DRAINAGE AND SEWER FACILITIES.

NOTICE

THERE MAY BE ADDITIONAL RESTRICTIONS THAT ARE NOT RECORDED ON THIS PLAT THAT MAY BE FOUND IN THE PUBLIC RECORDS OF THIS COUNTY.

APPROVALS

THIS PLAT IS ACCEPTED AND APPROVED BY THE BOARD OF COUNTY COMMISSIONERS, LEE COUNTY, FLORIDA THIS 25th DAY OF July 1997.

CHAIRMAN OF THE BOARD
PRINT NAME: ROBERT P. JAY

CLERK OF COURT
PRINT NAME: Charlie Green

COUNTY ATTORNEY
PRINT NAME: JOHN J. FRGOVIMA

DIRECTOR, DEVELOPMENT SERVICES DIVISION
PRINT NAME: WALTER J. McCARTHY

DIRECTOR, DEPARTMENT OF COMMUNITY DEVELOPMENT
PRINT NAME: MARY GIBBS

SEAL

DEDICATION

KNOW ALL MEN BY THESE PRESENT THAT, KELLY TRACTOR COMPANY, A FLORIDA CORPORATION AUTHORIZED TO TRANSACT BUSINESS IN THE STATE OF FLORIDA, THE OWNER OF THE LANDS DESCRIBED HEREON, HAS CAUSED KELLY TRACTOR COMMERCE CENTER A SUBDIVISION LOCATED IN SECTION 10, TOWNSHIP 44 SOUTH, RANGE 25 EAST, LEE COUNTY, FLORIDA, TO BE MADE AND DEDICATES TO THE COMMERCE CENTER ASSOCIATION, INC. FOR PROPER PURPOSES, TRACT "A","B", DRAINAGE EASEMENTS AND LAKE DRAINAGE AND MAINTENANCE EASEMENT SHOWN HEREON. THE UTILITY EASEMENTS , SHOWN HEREON ARE DEDICATED TO THE PUBLIC.

IN WITNESS WHEREOF KELLY TRACTOR COMPANY, HAS CAUSED THESE PRESENT TO BE MADE THIS 15th DAY OF July, 1997.

KELLY TRACTOR COMPANY

BY: L. Patrick Kelly
L. PATRICK KELLY
PRESIDENT

L. PATRICK KELLY
PRINT NAME

WITNESSES:

John Killmer
PRINT NAME

Lisa Yakopcic
PRINT NAME

ACKNOWLEDGMENT

STATE OF FLORIDA
COUNTY OF LEE

THE FOREGOING DEDICATION WAS ACKNOWLEDGED BEFORE ME THIS 15 DAY OF July, 1997 BY L. PATRICK KELLY, PRESIDENT OF KELLY TRACTOR COMPANY CORPORATION , ON BEHALF OF THE CORPORATION. HE IS PERSONALLY KNOWN TO ME OR HAD PRODUCED _____ AS IDENTIFICATION.

Lucila F. de Varona
NOTARY PUBLIC, STATE OF FLORIDA
AT LARGE
MY COMMISSION EXPIRES: 4/15/99

LUCILA F. de VARONA
PRINT NAME

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE ATTACHED PLAT OF KELLY TRACTOR COMMERCE CENTER A SUBDIVISION LOCATED IN SECTION 10, TOWNSHIP 44 SOUTH, RANGE 25 EAST, LEE COUNTY, FLORIDA, IS A TRUE AND CORRECT REPRESENTATION OF THE HEREIN DESCRIBED LAND ACCORDING TO A RECENT SURVEY MADE AND PLATTED UNDER MY DIRECTION AND SUPERVISION AND THAT THE SURVEY DATA COMPLIES WITH ALL OF THE REQUIREMENTS OF CHAPTER 177, FLORIDA STATUTES. I FURTHER CERTIFY THAT THE PERMANENT REFERENCE MONUMENTS (PRM'S) HAVE BEEN PLACED AT THE LOCATIONS SHOWN ON THE PLAT.

INK ENGINEERING, INC.

DATE THIS 21 DAY OF AUG. 1997

GORDON D. MEIERS,
PROFESSIONAL LAND SURVEYOR
FLORIDA CERTIFICATE NO. 2858

SEAL

00 # 93-01-015.000

PLAT BOOK 60 PAGE 19

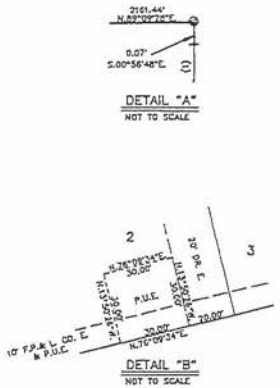
KELLY TRACTOR COMMERCE CENTER

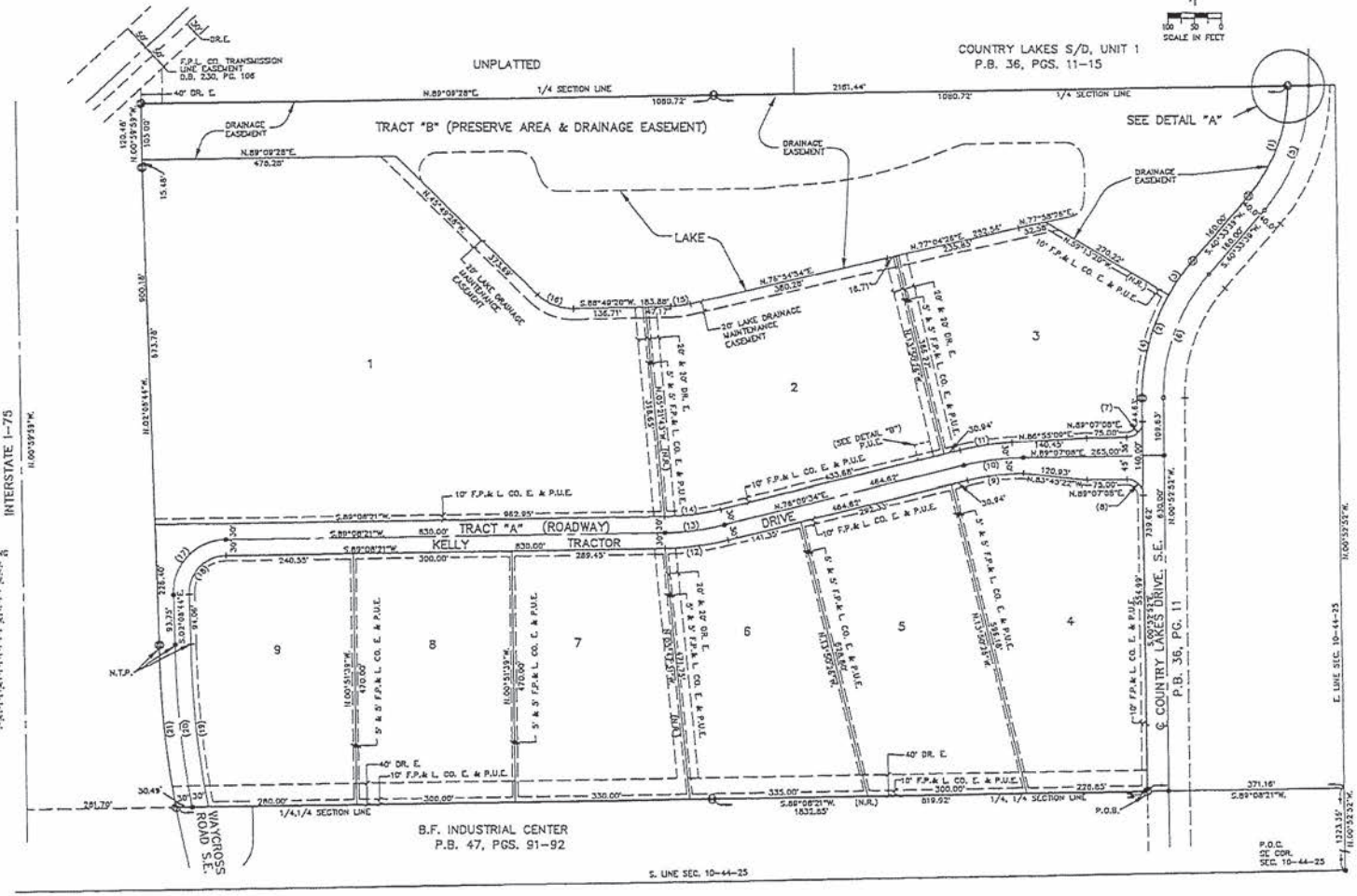
A SUBDIVISION IN
SECTION 10, TOWNSHIP 44 S., RANGE 25 E.
LEE COUNTY, FLORIDA

SHEET 2 OF 2
MAY 12, 1997
JOB NO. 9031
FILE NO.: 9031P1

INK ENGINEERING INC.
6320 BEAU DRIVE
NORTH FT. MYERS, FLORIDA
(813) 995-8500

PETITION TO VACATE: VAC2019-00024
DESCRIPTION: VACATION OF PORTION OF KELLY TRACTOR DR RIGHT-OF-WAY, KELLY TRACTOR COMMERCE CENTER, SEC 10, TWP 44 S, RGE 25 E
PLAT BOOK AND PAGE: 60/18-19
DATE OF APPROVAL: 12/19/2020 – 9:30 AM PM3
RESOLUTION NO. 20-12-31
INSTRUMENT # 2021000025137





CURVE TABLE

NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	CHORD BEARING
1	310.00'	41°30'27"	224.58'	117.47'	219.70'	S.19°48'23"W.
2	390.00'	41°26'31"	282.09'	147.53'	275.98'	S.19°50'24"W.
3	390.00'	11°37'04"	79.14'	39.70'	79.00'	S.34°44'57"W.
4	390.00'	29°46'37"	202.95'	103.83'	200.67'	N.14°01'37"E.
5	350.00'	41°30'27"	253.55'	132.84'	248.01'	N.19°48'23"E.
6	350.00'	41°26'31"	253.15'	132.40'	247.67'	N.19°50'24"E.
7	30.00'	90°00'00"	47.12'	30.00'	42.43'	N.44°07'08"E.
8	30.00'	90°00'00"	47.12'	30.00'	42.43'	N.45°52'52"W.
9	470.00'	12°57'34"	106.31'	53.36'	106.08'	N.82°39'21"E.
10	500.00'	12°57'34"	113.09'	56.79'	112.85'	N.82°39'21"E.
11	530.00'	10°43'35"	99.23'	49.91'	99.08'	N.81°32'22"E.
12	530.00'	12°58'47"	120.09'	60.29'	119.81'	N.82°38'58"E.
13	500.00'	12°58'47"	113.27'	56.88'	113.02'	N.82°38'58"E.
14	470.00'	12°58'47"	106.47'	53.48'	106.24'	N.82°38'58"E.
15	182.00'	11°54'28"	37.82'	18.98'	37.76'	N.82°52'07"E.
16	83.00'	45°21'12"	75.20'	39.69'	73.25'	N.66°39'04"W.
17	100.00'	91°17'03"	159.33'	102.27'	143.00'	N.43°29'48"E.
18	70.00'	91°17'03"	111.50'	71.59'	100.10'	N.43°29'48"E.
19	1650.66'	10°26'06"	300.14'	150.50'	299.72'	N.05°11'44"W.
20	1710.66'	10°14'17"	305.71'	153.26'	305.31'	N.05°06'23"W.
21	1740.66'	10°02'51"	305.29'	153.03'	304.89'	N.05°01'19"W.

LEGEND

P.R.M.	PERMANENT REFERENCE MONUMENT
P.C.P.	PERMANENT CONTROL POINT
(N.R.)	NON RADIAL
●	DENOTES P.C.P.
⊕	DENOTES SET P.R.M. (LB 858)
LB	LICENSED BUSINESS
(1)	DENOTES CURVE NUMBER
P.U.E.	PUBLIC UTILITY EASEMENT
DR. E.	DRAINAGE EASEMENT
FD.	FOUND
F.P.L. CO.	FLORIDA POWER & LIGHT COMPANY
E.	EASEMENT
P.B.	PLAT BOOK
PG.	PAGE
C.M.	CONCRETE MONUMENT
N.T.P.	NON TANGENT POINT
S/D	SUBDIVISION
O.R.	DEED BOOK
P.O.B.	POINT OF BEGINNING
P.O.C.	POINT OF COMMENCEMENT

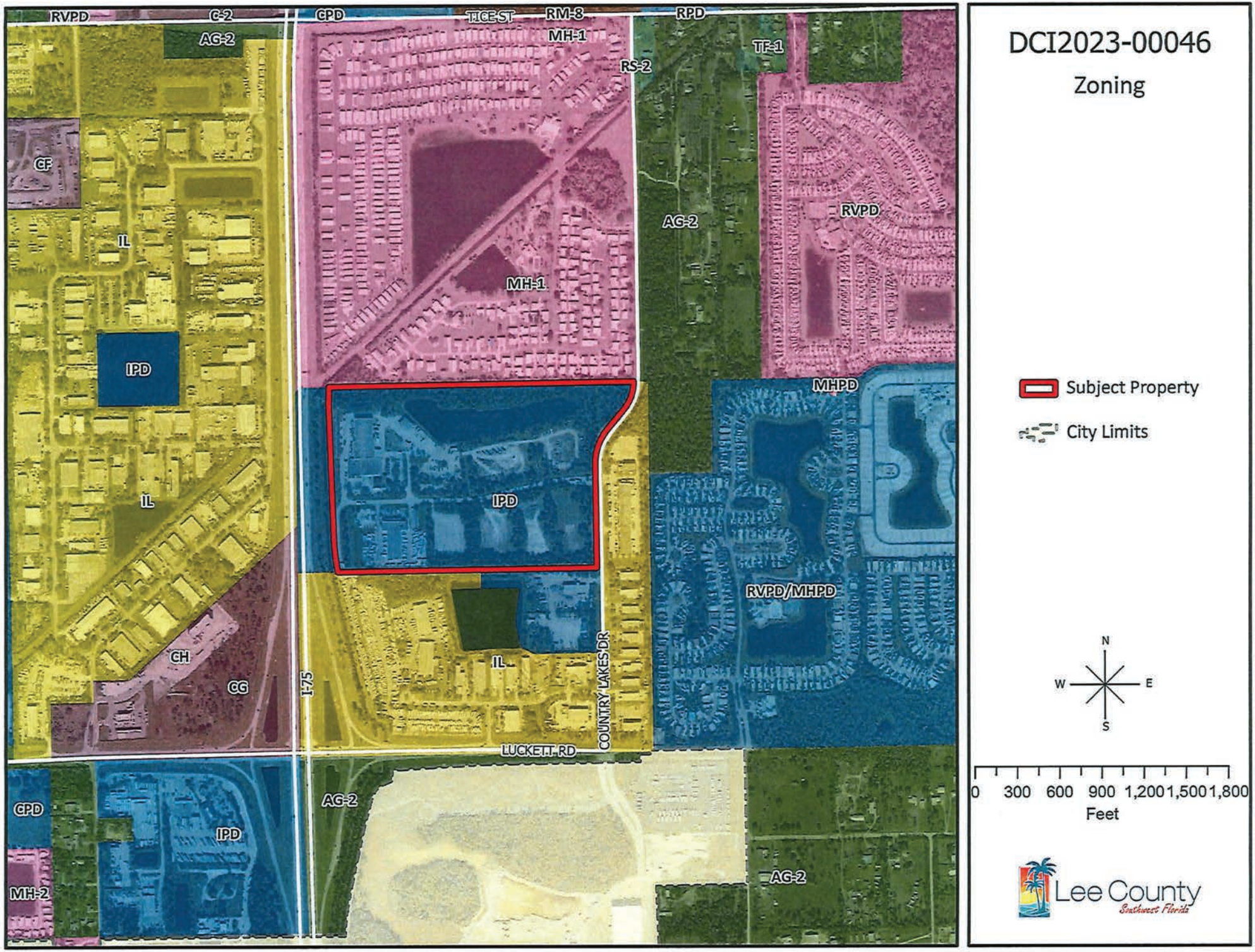

RVPD
C-2
AG-2
CPD
TICE ST
RM-8
MH-1
RS-2
RPD
TF-1
RVPD
AG-2
CF
IL
MH-1
IPD
IPD
MHPD
IL
IPD
RVPD/MHPD
CH
CG
I-75
IL
COUNTRY LAKES DR
LUCKETT RD
CPD
IPD
AG-2
AG-2
MH-2
DCI2023-00046
Zoning
Subject Property
City Limits
N
W
E
S
0 300 600 900 1,200 1,500 1,800
Feet
Lee County
Southwest Florida

Exhibit B

RECOMMENDED CONDITIONS AND DEVIATIONS

As revised by the Hearing Examiner

CONDITIONS

1. **Master Concept Plan and Development Parameters**

   a. Master Concept Plan (MCP). Development must be substantially consistent with the one-page MCP entitled "Kelly Tractor IPD Master Concept Plan" dated April 16, 2024, attached as Exhibit B1.

   b. Approved Development Parameters. Maximum development intensity is limited to 500,000 square feet of floor area as follows: 240,000 square feet of light industrial uses, 200,000 square feet of commercial uses. An additional 60,000 square feet may be dispersed between these allocations provided maximum building floor area is consistent with the intensity assigned to each lot on the MCP.

   c. Compliance with Lee Plan and Land Development Code (LDC). Development must comply with the Lee Plan and LDC at the time of local development order approval, except as may be granted by deviation in this planned development. Subsequent amendments to the MCP or condition of approval will be subject to further development review and approval.

   d. Superseding Resolution. Resolution Z-91-095 and Administrative Amendment ADD2015-00114 are superseded and replaced with this resolution.

2. **Schedule of Uses and Property Development Regulations**

   References to uses are as defined/listed in the LDC.

   a. Schedule of Permitted Uses

   Administrative offices
   Building material sales
   Business Services, Groups I and II
   Caretakers' residence
   Entrance gates and gatehouses
   Essential services

Essential services, Groups I and II
Excavation, water retention
Factory outlets (point of manufacture only)
Freight and cargo handling establishments
Gasoline dispensing system
Laundry or dry cleaning, Group II
Maintenance facility (government)
Mini-warehouse
Printing and publishing
Rental or leasing establishments, Groups III and IV
Repair shops, Groups III, IV and V
Signs (see Deviations 3, 4, 5, 6 and 7)
Storage, open (see Condition 5)
Storage, indoor
Transportation services, Groups III and IV (excluding aviation facilities)
Vehicle and equipment dealers, All Groups
Warehouse, public
Wholesale establishments, Groups III and IV

b. Property Development Regulations

Minimum Lot Area and Dimensions

Lot Area:	3 acres
Lot Width:	200 feet
Lot Depth:	400 feet

Minimum Building Setbacks and Maximum Building Heights:

Street:	25 feet
Side:	15 feet
Rear:	20 feet
Waterbody:	25 feet
Maximum building height:	45 feet
Lot Coverage:	40 percent

3. Open Space

Prior to the issuance of local development order, the development order plans must depict 20 percent open space on each development lot.

4. Indigenous Preserve

The ±7.54-acre indigenous preserve area must be substantially consistent with the Master Concept Plan.

5. Open Storage

Open storage is permitted as an accessory use when incidental to a permitted principal use limited to Lots 1, 2, 5, 6, 7 and 8 on the MCP.

6. **Hazardous Materials**
Development is subject to the Lee County Hazardous Waste and Hazardous Materials Incidents Cost Recovery Ordinances.

7. **Masonry Wall**
The six-foot-tall masonry wall and lake depicted on the MCP must provide a continuous barrier between development lots and the preserve area.

8. **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. Excavations. Deviation #1 seeks relief from LDC §10-329(d)(3), which limits water retention or detention excavations to a maximum depth of 12 feet, to allow a maximum depth of 25 feet.

   This deviation is **APPROVED**, subject to consistency with the MCP Lake Cross Section detail and supplemental criteria in LDC §10-329(d)(3)a.

2. Landscape Standards. Deviation #2 seeks relief from LDC §10-416(d)(3), which requires a 25-foot-wide Type E Buffer consisting of 5 trees 30 shrubs per 100 linear feet with an 8-foot-high solid wall or wall and berm combination when industrial uses abut a single-family use, to allow the 7.54 acre indigenous preserve area and 6-foot-high masonry wall to serve as a required native vegetation buffer.

   This deviation is **APPROVED,** subject to the following conditions:

   i. Supplemental vegetation of South Florida Slash Pines and wax myrtles must be planted along with the existing vegetation to provide an opaque screen. The plantings must be placed in the preserve area 417 feet west of the east property line for a distance of 140 feet and 700 feet west (also measured from the east property line) extending to the eastern edge of the concrete block wall located on the northern boundary of Lot 1. The type and size of the vegetation shall be as follows:

      - 100 percent native vegetation.
      - Shrubs must be a minimum of 4 feet high with 3-foot spread.

- Supplemental trees must be 10 feet in height and meet the plant material standards in LDC Section 10-420.

ii. Existing native vegetation must be retained and may count towards the tree requirement herein.

iii. Transplanting of native vegetation from areas to be developed is permitted, provided development is consistent with the conditions of approval and LDC.

iv. The native vegetation buffer and preserve area must be no less than 100 feet wide. The edge of the lake must not be located closer than 100 feet to the north property line.

3. Permanent signs in industrial areas. Deviation #3 seeks relief from LDC §30-153(3)a.6., which limits a corner lot to one ground-mounted identification, to allow a secondary ground-mounted identification sign on Kelly Tractor Drive for Lot 1.

This Deviation is **APPROVED**.

4. Permanent signs in industrial areas. Deviation #4 seeks relief from LDC §30-153(3)a.5., which limits a secondary ground-mounted identification sign to 24 square feet of sign copy area, to allow 60 square feet of sign copy area for signage on Lot 1.

This Deviation is **APPROVED**.

5. Permanent signs in industrial areas. Deviation #5 seeks relief from LDC §30-153(3)(e), which establishes a 15-foot right-of-way setback for ground-mounted identification signs, to allow a 5-foot right-of-way setback for the secondary sign on Lot 1 along the Kelly Tractor Drive right-of-way.

This Deviation is **APPROVED**.

6. Permanent signs in industrial areas. Deviation #6 seeks relief from LDC §30-153(3)a.6., which permits a maximum of 144 square feet of sign area for a ground-mounted identification sign, when limiting the property to one on a corner lot in lieu of two smaller signs on each road, to allow a maximum of 616 square feet of sign area.

Hearing Examiner Recommendation:
This Deviation is **APPROVED**, subject to the following conditions:

A. Sign area must substantially comply with the Applicant's Sign Package Exhibit attached as Attachment B2.

B. Future design and copy changes are permitted provided the sign area of each sign, measured individually, does not exceed its respective sign area.

C. The ground mounted identification sign may not contain more than 96 square feet of sign area copy defined as an Electronic Changing Message Center.

D. The deviation is limited to the location depicted on the MCP.

7. Permanent signs in industrial areas. Deviation #7 seeks relief from LDC §30-153(3)b., which establishes a maximum sign height of 20 feet for a ground-mounted identification sign, to allow a maximum sign height of 60 feet.

Hearing Examiner Recommendation:
This deviation is **APPROVED**, subject to the condition that the deviation is limited to the location depicted on the MCP.

Exhibits to Conditions:
B1 Kelly Tractor IPD Master Concept Plan dated April 16, 2024
B2 Sign Package

EXHIBIT B-1

Additional info dated 04-17-2024

SITE DATA

TOTAL GROSS ACREAGE	58.54 ± AC.
PRESERVATION AREA	7.54 ± AC.
LAKE AREA	5.62 ± AC.
ROADWAYS	4.32 ± AC.
MAXIMUM BUILDING AREA	500,000 S.F.
MAXIMUM BUILDING HEIGHT	45 FEET
MINIMUM OPEN SPACE	20 PERCENT

TYPICAL LOT

STREET SETBACK – LOCAL ROAD (PUBLIC)	25 FEET
STREET SETBACK – ARTERIAL	25 FEET
SIDE SETBACKS	20 FEET
REAR SETBACKS	20 FEET *
WATER SETBACKS	25 FEET
MAXIMUM LOT COVERAGE	40 PERCENT
MINIMUM OPEN SPACE	20 PERCENT

* NOTE: PRESERVE AREA TO THE NORTH INSURES MINIMUM 100 FOOT SETBACK FROM RESIDENTIAL PROPERTY WILL BE MET.

NUMBER OF BUIDINGS

LOT 1	1-5 BUILDINGS
LOT 2	1-4 BUILDINGS
LOT 3	1-4 BUILDINGS
LOT 4	1-4 BUILDINGS
LOT 5	1-4 BUILDINGS
LOT 6	1-4 BUILDINGS
LOT 7	1-4 BUILDINGS
LOT 8	1-4 BUILDINGS
LOT 9	1-4 BUILDINGS

THE NUMBER OF BUILDINGS LISTED FOR EACH LOT INCLUDES ACCESSORY STRUCTURES. IT IS ANTICIPATED THAT LOTS 4-9 WILL HAVE ONLY ONE (1) PRINCIPAL STRUCTURE AND THE REMAINDER OF BUILDINGS WILL BE ACCESSORY STRUCTURES.

SQUARE FOOTAGE LIMITATIONS

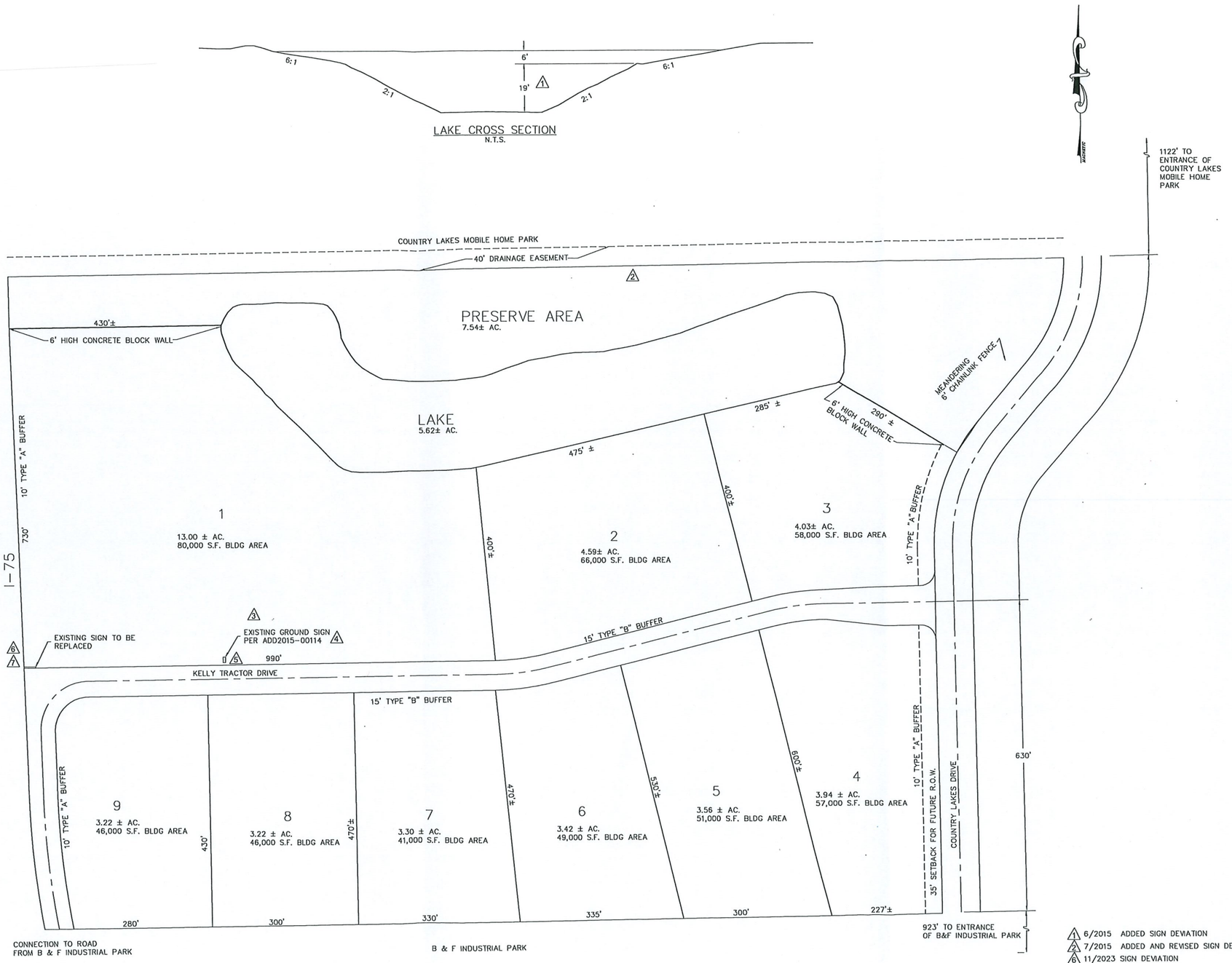
LIGHT INDUSTRIAL *	240,000 S.F.
HEAVY INDUSTRIAL *	60,000 S.F.
COMMERCIAL *	180,000 S.F.
OTHER *	20,000 S.F.

* USES LIMITED TO THOSE LISTED ABOVE. TYPE OF USES AND MAXIMUM BUILDING AREAS ARE SHOWN FOR EACH LOT.

SCHEDULE OF DEVIATIONS

1. DEVIATION FROM THE REQUIRED MAXIMUM DEPTH OF TWELVE (12) FEET FOR AN EXCAVATION FOR WATER RETENTION (PER SECTION 509.8 OF THE LEE COUNTY ZONING REGULATIONS) TO ALLOW A MAXIMUM DEPTH OF 25 FEET.
2. DEVIATION FROM THE REQUIREMENT THAT ALL COMMERCIAL AND INDUSTRIAL USES SHALL PROVIDE A CONTINUOUS SCREEN OF AT LEAST 8 FEET IN HEIGHT ALONG ANY LOT LINE ABUTTING A RESIDENTIAL USE (PER SECTION 202.14.e.1 OF THE LEE COUNTY ZONING REGULATIONS AND TABLE C-3 OF THE LEE COUNTY DEVELOPMENT STANDARDS ORDINANCE) TO UTILIZE THE NATRUAL VEGETATIVE BUFFER AND ELIMINATE A CONCRETE BLOCK WALL.
3. DEVIATION FROM LDC SECTION 30-153(3)a.6. TO ALLOW A SECOND I.D. SIGN IN ADDITION TO THE EXISTING SIGN WHICH WAS CONSTRUCTED AS 1 ½ TIMES THE MAXIMUM SIZE (144 SF) AND SUBSEQUENTLY REPLACED WITH A 616 SF SIGN PER DEVIATION 6.
4. DEVIATION FROM LDC SECTION 30-153(3)a.5. TO ALLOW FOR A 60 SF SECONDARY GROUND SIGN.
5. DEVIATION FROM LDC SECTION 30-153(e) TO ALLOW A 5 FOOT SETBACK FROM THE RIGHT-OF-WAY.
6. DEVIATE FROM LDC SECTION 30-153(3)a.6 TO ALLOW A COMBINED 616 SF SIGN TO REPLACE THE 144 SF SIGN.
7. DEVIATE FROM LDC SECTION30-153(B), TO ALLOW ONE 60-FOOT-TALL GROUND-MOUNTED IDENTIFICATION SIGN.

LAKE CROSS SECTION
N.T.S.



6/2015 ADDED SIGN DEVIATION
7/2015 ADDED AND REVISED SIGN DEVIATIONS
11/2023 SIGN DEVIATION
11/2023 SIGN DEVIATION

Rev. 4/17/24

RVi
20100 Burke Greene Drive
Suite 100
Estero, Florida 34135
Tel: 239.405.7777
www.rvidesign.com

KELLY TRACTOR IPD • MASTER CONCEPT PLAN

LEE COUNTY, FLORIDA
April 16, 2024
PROJECT# 2300-5638
KELLY TRACTOR CO.

0 50' 100' 200'
SCALE: 1" = 100'-0"

Information furnished regarding this property is from sources deemed reliable. RVi has not made an independent investigation of these sources and no warranty is made as to their accuracy or completeness. This plan is not



NEW HIGH RISE HIGHWAY SIGN @ 60' OAH

MAGNA
SIGN INTERNATIONAL

EXHIBIT B2

CATERPILLAR
Kelly Tractor - Ft Myers, FL



NEW HIGH RISE HIGHWAY SIGN @ 60' OAH

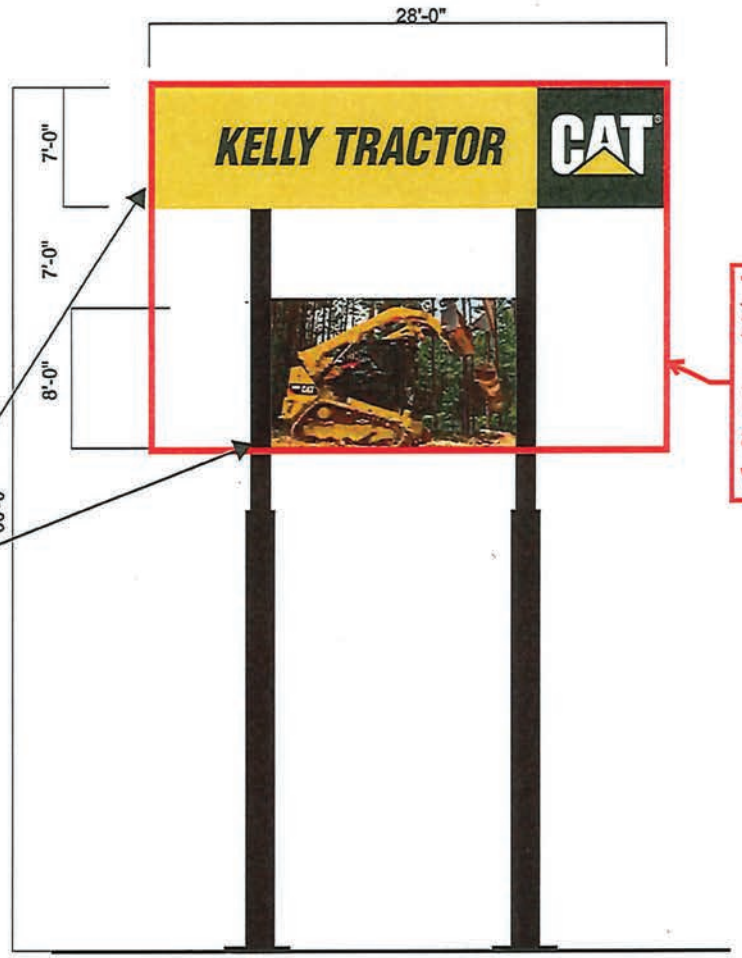
MAGNA
SIGN INTERNATIONAL

CATERPILLAR
Kelly Tractor - Ft Myers, FL

NEW PRIMARY POLE SIGN

- **7x28 DEALER SIGN w 8x12 DIGITAL LED BOARD @ 60' OAH**

SIGN COPY AREA
7 ft x 28 ft = 196 sq ft (Dealer Sign)
8 ft x 12 ft = 96 sq ft (LED Board)
TOTAL = 292 sq ft



TOTAL SIGN AREA PER LDC
22 ft x 28 ft = 616 sq ft

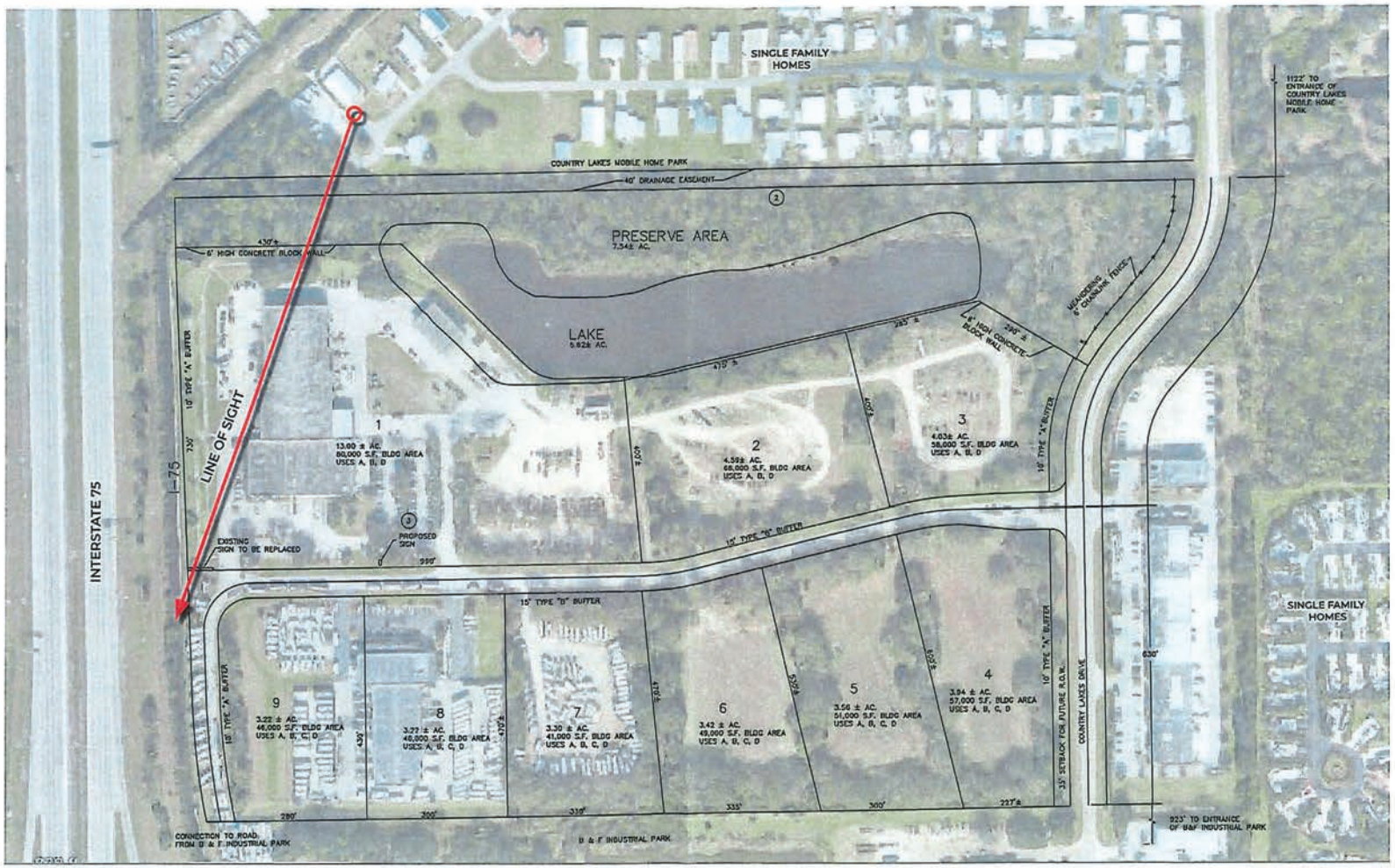
Represents total proposed sign area measurement in accordance with LDC

MAGNA Sign International

CATERPILLAR

Kelly Tractor - Ft Myers, FL

ATTACHMENT H



Copyright RVi

RVi

KELLY TRACTOR SIGNAGE • **LINE OF SIGHT PLAN**

- Lee County, FL
- January 17, 2023
- # 23005638
- Kelly Tractor Co.

0 100' 200'

SCALE: 1" = 100'



LINE OF SIGHT

1,103 FEET

RVi

KELLY TRACTOR SIGNAGE • **LINE OF SIGHT SECTION**

- Lee County, FL
- January 17, 2023
- # 23005038
- Kelly Tractor Co.

Exhibit C

EXHIBITS PRESENTED AT HEARING

STAFF EXHIBITS

1. *DCD Staff Report with attachments:* Prepared by Adam Mendez, Senior Planner, date received April 9, 2024 (multiple pages – 8.5"x11" & 11"x14") [black & white, color]

2. *PowerPoint Presentation:* Prepared by Lee County Staff for Zoning Case DCI2023-00046 (multiple pages – 8.5"x11")

3. Master Concept Plan: Prepared by RVI for Kelly Tractor IPD, dated April 16, 2024 (1 page – 11"x17")

4. *Written Submission:* Email from Adam Mendez to Maria Perez, dated Thursday, April 25, 2024, 3:37 PM (3 pages – 8.5"x11"){post hearing submittal}

APPLICANT EXHIBITS

1. *PowerPoint Presentation:* Prepared by RVI for Kelly Tractor IPD Amendment, Zoning Case DCI2023-00046, dated April 24, 2024 (multiple pages – 8.5"x11")

2. *Photographs:* Prepared by Magna Sign International for Caterpillar, Kelly Tractor, Fort Myers (multiple pages – 8.5"x11") [color]

3. Master Concept Plan: Prepared by RVI for Kelly Tractor IPD, dated April 16, 2024 (1 page – 11"x17" and 1 page 24"x36")

4. *Line of Sight Plan:* Prepared by RVI for Kelly Tractor IPD, dated January 17, 2023 (2 pages – 11"x17")

Exhibit D

HEARING PARTICIPANTS

County Staff:

1. Adam Mendez

Applicant Representatives:

1. Fred Drovdlic

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.

Additional info dated 04-17-2024

SITE DATA

TOTAL GROSS ACREAGE	58.54 ± AC.
PRESERVATION AREA	7.54 ± AC.
LAKE AREA	5.62 ± AC.
ROADWAYS	4.32 ± AC.
MAXIMUM BUILDING AREA	500,000 S.F.
MAXIMUM BUILDING HEIGHT	45 FEET
MINIMUM OPEN SPACE	20 PERCENT

TYPICAL LOT

STREET SETBACK – LOCAL ROAD (PUBLIC)	25 FEET
STREET SETBACK – ARTERIAL	25 FEET
SIDE SETBACKS	20 FEET
REAR SETBACKS	20 FEET *
WATER SETBACKS	25 FEET
MAXIMUM LOT COVERAGE	40 PERCENT
MINIMUM OPEN SPACE	20 PERCENT

* NOTE: PRESERVE AREA TO THE NORTH INSURES MINIMUM 100 FOOT SETBACK FROM RESIDENTIAL PROPERTY WILL BE MET.

NUMBER OF BUIDINGS

LOT 1	1-5 BUILDINGS
LOT 2	1-4 BUILDINGS
LOT 3	1-4 BUILDINGS
LOT 4	1-4 BUILDINGS
LOT 5	1-4 BUILDINGS
LOT 6	1-4 BUILDINGS
LOT 7	1-4 BUILDINGS
LOT 8	1-4 BUILDINGS
LOT 9	1-4 BUILDINGS

THE NUMBER OF BUILDINGS LISTED FOR EACH LOT INCLUDES ACCESSORY STRUCTURES. IT IS ANTICIPATED THAT LOTS 4-9 WILL HAVE ONLY ONE (1) PRINCIPAL STRUCTURE AND THE REMAINDER OF BUILDINGS WILL BE ACCESSORY STRUCTURES.

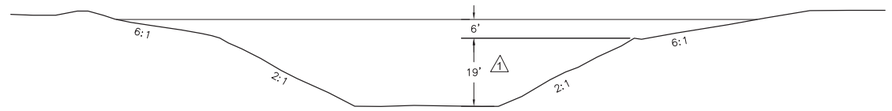
SQUARE FOOTAGE LIMITATIONS

LIGHT INDUSTRIAL *	240,000 S.F.
HEAVY INDUSTRIAL *	60,000 S.F.
COMMERCIAL *	180,000 S.F.
OTHER *	20,000 S.F.

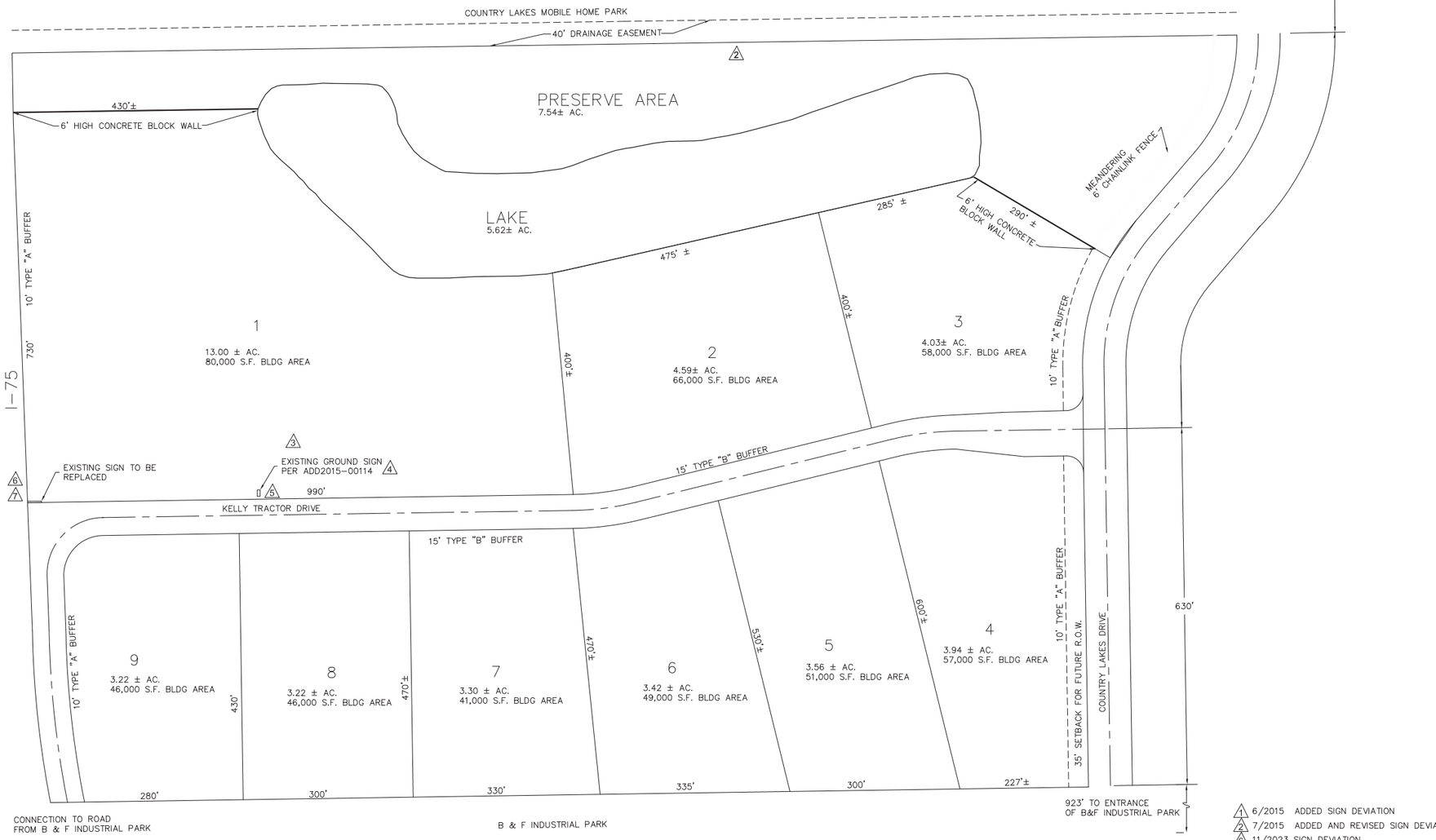
* USES LIMITED TO THOSE LISTED ABOVE. TYPE OF USES AND MAXIMUM BUILDING AREAS ARE SHOWN FOR EACH LOT.

SCHEDULE OF DEVIATIONS

1. DEVIATION FROM THE REQUIRED MAXIMUM DEPTH OF TWELVE (12) FEET FOR AN EXCAVATION FOR WATER RETENTION (PER SECTION 509.8 OF THE LEE COUNTY ZONING REGULATIONS) TO ALLOW A MAXIMUM DEPTH OF 25 FEET.
2. DEVIATION FROM THE REQUIREMENT THAT ALL COMMERCIAL AND INDUSTRIAL USES SHALL PROVIDE A CONTINUOUS SCREEN OF AT LEAST 8 FEET IN HEIGHT ALONG ANY LOT LINE ABUTTING A RESIDENTIAL USE (PER SECTION 202.14.e.1 OF THE LEE COUNTY ZONING REGULATIONS AND TABLE C-3 OF THE LEE COUNTY DEVELOPMENT STANDARDS ORDINANCE) TO UTILIZE THE NATRUAL VEGETATIVE BUFFER AND ELIMINATE A CONCRETE BLOCK WALL.
3. DEVIATION FROM LDC SECTION 30-153(3)a.6. TO ALLOW A SECOND I.D. SIGN IN ADDITION TO THE EXISTING SIGN WHICH WAS CONSTRUCTED AS 1 ½ TIMES THE MAXIMUM SIZE (144 SF) AND SUBSEQUENTLY REPLACED WITH A 616 SF SIGN PER DEVIATION 6.
4. DEVIATION FROM LDC SECTION 30-153(3)a.5. TO ALLOW FOR A 60 SF SECONDARY GROUND SIGN.
5. DEVIATION FROM LDC SECTION 30-153(e) TO ALLOW A 5 FOOT SETBACK FROM THE RIGHT-OF-WAY.
6. DEVIATE FROM LDC SECTION 30-153(3)a.6 TO ALLOW A COMBINED 616 SF SIGN TO REPLACE THE 144 SF SIGN.
7. DEVIATE FROM LDC SECTION30-153(B), TO ALLOW ONE 60-FOOT-TALL GROUND-MOUNTED IDENTIFICATION SIGN.



LAKE CROSS SECTION
N.T.S.



1 6/2015 ADDED SIGN DEVIATION
2 7/2015 ADDED AND REVISED SIGN DEVIATIONS
6 11/2023 SIGN DEVIATION
7 11/2023 SIGN DEVIATION

Copyright RVI

RVi
28100 Bonita Grande Drive
Suite 305
Bonita Springs, Florida 34135
Tel: 239.405.7777
www.rviplanning.com

KELLY TRACTOR IPD • MASTER CONCEPT PLAN

LEE COUNTY, FLORIDA
April 16, 2024
PROJECT# 2300-5638
KELLY TRACTOR CO.

0 50' 100' 200'
SCALE: 1" = 100'-0"

Information furnished regarding this property is from sources deemed reliable. RVi has not made an independent investigation of these sources and no warranty is made as to their accuracy or completeness. This plan is conceptual, subject to change, and does not

Conditions

All references to uses are as defined or listed in the Lee County Land Development Code (LDC).

(1) Master Concept Plan and Development Parameters

a. Master Concept Plan. Development of the subject property must be substantially consistent with the one-page Master Concept Plan Entitled "Kelly Tractor IPD Master Concept Plan" dated March 28, 2024 and attached hereto as Attachment D.

Staff Note: Applicant to prepare revised MCP consistent with recommendations as follows: Remove reference to "heavy industrial uses" and former letter encoding (i.e. "A,B,C,D" from each development lot, and clarify location of wall within lake.

b. Development Parameters. Maximum development intensity is limited to 500,000 square feet of floor area as follows: 240,000 square feet of light industrial uses, 200,000 square feet of commercial uses. An additional 60,000 square feet may be dispersed between these allocations provided the maximum building floor area is consistent with the assigned intensity for each lot depicted on the Master Concept Plan.

c. Compliance with Lee Plan and LDC. Development must comply with all the requirements of the Lee Plan and LDC at the time of local development order approval, except as may be granted by deviation as part of this planned development. Subsequent amendments to the Master Concept Plan or its auxiliary documentation attached thereto are subject to the planned development amendment process established by the Land Development Code.

d. Superseding Resolution. Resolution Z-91-095 and Administrative Amendment ADD2015-00114 are hereby superseded and replaced with this amended resolution.

(2) Schedule of Uses and Property Development Regulations

a. Schedule of Uses

Administrative offices
Building material sales
Business Services, Groups I and II
Caretakers' residence
Entrance gates and gatehouses
Essential services
Essential services, Groups I and II
Excavation, water retention
Factory outlets (point of manufacture only)
Freight and cargo handling establishments

Gasoline dispensing system
Laundry or dry cleaning, Group II
Maintenance facility (government)
Mini-warehouse
Printing and publishing
Rental or leasing establishments, Groups III and IV
Repair shops, Groups III, IV and V
Signs (see Deviations 3, 4, 5, 6 and 7)
Storage, open (see Condition 5)
Storage, indoor
Transportation services, Groups III and IV (excluding aviation facilities)
Vehicle and equipment dealers, All Groups
Warehouse, public
Wholesale establishments, Groups III and IV

b. Property Development Regulations

Minimum Lot Area and Dimensions

Lot Area:	3 acres
Lot Width:	200 feet
Lot Depth:	400 feet

Minimum Building Setbacks and Maximum Building Heights:

Street:	25 feet
Side:	15 feet
Rear:	20 feet
Waterbody:	25 feet
Maximum building height:	45 feet
Lot Coverage:	40 percent

(3) Open Space

Prior to the issuance of local development order, the development order plans must depict 20 percent open space on each development lot.

(4) Indigenous Preserve

The ±7.54-acre indigenous preserve area must be substantially consistent with the Master Concept Plan.

(5) Open Storage

Open storage is permitted as an accessory use when incidental to a permitted principal use and is limited to Lots 1, 2, 5, 6, 7 and 8 on the Master Concept Plan.

(6) Hazardous Materials

Development is subject to the Lee County Hazardous Waste and Hazardous Materials Incidents Cost Recovery Ordinances, respectively.

(7) Masonry Wall

The six-foot-tall masonry wall and lake depicted on the Master Concept Plan must serve to provide a continuous barrier between the development lots and the preserve area.

Staff Note: Applicant to prepare revised MCP to clarify location of wall within lake. Staff recommends the location of the wall remain consistent with the former MCP, which would effectuate this condition.

Deviations

Deviation #1:

Seeks relief from LDC §10-329(d)(3), which limits water retention or detention excavations to a maximum depth of 12 feet, to allow a maximum depth of 25 feet.

This deviation is **APPROVED**, subject to consistency with the Lake Cross Section detail on the Master Concept Plan and the supplemental criteria in LDC Section 10-329(d)(3)a.

Deviation #2:

Seeks relief from LDC §10-416(d)(3), which requires a 25-foot-wide Type E Buffer consisting of 5 trees 30 shrubs per 100 linear feet with an 8-foot-high solid wall or wall and berm combination when industrial uses abut a single-family use, to allow the 7.54 acre indigenous preserve area along with a 6-foot-high masonry wall to serve as a required native vegetation buffer.

This deviation is **APPROVED,** subject to the following conditions:

i. Supplemental vegetation of South Florida Slash Pines and wax myrtles must be planted along with the existing vegetation to provide an opaque screen. The plantings must be placed in the preserve area 417 feet west of the east property line for a distance of 140 feet and 700 feet west (also measured from the east property line) extending to the eastern edge of the concrete block wall located on the northern boundary of Lot 1. The type and size of the vegetation shall be as follows:

- 100 percent native vegetation.
- Shrubs must be a minimum of 4 feet high with 3-foot spread.

- Supplemental trees must be 10 feet in height and meet the plant material standards in LDC Section 10-420.

ii. Existing native vegetation must be retained and may count towards the tree requirement herein.

iii. Transplanting of native vegetation from areas to be developed is permitted, provided development is consistent with the conditions of approval and LDC.

iv. The native vegetation buffer and preserve area must be no less than 100 feet wide. The edge of the lake must not be located closer than 100 feet to the north property line.

Deviation #3:

Seeks relief from LDC §30-153(3)a.6., which limits a corner lot to one ground-mounted identification, to allow a secondary ground-mounted identification sign on Kelly Tractor Drive for Lot 1.

This Deviation is **APPROVED**.

Deviation #4:

Seeks relief from LDC §30-153(3)a.5., which limits a secondary ground-mounted identification sign to 24 square feet of sign copy area, to allow 60 square feet of sign copy area for signage on Lot 1.

This Deviation is **APPROVED**.

Deviation #5:

Seeks relief from LDC §30-153(e), which establishes a 15-foot right-of-way setback for ground-mounted identification signs, to allow a 5-foot right-of-way setback for the secondary sign on Lot 1 along the Kelly Tractor Drive right-of-way.

This Deviation is **APPROVED**.

Deviation #6:

Seeks relief from LDC §30-153(3)a.6., which permits a maximum of 144 square feet of sign area for a ground-mounted identification sign, when limiting the property to one on a corner lot in lieu of two smaller signs on each road, to allow a maximum of 616 square feet of sign area.

This Deviation is **APPROVED**, subject to the following conditions:

A. The sign area must be in substantial compliance with the Applicant's Sign Package Exhibit attached hereto as Attachment F.

B. Future design and copy changes are permitted provided the sign area of each sign, as measured individually, does not exceed its respective sign area.

C. The ground mounted identification sign may not contain more than 96 square feet of sign area copy defined as an Electronic Changing Message Center.

D. The deviation is limited to the location depicted on the approved Master Concept Plan.

Deviation #7:

Seeks relief from LDC §30-153(3)b., which establishes a maximum sign height of 20 feet for a ground-mounted identification sign, to allow a maximum sign height of 60 feet.

This deviation is **APPROVED**, subject to the condition subject that the deviation is limited to the location depicted on the approved Master Concept Plan.

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

Case Number: DCI2023-00046
Case Name: Kelly Tractor Amendment for Signage
Case Type: Planned Development Amendment
Area Affected by Request: ±12.6 Acres
Sufficiency Date: February 26, 2024
Hearing Date: April 24, 2024

REQUEST:

Fred Drovdlic, AICP, on behalf of Kelly Tractor Company, has filed an application to amend the Kelly Tractor Industrial Planned Development (IPD) approved by Resolution Z-91-095, to incorporate deviations from Land Development Code (LDC) Chapter 30 to allow a 60-foot-tall ground-mounted identification sign and 616 square feet of sign area, including an electronic changing message center allocation, along the project's Interstate I-75 frontage.

The 12.6-acre subject property comprises a portion of an IPD Zoning District located along I-75 in the Caloosahatchee Shores Community Plan Area (Commissioner District #5). A legal description of the entire IPD District is attached as Attachment B of this report.

SUMMARY:

The request meets the standard for approval of the planned development amendment as the scope is limited to deviation approvals, which stand the test of deviation and variance criteria as discussed in the analysis herein. Staff recommends APPROVAL of the amendment, subject to the conditions and deviations found in Attachment E of this report, which aim to consolidate and supersede prior zoning approvals.

HISTORY OF PARCEL:

The property that is the recipient of the requested sign deviations is developed with a construction equipment dealership originally developed in 1996, classified by LDC Section 34-622(c) as Vehicle and Equipment Dealers, Group V. The property's Industrial Planned Development (IPD) zoning was approved in 1991 by Resolution Z-91-095, which permits a maximum of 500,000 square feet of industrial, commercial and other uses across the collective ±58.5 acre project area (see Attachment J). The Master Concept Plan (MCP) at this time listed the permitted uses and further assigned intensity more specifically to each of the nine lots that comprise the Kelly Tractor IPD.

In 2003, Lee County Ordinance 03-21 adopted an amendment to the Lee County Comprehensive Plan (Lee Plan) establishing the Caloosahatchee Shores Community Plan, Goal 13 at time of codification. The structure and content of the Goals, Objectives and Policies remain largely the same as compared to the current codification of Lee Plan Goal 21, as renumbered.

In 2012, Lee County Ordinance 12-01 adopted regulations in Chapter 33 of the Lee County Land Development Code for the Caloosahatchee Shores Community Plan area. The Community Plan sign requirements adopted at that time remain largely consistent with the current LDC codification.

In 2015, the IPD was administratively amended by ADD2015-00114 to incorporate deviations from on-site ground-mounted identification sign requirements in Land Development Code Chapter 30. The administrative deviations permitted an additional ground sign along Kelly Tractor Drive, an internal road within the industrial subdivision. The sign deviations were approved without public hearing and the administrative approval resolution does not contain findings pertaining to variance criteria established in Chapter 34, Section 145, which is relative to the ensuing analysis.

The Kelly Tractor Industrial Planned Development remains largely undeveloped today with only two developed parcels existing across the Master Concept Plan's designated nine lots.

CHARACTER OF THE AREA:

The property is located approximately one-half mile south of the midpoint of the Tice Street/I-75 flyover, and directly east of Interstate 75 (I-75) in the Industrial Interchange Future Land Use Category, as designated by the Lee Plan. Property immediately surrounding the subject property is depicted in Attachment C of this report and can be characterized as follows:

North

Lands to the north of the subject property, across from the IPD designated preserve and stormwater tract, are zoned Mobile Home (MH-1) and are located in the Urban Community Future Land Use Category. These lands are developed with a mobile home subdivision known as Country Lakes and are the nearest residential uses to the subject property.

South

Land south of the subject property, across Kelly Tractor Drive, is within the Kelly Tractor Industrial Planned Development (IPD) and Industrial Interchange Future Land Use Category. This land is developed with a recreational vehicle dealership, which remains under unified ownership (Kelly Tractor Co.), along with the remainder of land in the Kelly Tractor IPD.

East

Lands to the east of the subject property are also within the Kelly Tractor Industrial Planned Development (IPD) and Industrial Interchange Future Land Use Category. These lands remain as vacant portions of the IPD and are adjacent to Light Industrial (IL) developed lands across Country Lakes Drive, a county-maintained major collector road which connects Tice Street to Luckett Road.

West

Lands to the west of the subject property, across I-75, are located in the Industrial Development Future Land Use Category and are zoned Light Industrial (IL). These lands are virtually built-out with light industrial uses.

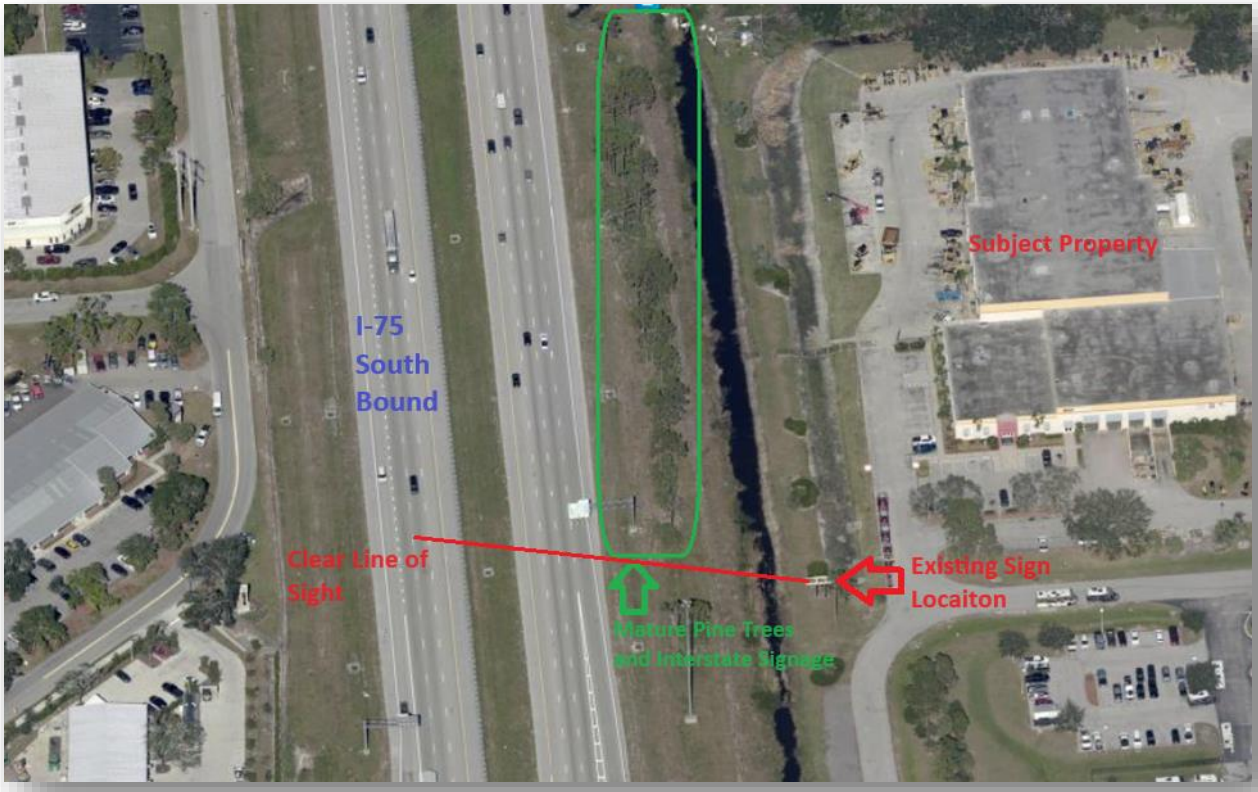
Availability of Public Services

Public services remain available and are unaffected by the requested signage deviations.

ANALYSIS:

The request seeks to address signage visibility deficiencies along the property's frontage on I-75 by departing from standardized sign height and sign area regulations designated for single-use establishments. The requested height and sign area are designed to overcome mature pine/palmetto tree clusters and I-75 signage obstructing a clear line-of-sight to project signage. Exhibit 1 below illustrates the obstructions located in the I-75 right-of-way that create reduced signage visibility to southbound motorists on I-75, in relationship to the subject property.

Exhibit 1 Signage Obstruction Illustration



As a single-use establishment, the ground-mounted identification sign is limited to a maximum of 20 feet in sign height[1] and 144 square feet in sign area[2] pursuant to LDC Section 30-153(3). In response to the noted visibility obstructions, the proposed design of the replacement ground-mounted identification sign is based on a sign height of 60 feet and sign area of 616 square feet. One

[1] Sign height is the vertical distance measured commencing from the adjacent street grade or upper surface of the nearest street curb, whichever is higher, to the highest point of the sign or sign structure [LDC Section 30-91].
[2] See LDC Section 30-91, measurement of sign area, for all sign area considerations.

consideration in measuring total sign area is when a single sign structure is used to support two or more signs, or unconnected elements of a single sign, the sign area is calculated based on the square footage within the perimeter of a regular geometric form enclosing the outer edges of all the separate signs or sign elements [LDC Section 30-91(b)]. This code-required measurement method is demonstrated in Exhibit 2 below and includes significant area within the regular geometric shape that is not physically sign copy but is required to be included with calculation of the sign's area.

Exhibit 2 Sign Area Demonstration

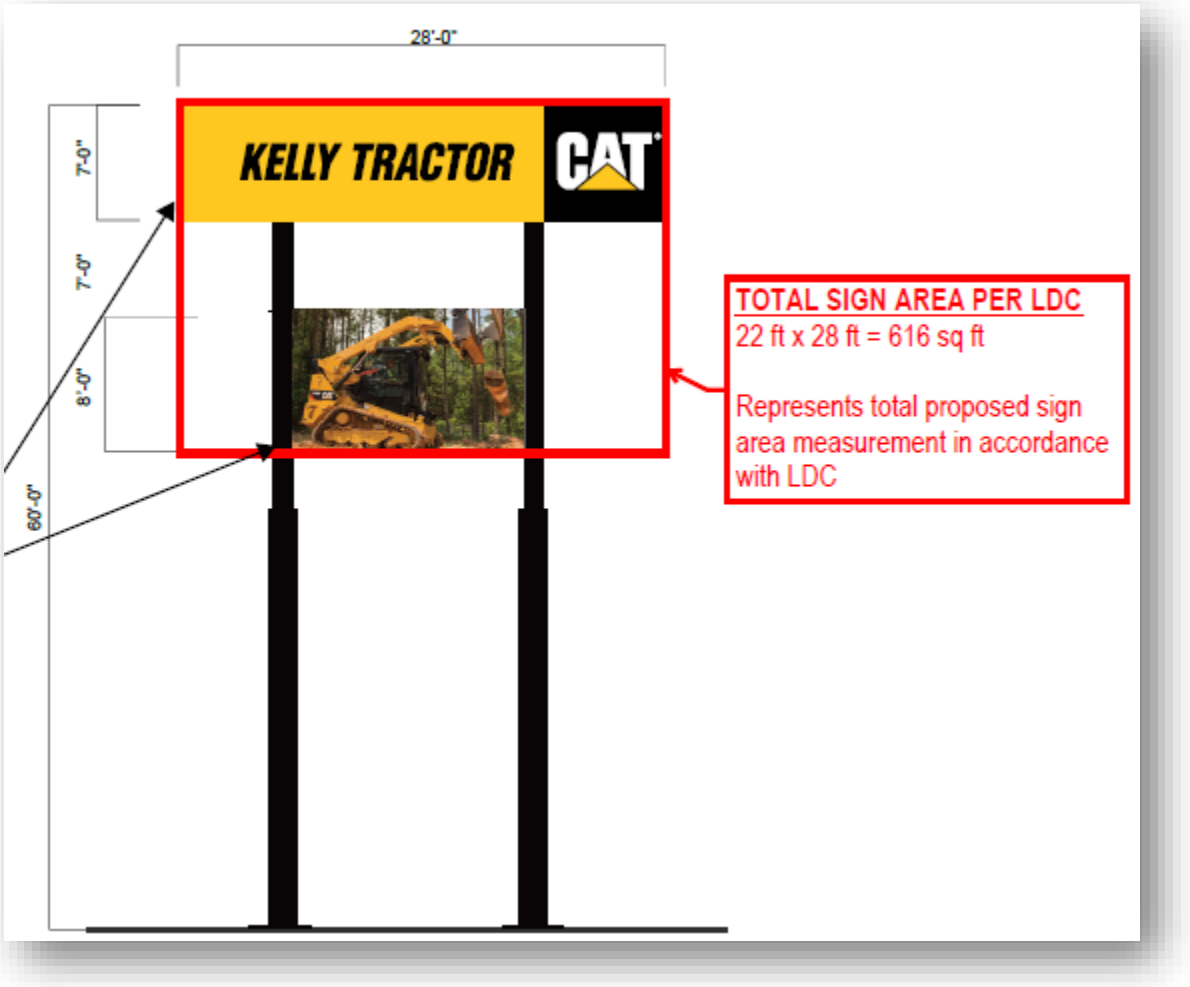


Exhibit 2 is a portion of the Applicant's Sign Package (see Attachment G), which identifies the copy area if each sign was measured separately. Using this method, the sign area would be a combined 292 square feet, which excludes the non-signage copy areas within the red sign area perimeter measured above. The upper sign is proposed as static or traditional sign copy and the lower sign is considered an Electronic Changing Message Center[3] (EMC) with electronically changeable sign copy. EMC sign copy is regulated in the general sign provisions of LDC Chapter 30 in Section 30-

[3] See LDC Section 30-2, *Electronic Changing Message Center*.

153(5). This electronic sign copy is limited to specified future land use areas when along arterial roads and I-75 and the proposed EMC complies with these standards. However, the Caloosahatchee Shores Community Plan area lists electronic changing message centers as prohibited signs unless a deviation or variance is granted. The following analysis interprets these community plan regulations inapplicable to industrial lands; therefore, a deviation is not requested from LDC Section 33-1505(a)(3) for EMC sign copy. It should be noted there is an applicable prohibition from the granting of a variance or deviation pertaining to EMC sign area and placement [see LDC Section 30-153(5)e.]. The recommended conditions of approval limit the sign area of the EMC copy to 96 square feet, which is in compliance with this provision.

Proposed Deviations

Deviation means a departure from a specific regulation of the LDC or other applicable regulation or code, when requested as part of a planned development in accordance with LDC Section 34-373(a)(9) and based on the findings established in LDC Section 34-377(a)(4). Each deviation must enhance the achievement of the objectives of the planned development and preserve and promote the general intent of the LDC to protect the public health, safety and welfare. The applicant has provided a schedule of deviations enumerating new deviations in sequential order after accounting for the five existing deviations currently approved by Resolution Z-91-095, as amended by Administrative Amendment ADD2015-00114. The applicant's corresponding deviation justifications are found in Attachment F of the report.

Deviation #6:

Seeks relief from LDC §30-153(3)a.6., which permits a maximum of 144 square feet of sign area [96 x 1.5 = 144] for a ground-mounted identification sign, when limiting the property to one sign on a corner lot in lieu of two smaller signs on each road, to allow a maximum of 616 square feet of sign area.

Staff recommends **APPROVAL** of **Deviation #6**, subject to the following conditions:

1. The sign area must be in substantial compliance with the Applicant's Sign Package Exhibit attached hereto as Attachment G.

2. Future design and copy changes are permitted provided the sign area of each sign, as measured individually, does not exceed its respective sign area.

3. The ground mounted identification sign may not contain more than 96 square feet of sign area copy defined as an Electronic Changing Message Center (digital sign).

4. The deviation is limited to the location depicted on the approved Master Concept Plan.

Deviation #7:

Seeks relief from LDC §30-153(3)b., which establishes a maximum sign height of 20 feet for a ground-mounted identification sign, to allow a maximum sign height of 60 feet.

Staff recommends APPROVAL of Deviation #7, subject to the condition that the deviation is limited to the location depicted on the approved Master Concept Plan.

The Sign Package Exhibit (see Attachment G) demonstrates the physical sign copy area does not exceed 292 square feet when measuring each attached sign separately. The maximum permissible sign area that may be attributed to an Electronic Changing Message Center (EMC)[4] is limited to 96 square feet which is consistent with LDC Section 30-153(5)e.

Per the scaled rendering in the applicant's sign package, the proposed sign area will not visually dominate the I-75 corridor when considering numerous similar-sized signs classified as "Interstate Highway Interchange Area Signs" exist along the corridor. These signs are regulated by LDC Section 30-154 and can reach heights of 100 feet with 750 square feet in sign area. It should be noted that the subject property does not qualify for this type of signage due to its distance from the nearest interchange intersection, as well as the existence of a highway interchange sign already in the northeast quadrant of I-75 and Luckett Road.

LDC Section 30-1 establishes that the purpose and intent LDC Chapter 30, which aims to establish signage regulations for the protection of public safety, property values, aesthetics, equal protection and fairness. The applicant provided a Line-of-Sight Exhibit (see Attachment H), which contains a "Line-of-Sight Section" demonstrating the sign will not be visibly intrusive to the nearest residential land use to the north (Country Lakes Subdivision). The distance of the proposed sign location is 1,103 feet south of the nearest residential properties and is bisected by a required preserve area and the IPD project wall. The sign's location along its southwest corner proves most optimal to resolve the previously detailed Interstate visibility obstructions to avoid seeking additional height to achieve visibility elsewhere, which coincidentally provides the greatest separation from the nearest residential land use.

As detailed in the property history, the county adopted Land Development Code and Comprehensive Plan amendments pertaining to the Caloosahatchee Shores Community Plan area. Goal 21 of the Lee Plan states

"*Protect the existing character, natural resources and quality of life in the Caloosahatchee Shores Community Plan area, while promoting new development, redevelopment and maintaining a more rural identity for the neighborhoods east of I-75 by establishing minimum aesthetic requirements, planning the location and intensity of future commercial and residential uses, and providing incentives for redevelopment, mixed use development and pedestrian safe environments.*" [emphasis added].

Objective 21.1 aims to create a visually attractive community with the following policies:

[4] Electronic changing message center is defined as "a sign, such as an electronically or electrically controlled public service time, temperature and date sign, message center or reader board, where different copy changes of a public service or commercial nature are shown on the same lampbank" [see LDC Sections 30-2 and 30-153(5)).

Policy 21.1.1: Maintain LDC regulations that provide for enhanced landscaping, signage and architectural standards consistent with the goal of maintaining an old Florida rural identity. The preferred architectural style for all buildings in commercial developments is Florida vernacular.

Policy 21.1.2: Any deviation from landscaping, buffering, signage or architectural requirements may not be granted unless the request meets the approval criteria for variances set forth in the LDC, Chapter 34.

Policy 21.1.1 references Caloosahatchee Shores regulations, which are adopted in LDC Sections 33-1480 through 33-1524. The **applicability** of the regulations is found in LDC Section 33-1480:

"*Scope: The provisions of this article apply to all development located in the Caloosahatchee Shores Planning Community, as defined in Section 33-1481(a) and depicted in the County Comprehensive Plan on Lee Plan Map 1 and apply to all commercial, religious, institutional, multiple-family, and mixed-use developments, including live-work units, except where the authority of a separate political jurisdiction supersedes County authority.*"

The scope does not explicitly single-out industrial land uses, which are generally not subject to architectural or aesthetic requirements in Lee County (LDC Section 10-600[5]). The regulations that follow in LDC Sections 33-1481 through 33-1524 are geared towards the non-industrial land uses explicitly listed in the regulatory scope. "Industrial" is only referenced once in the Caloosahatchee Shore LDC regulations, incidentally, by the use of the verbatim title of LDC Section 30-153 "Permanent signs in commercial and industrial areas", which achieves regulatory consistency in the title selection of LDC Section 33-1506.

The regulatory scope and analysis of the effective LDC regulations appear to create a question as to the applicability of these regulations to industrial areas in the Community Plan Area, when considering the provisions apply to both "all development" and all explicitly listed land uses, which precludes industrial land uses. If the intent was to provide regulations that apply to "all land uses" then the second land use-specific leg of sentence would not be necessary, and the Community Plan Area regulations would directly address industrial land uses, which again, is not a specific policy directive of Goal 21.

In the event of conflict between the provisions of LDC and the Lee Plan the provisions of the Lee Plan prevail. As noted above, Goal 21 establishes guidance:

[5] LDC Section 10-600. - Purpose and Intent. The purpose of these standards and guidelines is to supplement existing development criteria with specific criteria that apply to the design of commercial buildings and developments. Commercial development depends on high visibility from public streets. In turn, their design of buildings and site determines much of the image and attractiveness of the streetscapes and character of a community. Massive and/or generic developments that do not contribute to, or integrate with, the community in a positive manner can be detrimental to a community's image, and sense of place. The goal is to create and maintain a positive ambiance and strong community image and identity by providing for architectural and site design treatments that will enhance the visual appearance of commercial development in the County, while still providing for design flexibility. These standards are intended to enhance the quality of life in the County.

"….establishing minimum aesthetic requirements, planning the location and intensity of future commercial and residential uses…"

The following objective and policies read in alignment with this goal should not pertain to industrial development, including the policy directive to meet variance criteria for sign-related deviations. It is worth noting the word "industrial", or any variant term of the land use, is not located in Goal 21.

It is staff's opinion that review of the Goal 21 and Chapter 33 regulations as a whole render Lee Plan Policy 21.1.2 and LDC Chapter 33 inapplicable to industrial development in the Caloosahatchee Shores Community Plan area. This position is consistent with the administratively approved sign deviations without variance criteria review in Administrative Amendment ADD2015-00114 (see Attachment K). This interpretation also eliminates the necessity to obtain a deviation from LDC Section 33-1505, which prohibits Electronic Changing Message Center copy in the Caloosahatchee Shores Community Plan area "unless a deviation or variance is granted".

This opinion is subject to interpretation; therefore, staff has evaluated proposed Deviations #6 and #7 against the variance criteria to determine if the deviation requests meet the variance standard established in LDC Section 34-145(b).

Review Criteria

a) The property has inherent exceptional conditions that cause the application of the regulation to create a hardship[6] on the property owner.

The I-75 right-of-way adjacent to the property's frontage is flanked by mature Pine and Palmetto tree clusters, as well as the primary northbound exit sign for State Road 80 (Palm Beach Boulevard, Exit 141). These obstructions dwarf the maximum permissible sign height and area as demonstrated in Attachment G, Page 1. The existing sign is shown from the southbound approach on I-75 and is not legible with the maximum permissible sign area. Motorists traveling at the higher speeds permitted on the highway require greater sign copy area to safely read the signage. These inherent conditions create exceptional conditions that cause the application of a generally permissible sign height and area to create a hardship on the property owner seeking to achieve equitable ground sign visibility. It should be noted that while staff does not find the applicability of the Caloosahatchee Shores Community Plan area regulations in LDC Chapter 33 or Goal 21 to pertain to industrial land uses, should the Hearing Examiner make a finding to the contrary with respect to both provisions, staff cannot identify a hardship applicable to the requested EMC sign copy as of the date of this staff report.

[6] Hardship means an unreasonable burden that is unique to a parcel of property, such as peculiar physical characteristics. Economic problems may be considered but may not be the sole basis for finding the existence of a hardship. [LDC Section 34-2]

b) The exceptional conditions are not the result of actions of the property owner taken subsequent to the adoption of the ordinance.

The conditions are not the result of, or under the control of the property owner. The area impeding sign visibility is under the jurisdiction of the Florida Department of Transportation (FDOT).

c) The variance granted is the minimum variance that will relieve the unreasonable burden caused by the application of the regulation to the property.

The applicant desires optimal visibility from I-75 and has demonstrated with to-scale exhibits that the proposed 60-foot height achieves the minimum relief necessary finding to create optimal visibility to the southbound motorist on I-75 (reference Exhibit 1, Signage Obstruction Illustration on Page 3 of this report and Attachment G, Sign Package).

d) The granting of the variance will not be injurious to the neighborhood or detrimental to the public welfare.

The proposed sign is similar in size to other types of signs permitted along the I-75 corridor, and therefore does not visually dominate the surrounding corridor. The proposed sign will be sufficiently separated from the nearest residential land uses as demonstrated in the Applicant's Line-of-Sight Exhibit (see Attachment H).

e) The variance is consistent with the Lee Plan.

Should a final determination of Lee Plan Policy 21.1.2 prove applicable to industrial land uses, the foregoing variance analysis demonstrates compliance with the Lee Plan. The balance of the Lee Plan does not speak specifically to this request; however, the request is consistent with the plan's overarching sentiment of preserving public health, safety and welfare.

The request meets the variance criteria standard for sign area and height, while LDC Section 34-145 establishes the review criteria for planned development amendment requests pursuant to LDC Section 34-380(e). Before recommending approval of a planned development amendment request, the Hearing Examiner must find the request:

a) Complies with the Lee Plan;

The requested amendment is limited to evaluating deviations from the county sign regulations. The deviations meet the standard for approval and also meet variance criteria, which is echoed in **Policy 21.1.2**. The 1991 approval remains consistent with the current Lee Plan, including the underlying **Industrial Interchange** Future Land Use Category, which allows combinations of light industry, research, office and certain visitor-serving commercial uses such as restaurants and hotels (**Policy 1.3.1**).

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

As analyzed, the request qualifies for deviations.

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

The sign height, sign area and sign copy types are compatible with surrounding land uses as demonstrated by Line-of-Sight and Sign Package Exhibits, with emphasis on the sign location approximately 1,100 from the nearest residential properties. The proposed sign does not otherwise visually dominate the surrounding I-75 corridor.[7]

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

The amendment will not affect existing project access.

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

The amendment has no impact on transportation facilities.

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

The amendment will not adversely affect environmentally critical or sensitive areas and natural resources.

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

Urban (public) services will continue to service the subject property.

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

The proposed uses are appropriate at the proposed location and the conditions attached hereto as Attachment E serve as sufficient safeguard related to project impacts.

c) That each requested deviation:

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

[7] Nearby sign structures of scale include the "Pilot" truck stop and "Camping World" RV dealership in the southwest and northeast quadrants of I-75 and Luckett, respectively.

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

As conditioned, the achievement of optimal signage visibility from I-75 enhances the objective of the planned development while preserving public health, safety and welfare.

The applicant has provided analysis of the applicable criteria (see Attachment F).

Master Concept Plan

The applicant has provided an amended Master Concept Plan (MCP) for the Kelly Tractor IPD revising the deviation information consistent with this request and removing the schedule of uses off the MCP for inclusion in the conditions of approval (see Attachment D). Additional MCP revisions specified below are necessary to align with staff's recommendation.

Although allocated 60,000 square feet of "Heavy industrial uses" which are specified on the MCP and limited to certain lots as keyed on the MCP, ultimately heavy industrial and manufacturing uses were not permitted by virtue of Condition 3 of Resolution Z-91-095. Condition 7 of Resolution Z-91-05 provided the ability to transfer the 60,000 square feet of heavy industrial use intensity to "other permitted uses" on the MCP provided the uses complied with the LDC and Lee Plan in effect.

According to Policy 1.3.1, the Industrial Interchange Future Land Use category is limited to "*light industry, research, and office uses. In addition, certain visitor-serving commercial uses such as restaurants and hotels are appropriate*" [emphasis added]. Therefore, heavy industrial uses and certain manufacturing uses are not consistent with this Future Land Use Category. The recommended conditions of approval aim to clear up the previously approved uses and intensity, modernize, and in some cases eliminate unnecessary language in the previous zoning resolution. Since heavy industrial uses were the only distinction in permissible principal uses across the entire site and were eliminated, there is no need to encode uses on the MCP. Intensities will be dispersed by general allocations in Condition 1 and the original lot specific caps established on each lot on the Master Concept Plan. The proposed MCP should be revised to eliminate former use encoding "ABCD" and reference to heavy industrial uses. Additionally, the location of the 6-foot concrete block wall should be revised to remain consistent with currently approved MCP.

CONCLUSION:

Based upon this analysis of the application and the standards for approval of planned development amendment, staff finds the request, as conditioned, to be consistent with the established review criteria. Staff recommends APPROVAL of the applicant's request with recommended conditions attached hereto as Attachment E.

ATTACHEMENTS:

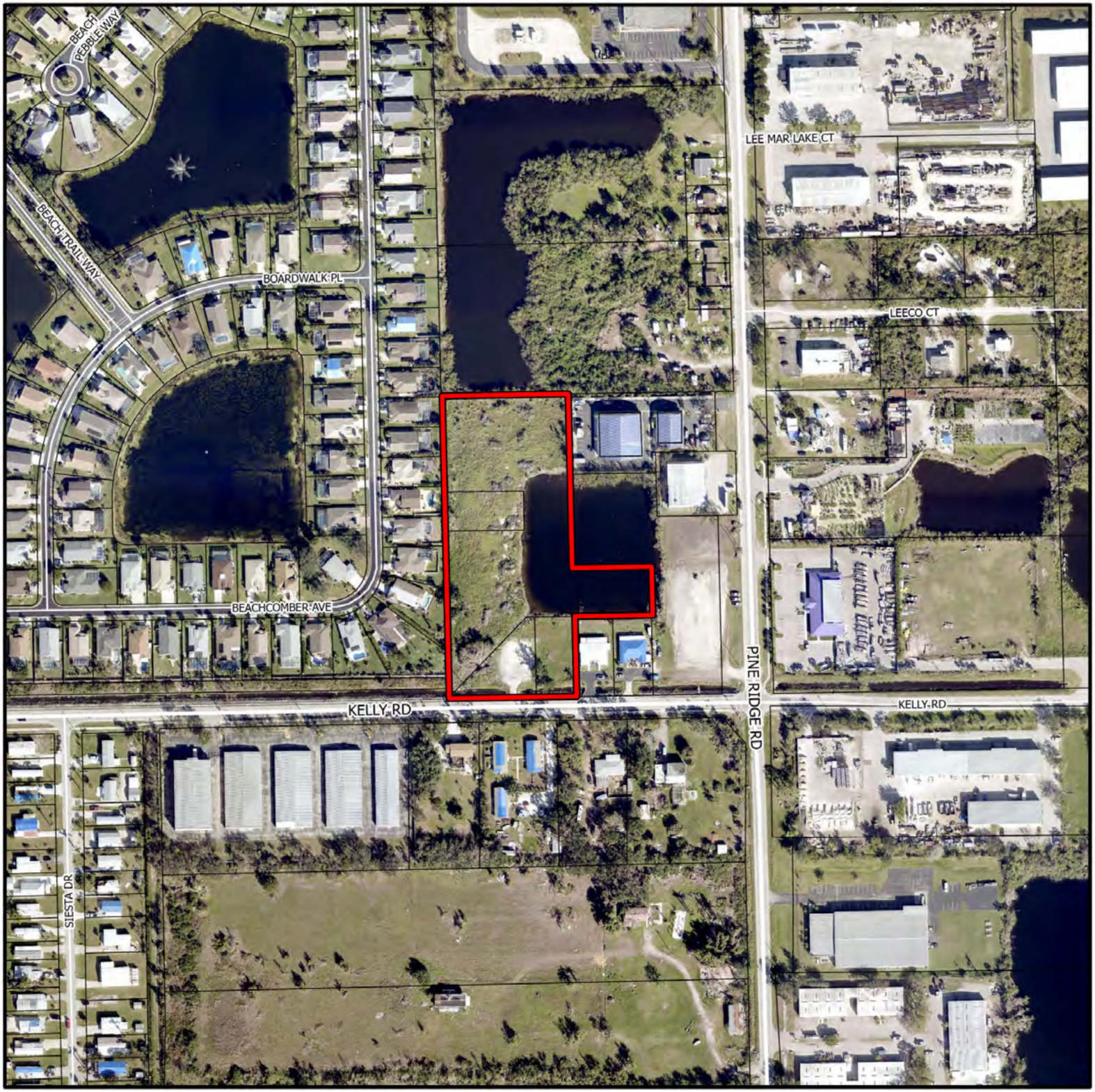
A. Expert Witness Information
B. Legal Description and Survey Plat
C. Aerial, Future Land Use, and Current Zoning Maps

D. Amended Master Concept Plan
E. Development Regulations, Conditions and Deviations
F. Applicant's Project Narrative
G. Applicant's Sign Package
H. Applicant's Line-of-Sight Exhibit
I. Public Information Session
J. Resolution Z-91-095
K. Administrative Amendment ADD2015-00114
L. Submittal Waiver Approval

DCI2022-00044
KELLY ROAD RPD

Staff Summary

CASE NUMBER & NAME:	DCI2022-00044 / Kelly Road RPD
REQUEST:	Request to rezone 4.6± acres from Residential Multi-Family (RM-10) to Residential Planned Development (RPD) to permit a maximum of 69 multi-family dwelling units, including 23 bonus density units.
RESOLUTION NUMBER:	Z-24-007
LOCATION:	11070, 11100, 11088 Kelly Rd & access undetermined, Iona/McGregor Planning Community, Lee County, FL
OWNER:	VJ Developments LLC
APPLICANT:	Nova Construction Group, LLC
AGENT:	Veronica Martin TDM Consulting Inc. 8695 College Pkwy., Ste 106 Fort Myers, FL 33919
HEARING EXAMINER RECOMMENDATION:	Approval, subject to the conditions and deviations set forth in Exhibit B
PARTICIPANTS: (10)	Shannon Bell Mary Buckley Carl Jacona Domingos Laureano John O'Brien Donna Ray Thomas P. Seele Peter Strahl Mary Tamilia Karen Wolmart



DCI2022-00044

Aerial

Subject Property

N
W
E
S

0 250 500
Feet

Lee County
Southwest Florida

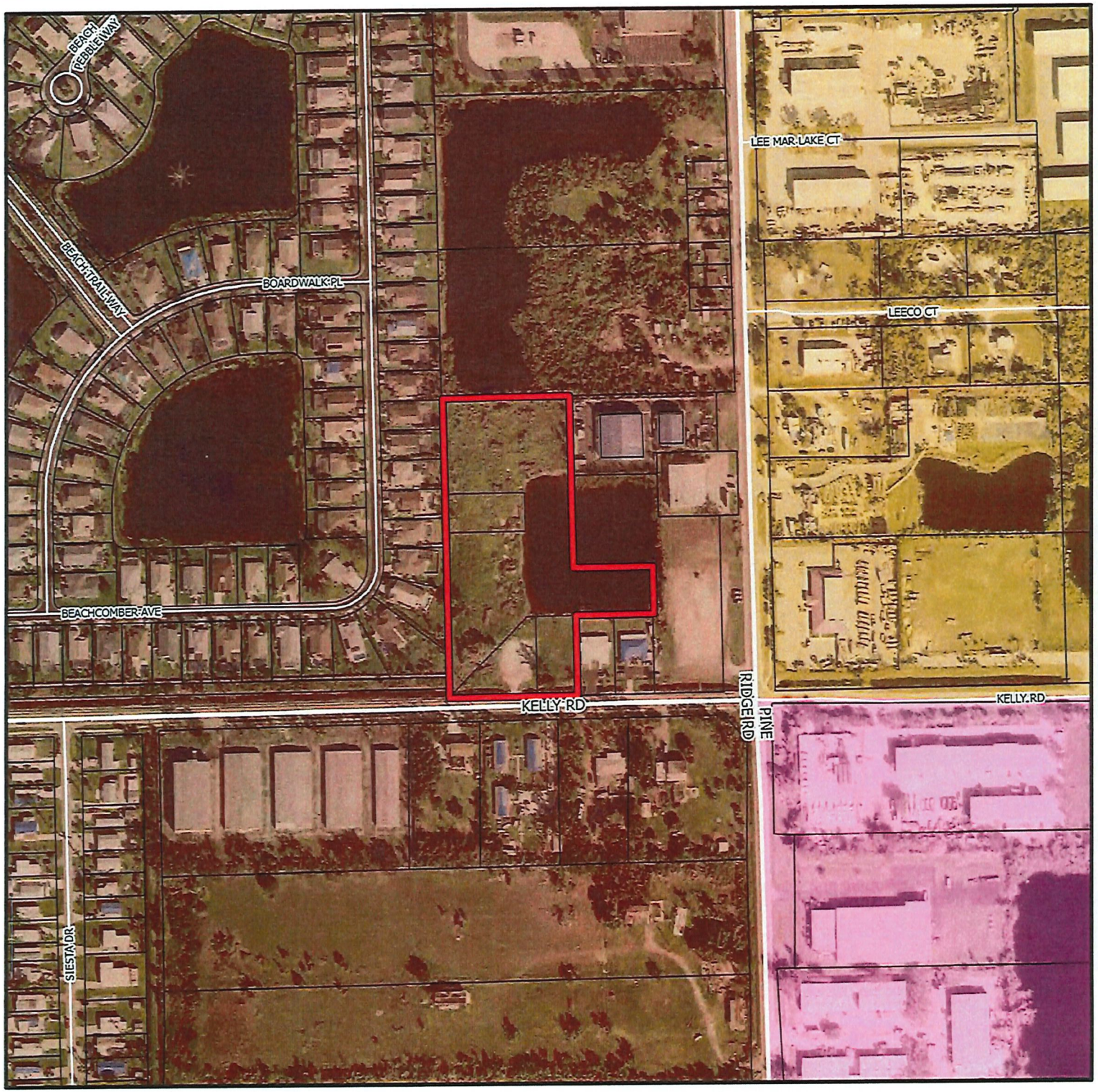
Summary of Hearing Examiner Recommendation

KELLY ROAD RPD

Applicant seeks to develop a multi-family development on Kelly Road between Pine Ridge Road and San Carlos Boulevard. The site adjoins the Beach Walk MPD, lakes, and heavy commercial/industrial uses.

The request proposes 69 units, including 23 bonus density units. Applicant intends to provide workforce housing to diversify housing opportunities in a heavily settled area. Conditions of approval mitigate off-site impacts by requiring a concrete masonry wall, restricting building orientation/exterior stairwells/balconies, providing on-site amenities, and distancing dumpsters from single-family neighbors.

Detailed recommendation follows



DCI2022-00044

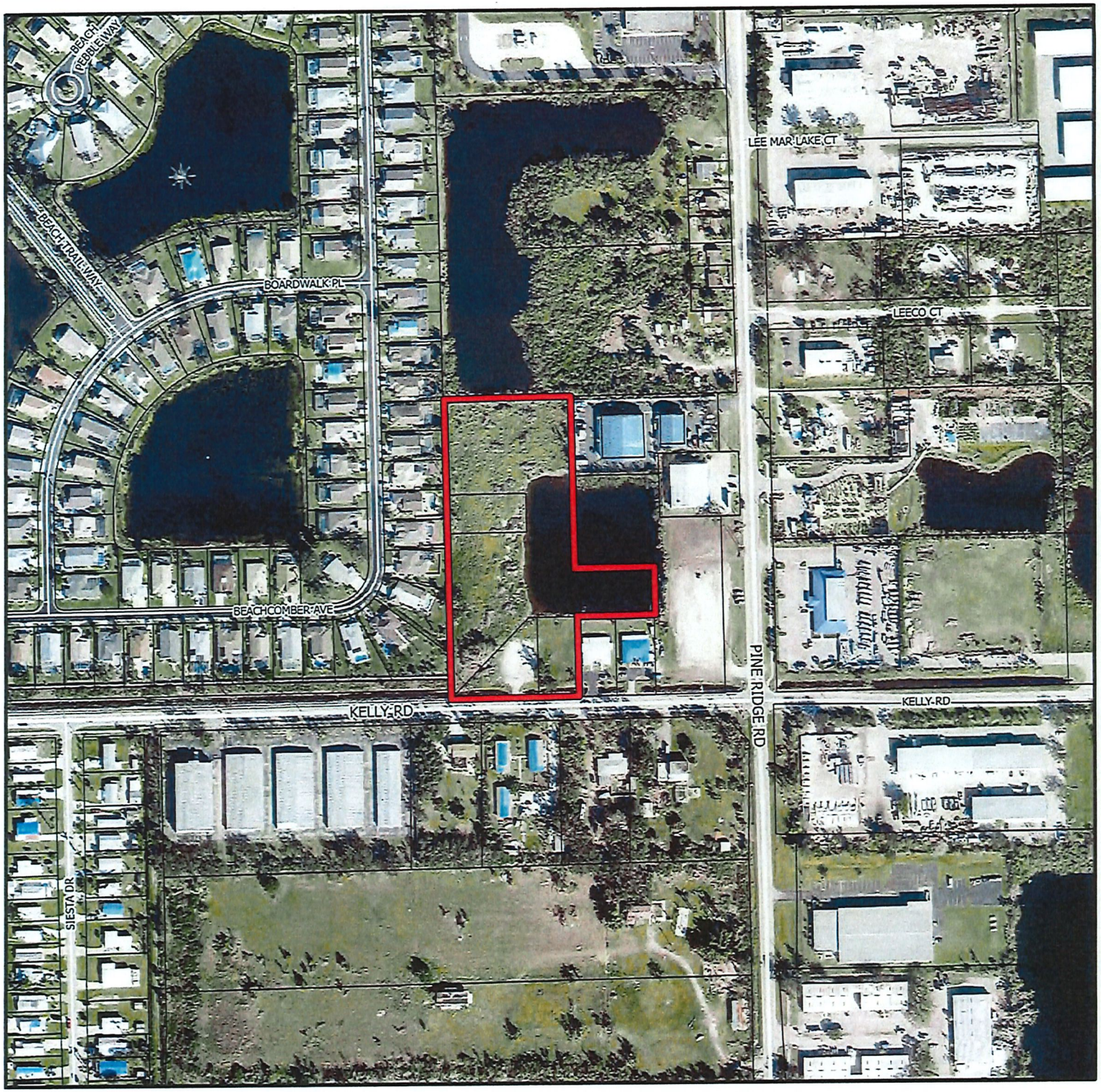
Future Land Use

- Subject Property
- Central Urban
- Urban Community
- Industrial

N
W E
S

0 250 500
Feet

Lee County
Southwest Florida



DCI2022-00044

Aerial

Subject Property

N
W E
S

0 250 500
Feet

Lee County
Southwest Florida

OFFICE OF THE HEARING EXAMINER, LEE COUNTY, FLORIDA

HEARING EXAMINER RECOMMENDATION

REZONING: DCI2022-00044

Regarding: **KELLY ROAD RPD**

Location: 11100, 11070, and 11088 Kelly Road
Iona/McGregor Planning Community
(District 3)

Hearing Date: March 14, 2024
Record Closed: **March 29, 2024**

I. Request

Rezone 4.6± acres from Residential Multi-Family (RM-10) to Residential Planned Development (RPD) to allow a maximum of 69 multi-family dwelling units, inclusive of 23 bonus density units. Building height is limited to 45 feet.

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 rezone to RPD.

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 compatible with surrounding uses and complies with Lee Plan/LDC requirements relating to transportation facilities, natural resources, and urban services.[3] The Hearing Examiner may take judicial notice of previous Board decisions.[4] The Hearing

[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).

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

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

Synopsis of Request

The 4.6± acre property is in the Iona/McGregor Planning Community north of Kelly Road, west of Pine Ridge Road. The site is zoned RM-10 for multi-family use.[6]

The property remains vacant, largely cleared without permits.[7] Applicant is abating Code violations for illegal clearing with a restoration plan.[8] The site is bounded by a drainage easement, IDD canal, and an oddly configured lake.

Applicant seeks to develop 69 multi-family units across three (3) three-story buildings and one (1) four-story building. Requested density includes 23 bonus units. Site design locates the tallest building farthest from neighboring residences. The Master Concept Plan (MCP) identifies residential buildings, parking, and a clubhouse with pool.

Staff recommended approval, finding the proposed RPD 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;

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

D. Provides access sufficient to support the proposed development intensity;

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

[5] Lee Co. Admin. Code 2-6, 3.3.A(2); LDC §34-83(a)(4)(a)(1)(a).
[6] LDC §34-711 *et. seq.*
[7] *See* Staff Report (pg. 2, citing VIO2022-06947 and VIO2022-06948).
[8] *See* Condition 4.

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

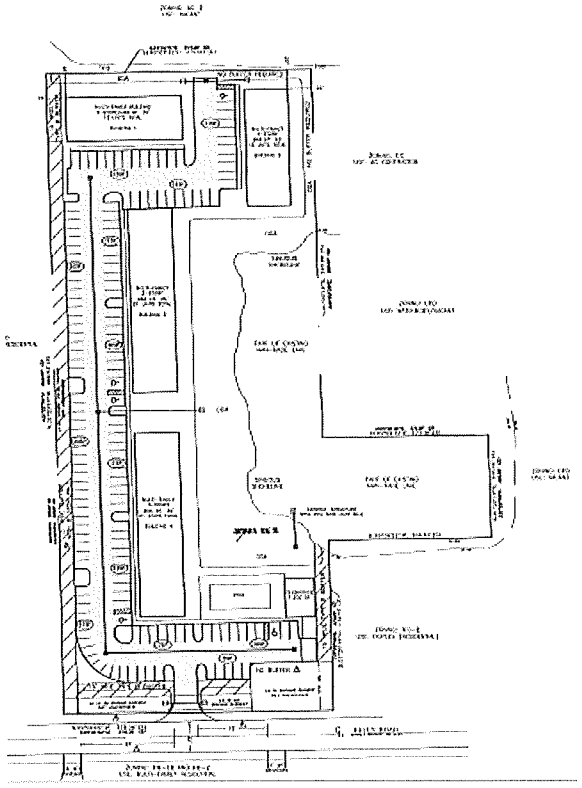
G. Will be served by urban services if located in a Future Urban area.[9]

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 public health, safety, and welfare.[10]



[9] LDC §34-145(d)(4)(a)(1).
[10] LDC §34-145(d)(4)(a)(2).

Character of the Area

The property is located between Pine Ridge Road and San Carlos Boulevard, near the Kelly Road/Pine Ridge Road intersection. The area hosts a diverse development pattern, with industrial, commercial, and residential land uses.

Lee Plan Consistency and Compatibility

Planned developments must be consistent with the Lee Plan.[11] Rezoning requests must be compatible with existing/planned uses in the surrounding area.[12] Planned developments must be located to minimize negative effects of proposed uses on neighboring properties.[13]

The Lee Plan Future Land Use Map classifies the site as Central Urban in the Iona/McGregor Fort Myers Planning Community.[14]

Central Urban lands are characterized as the "urban core" with the greatest range of public services and relatively intense commercial and residential uses.[15] The standard density range is four to 10 dwelling units per acre, with a maximum density of 15 units per acre.[16] The Central Urban designation contemplates multi-family developments.[17] Proposed density remains within permitted ranges.

Rezoning is not required to permit multi-family development, nor is it necessarily required to obtain bonus density.[18] Applicant seeks RPD zoning to accommodate existing site conditions including a large lake, unusual lot configuration, LDOT drainage easement, and IDD canal.[19] Planned development zoning offers flexibility in design while imposing conditions to minimize off-site impacts. The RPD ties development to a specified site plan while conventional RM-10 zoning does not.

---

[11] LDC §34-411(a).
[12] LDC §34-145(d)(4)(a).
[13] LDC §34-411(c) and (i).
[14] *See* Lee Plan Map 1-A, Policy 1.1.3; Staff Report (pg. 1, 5, 11, Attachment B).
[15] Lee Plan Policy 1.1.3.
[16] *Id.* Maximum density is 20 units per acre utilizing Greater Pine Island Transfer of Development Units.
[17] The Central Urban category is the second-most intense land use designation. *See* Lee Plan Future Land Use Element, Goal 1.
[18] *See* LDC §2-147(b)(2), §34-714; Mendez Testimony (Transcript pg. 53-54). Conventional RM-10 zoned lands are eligible for bonus density administratively by right (§2-147(b)(1)) and with Director approval (§2-147(b)(2)).
[19] V. Martin Testimony (Transcript pg. 12). Hearing testimony reflects Applicant could construct a 25,200 square foot multi-family building 75 feet in height without undergoing the public hearing process. *See* Staff Ex. 2 (slides 6-7); Mendez Testimony (Transcript pg. 47-49). The RM-10 district permits increased heights for increased setbacks. The LDC permits heights up to 135 feet in the Central Urban category. LDC §34-2175(b) Table.

Existing RM-10 zoning permits a broader range of uses than the proposed RPD.[20] Conditions of approval limit proposed uses to multi-family with accessory uses.[21]

The Beach Walk Mixed Use Planned Development (MPD) is west of the property, approved for commercial and single/multi-family units.[22] Single-family homes abut the property with a height limitation of 35 feet.[23] Residential use is inherently compatible with neighboring residential development.[24] The intensification from single-family to multi-family with bonus density, however, warrants further scrutiny.

The Land Development Code ("LDC") imposes supplemental review criteria to ensure compatibility when requests include bonus density.[25] The record is replete with evidence to support each finding:

- Additional traffic will not travel through areas with significantly lower density to reach the nearest collector/arterial road.[26] The site directly accesses Kelly Road, a major collector road. Kelly Road intersects Pine Ridge Road to the east (a major collector road) and San Carlos Boulevard (an arterial road) to the west.
- Public facilities are not so overwhelmed that a density increase would be contrary to the public interest.[27] The surrounding roadway system has sufficient capacity to accommodate trips generated by the request.[28] There is potable water/sanitary sewer capacity to serve the project.[29]
- Storm shelters or other appropriate mitigation is provided.[30] The property is located within the Coastal High Hazard Area.[31] Applicant must demonstrate compliance with LDC requirements at the time of development order.
- The development is compatible with surrounding land uses.[32] The property is uniquely situated along a robust road network of collector and arterial roads developed with commercial, industrial, and high density uses. The

---

[20] A sampling of uses permitted by right in the RM-10 district that are not permitted in the proposed RPD include: Assisted Living Facility, Bed and Breakfast, Boardinghouse, Community Residential Home, Health Care Facilities, Place of Worship, Personal Services, and Recreational Facilities. Multi-family units are permitted in the RM-10 and RPD zoning districts.
[21] *See* Condition 2.
[22] *See* Staff Report (Attachment L: Z-98-070). Maximum building heights are 55 feet for this development. *Id.*
[23] *See Id.*; Condition 4(d).
[24] LDC §34-2 defines "compatible."
[25] LDC §2-146, §2-147(b)(4).
[26] LDC §2-146(b)(1).
[27] LDC §2-146(b)(2).
[28] *See* Staff Report (Attachment M: TIS prepared by TR Transportation Consultants, Inc. dated Feb. 25, 2022) (Attachment N Development Services Memorandum dated Nov. 16, 2022).
[29] Staff Report (Attachment).
[30] LDC §2-146(b)(3).
[31] Lee Plan Map 5-A.
[32] LDC §2-146(b)(4).

MCP reflects a transition from more intense to less intense uses, maintaining compact development patterns.

Site design further improves compatibility by:

- Locating residential buildings to the east;
- Restricting height of Building 1 (nearest adjacent residences) to 35 feet, the same height permitted in the adjacent Beach Walk community;[33]
- Enveloping the activity center of the clubhouse, pool, and dumpster with parking areas, buffers, and the lake;
- Orienting balcony locations to face interior to the RPD to maximize privacy for neighboring residents;
- Erecting an eight-foot-tall masonry wall along the western boundary; [34]
- Softening development impacts through open space;[35]
- Enhancing buffer requirements with supplemental plantings; and
- Assigning a 45-foot height limit on Building 2 nearest to commercial uses.

The requested RPD with bonus density is consistent with the Lee Plan and compatible with the surrounding area.[36] The request satisfies numerous Lee Plan directives to diversify housing, direct high-density housing near employment/shopping centers, parks/schools, and accessible to mass transit and bicycle facilities, and ensure a variety of housing options to support a diverse workforce.[37]

Transportation/Traffic

Planned developments must have access to roads with sufficient capacity to support proposed intensity.[38] Existing regulations or conditions of approval must address expected impacts on transportation facilities.[39]

---

[33] Staff surmised a 75-foot building could be constructed without public hearing approval consistent with increased setbacks. *See* LDC §34-2175; Staff Report (pg. 4). Central Urban lands have a maximum building height of 135 feet. LDC Table §34-2175(b). Height is limited to 35 feet in RM-10 zoning. LDC §34-715. Beach Walk MPD permits 35-foot and 50-foot heights with opportunity for taller buildings with increased setbacks. See Staff Report (Attachment L: Z-98-070).

[34] The MCP reflects a 15-foot-wide buffer with eight-foot-high wall and supplemental plantings along the western border. *See* Staff Report (Attachment G); V. Martin Testimony (Transcript pg. 14). The LDC does not require a wall next to Building 1 but Applicant agreed to continue the wall along the entirety of the western boundary. Mendez Testimony (Transcript pg. 51).

[35] The MCP shows required open space of 80,204 square feet while Applicant is providing 80,246 square feet.

[36] Lee Plan Policy 1.1.3 anticipates a maximum density of 15 units per acre. The parties demonstrated compliance with LDC bonus density requirements. LDC §2-146, §2-147. Applicant will offer 23 site-built affordable housing units. *See* Staff Report (pg. 5, Attachment F); Applicant Ex. 1 (slide 5). Martin and Mendez Testimony (Transcript pg. 36-41, 44-56, 86-100) citing compliance with Lee Plan Objective 2.1, 2.2, 61.3, 101.1, Policy 1.1.3, 2.1.1, 5.1.3, 5.1.5, 5.1.6, 61.3.12, 101.1.1, 101.3.2 .

[37] Lee Plan Policy 1.1.3, 5.1.2, 5.1.3, 5.1.8, 135.1.4, 135.1.8, 135.1.9, 135.1.14, 135.4.11, 135.4.12, 135.1.13, 135.4.14, 160.1.3.

[38] LDC §34-145(d)(4)(a)(1)(d); §34-411(d)(1).

[39] LDC §34-145(d)(4)(a)(1)(e); §34-411(d)(2).

The site plan reflects direct access to Kelly Road, a county maintained major collector road.[40] Kelly Road intersects Pine Ridge Road and San Carlos Boulevard near the site. Pine Ridge Road is a county maintained major collector road and San Carlos Boulevard is a State maintained arterial road.[41] Accordingly, the site is well positioned to access a robust road network.

The Traffic Impact Statement (TIS) evaluated transportation impacts and concluded the request will not degrade levels of service on affected roadways/intersections.[42]

Applicant demonstrated the request provides sufficient access to support proposed development.[43] Site related impacts will be evaluated during development order review.[44]

Environmental and Natural Resources

Planned development design should reflect creative use of open space.[45] Developers must try to protect and preserve natural site features.[46]

The site is vacant and cleared. Clearing occurred without permits, resulting in two Code violations.[47] Applicant is undergoing restoration work to address the violations. Conditions of approval mirror Code Enforcement abatement measures requiring re-plantings and a restoration plan subject to annual monitoring.[48]

Current stormwater conditions include uncontrolled gravity sheet flow into the existing lake without benefit of water quality treatment.[49] Applicant proposes to direct post-development stormwater to dry detention areas via sheet flow, catch basins, and culverts.[50] County regulations require Applicant to meet water quality, water quantity, and attenuation standards including filtering water impurities with

---

[40] Lee Plan Map 3-B, Lee Co. Admin. Code 11-1.
[41] *See Id.*; V. Martin Testimony (Transcript pg. 7).
[42] *See* Staff Report (pg. 5, 12, Attachment I-J); Applicant's Ex. 1 (slide 16-17).
[43] *See Id.*; LDC §34-145(d)(4)(a)(1)(d).
[44] 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.*
[45] LDC §34-411(h).
[46] LDC §34-411(g).
[47] *See* Staff Report (pg. 2, Attachment G, citing VIO2022-06948 and VIO2022-06947).
[48] *See Id.*; Condition 4.
[49] D. Martin Testimony (Transcript pg. 32); Applicant Ex. 1 (slide 18).
[50] *Id.*

nutrient uptake before discharge.[51] A perimeter berm will improve water retention during storm events.[52]

The site is located within the Coastal High Hazard Area.[53] Site plans comply with Lee Plan directives to protect and conserve this environmentally sensitive area and buffer impacts from future flooding.[54] The MCP meets code required open space and offers enhanced buffers.[55]

Applicant's ecology study reported no protected species.[56] Additional species review will occur at the development order stage.

Public Services

Public/urban services are the facilities, capital improvements, and infrastructure necessary to support development.[57] The Lee Plan requires an evaluation of available urban services during the rezoning process.[58]

A host of urban services and infrastructure serve the property including roads, transit, potable water, sanitary sewer, police, fire, and emergency medical services.[59] Harlem Heights Community Park is proximate to the site.[60]

Deviations

"Deviations" are departures from LDC regulations.[61] The request proposes four deviations. The deviations relate to connection separation, buffers, and bikeways/pedestrian facilities.[62] Staff supports the requested deviations.[63]

---

[51] *Id.* at 33.
[52] D. Martin (Transcript pg. 94-95).
[53] Lee Plan Map 5-A.
[54] Lee Plan Goal 101, Objective 101.1, Policy 101.1.1, 101.1.2, 101.3.2.
[55] The MCP exceeds the open space requirement and Condition 3 ensures compliance with the LDC 40% open space requirement.
[56] V. Martin Testimony (Transcript pg. 38); Staff Report (Attachment G). The parties acknowledged the unauthorized clearing removed habitat and species that may have been on site.
[57] 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.
[58] Lee Plan Policy 2.2.1.
[59] Applicant's Ex. 1 (slide 3); *See* Staff Report (pg. 3-4, Attachment H, K). The Iona-McGregor Fire Department Station #75, EMS Medic #26, and Sheriff's West District Substation are collocated in the Pine Ridge Government Complex approximately 670± feet north. *See* Staff Report (pg. 4). A sidewalk on Kelly Road connects to Lee Tran Route 130 stop 0.4± miles west. *Id.*
[60] The park is 0.3± miles east on Kelly Road. *Id.*
[61] LDC §34-2.
[62] Deviations relate to LDC §10-285, §10-416(d)(6), §10-416(d)(3), and §10-296(e)(1).
[63] *See* Staff Ex. 4 Post-Hearing Written Submissions dated March 27, 2024.

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

1. Enhance achievement of objectives of the planned development; and
2. Protect the public health, safety, and welfare.[64]

Applying LDC deviation standards of review to testimony and evidence in the record, the Hearing Examiner concludes requested deviations meet approval criteria.[65] Requested deviations acknowledge development challenges on a constrained site.

Conditions

The county must administer the zoning process so proposed uses acceptably minimize adverse impacts to adjacent property. Conditions must plausibly relate to anticipated impacts from the proposed development and pertinent to mitigation of those impacts on public health, safety, and welfare.[66]

The RPD will be subject to conditions of approval. The conditions relate to impacts anticipated from the project.[67]

Public

Several members of the public spoke at hearing.[68] Neighbors voiced concerns relating to compatibility, height, traffic, flooding, the environment, property values, and solid waste. The parties addressed comments in rebuttal and testified many issues are outside the scope of zoning review or will be determined during development order review.[69] Supplemental conditions impose masonry wall construction, balcony placement limitations, and identify solid waste collection locations to further address neighbors' concerns.[70]

Conclusion

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

---

[64] LDC §34-145(d)(4).
[65] LDC §34-377(a)(4).
[66] LDC §34-932(b).
[67] LDC §34-83(b)(4)a.3.
[68] Public Testimony (Transcript pg. 58-85).
[69] Rebuttal Testimony (Transcript pg. 86-109).
[70] See Staff Ex. 4: Post-Hearing Written Submissions dated March 27, 2024.

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 RPD:

1. Complies with the Lee Plan. *See,* Lee Plan Goals 2, 4, 5, 39, 59, 61, 101, 135, Objectives 2.1, 2.2, 60.3, 61.3, 101.1, 135.1, 135.4, and Policies 1.1.3, 2.1.1, 2.2.1, 4.1.4, 5.1.2, 5.1.3, 5.1.5, 5.1.6, 5.1.7, 5.1.8, 61.3.12, 101.1.2, 101.1.1, 101.3.2, 101.3.6, 101.3.7, 135.1.4, 135.1.9, 135.1.14, 135.4.11, 135.4.12, 135.4.13, 135.4.14, 160.1.3, Standards 4.1.1, 4.1.2; Lee Plan Maps 1A-B, 2A, 5A.

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

3. Is compatible with existing and planned uses in the area. *See,* Lee Plan Policies 1.1.3, 2.1.1, 2.1.2, 2.2.1, 5.1.2, 5.1.5; 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 Policy 5.1.4.

5. Will not adversely affect environmentally critical areas and natural resources. *See,* Lee Plan Goals 77, 101, Objectives 77.1, 101.1, Policy 5.1.2, 5.1.6, 61.3.12, Standard 4.1.4, LDC 34-411(h).

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

7. The proposed use is appropriate at the proposed location. *See,* Lee Policies 1.1.3, 2.1.1, 5.1.2, 101.3.2, 101.3.7, 135.1.9, 135.4.12.

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

9. As conditioned herein, the deviations:

   a. Enhance objectives of the planned development; and

   b. Protect the public health, safety, and welfare. *See* §34-377(b)(4).

Date of Recommendation: April 24, 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

Case: DCI2022-00044

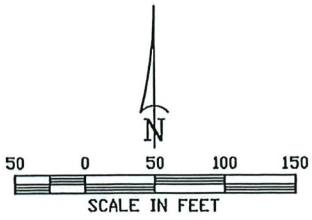
Exhibit A

LEGAL DESCRIPTION AND VICINITY MAP

SKETCH TO ACCOMPANY DESCRIPTION:

A PLOT OR PARCEL OF LAND LYING IN A PORTION OF THE S.E. 1/4 OF SECTION 31

TOWNSHIP 45 SOUTH, RANGE 24 EAST LEE COUNTY, FLORIDA



SEE SHEET 2 OF 2 EXHIBIT "A" FOR DESCRIPTION TO ACCOMPANY THIS SKETCH

NOT A BOUNDARY SURVEY

LEGEND:

O.R.	OFFICIAL RECORDS BOOK
P.O.B.	POINT OF BEGINNING
P.O.C.	POINT OF COMMENCEMENT
R/W	RIGHT-OF-WAY
℄	CENTERLINE

REVIEWED
DCI2022-00044
Hunter Searson, GIS Planner
Lee County Government
6/28/2023

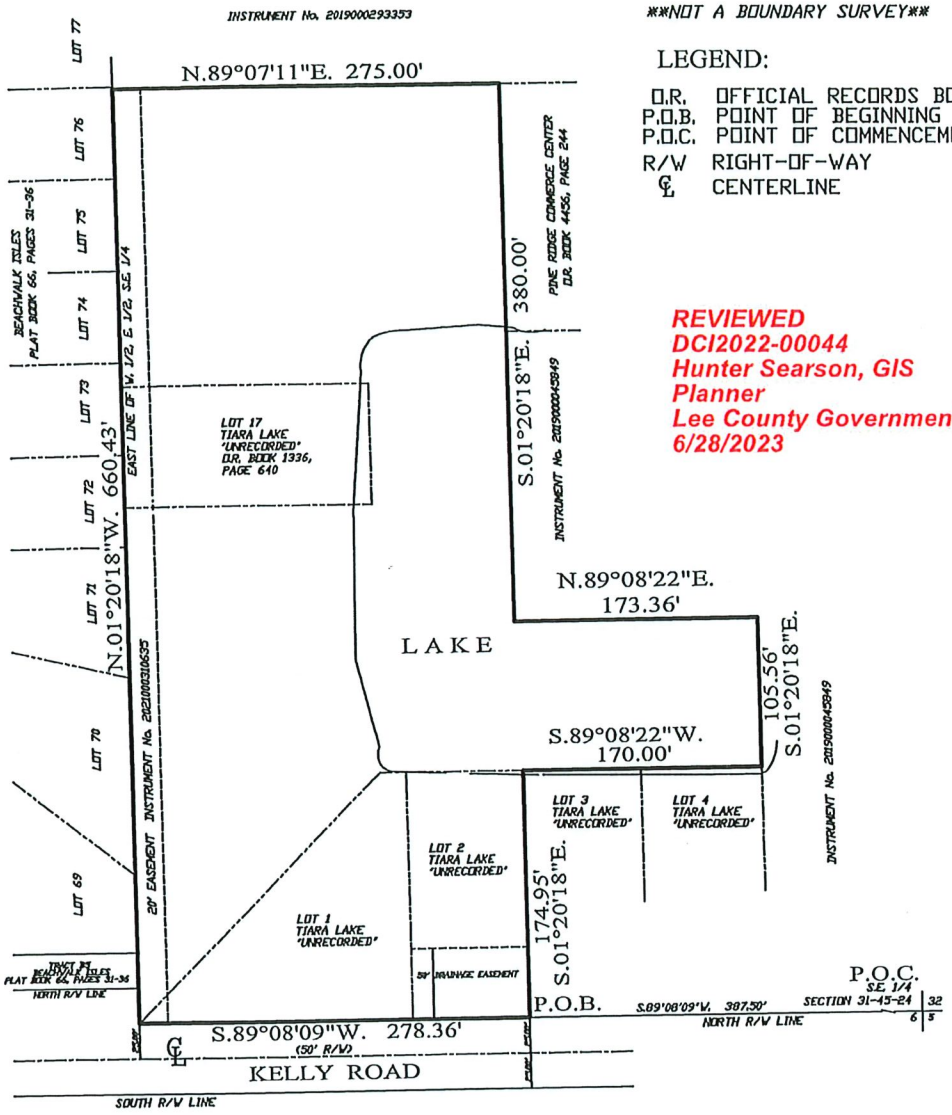


EXHIBIT A

SKETCH NOTES:

1. BASIS OF BEARING SHOWN HEREON TAKEN FROM THE SOUTH LINE OF SECTION 31, TOWNSHIP 45 SOUTH, RANGE 25 EAST, LEE COUNTY, FLORIDA, AS BEING "ASSUMED" AS S.89°08'09"W.
2. FIELD NOTES IN S.E. 1/4 OF SECTION 31-45-24.
3. SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD.
4. THIS CERTIFICATION IS ONLY FOR LANDS DESCRIBED HEREON. IT IS NOT A CERTIFICATION OF TITLE, ZONING OR FREEDOM OF ENCUMBRANCES.
5. THIS SKETCH DOES NOT CONSTITUTE A TITLE OR EASEMENT SEARCH AND WAS BASED ON DESCRIPTION FURNISHED BY CLIENT AND/OR FOUND MONUMENTATION IN THE FIELD.
6. UNDERGROUND STRUCTURES AND UTILITIES, IF ANY, ARE NOT INCLUDED.
7. THIS MAP/PLAT IS CONSIDERED SIGNED USING A DIGITAL SEAL IN ACCORDANCE WITH THE APPLICABLE STATE LAWS AND STATUTES FS 668.001-006; FS 668.50; FS 472.025; 5J-17.062, FLORIDA ADMINISTRATIVE CODE, STATE OF FLORIDA.
8. THIS SKETCH IS INTENDED TO BE VIEWED AS AN 8 ½" x 14" 100 SCALE DRAWING

DRAWN:	CHECK:	SCALE	PROJ. #	
PMM	FBH	1"=100'	11100 KELLY RD	
SKETCH DATE		FILE NO.	SHT.- 1	HARRIS-JORGENSEN, LLC 3048 DEL PRADO BLVD. S. #100 CAPE CORAL, FLORIDA 33904 (239)-257-2624 CERTIFICATE OF AUTHORIZATION: LB6921
04/18/22		45-24-31	OF - 2	

EXHIBIT "A"

DESCRIPTION TO ACCOMPANY SKETCH:

A PLOT OR PARCEL OF LAND LYING IN A PORTION OF THE S.E. 1/4 OF SECTION 31

TOWNSHIP 45 SOUTH, RANGE 24 EAST LEE COUNTY, FLORIDA

SEE SHEET 1 OF 2 FOR SKETCH TO ACCOMPANY THIS DESCRIPTION

NOT A BOUNDARY SURVEY

DESCRIPTION:

A TRACT OR PARCEL OF LAND LYING IN A PORTION OF SECTION 31, TOWNSHIP 45 SOUTH, RANGE 24 EAST, LEE COUNTY, FLORIDA BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING FROM THE SOUTHEAST CORNER OF SAID SECTION 31; THENCE RUN S.89°08'09"W. ALONG THE SOUTH LINE OF SAID SECTION FOR 387.50 FEET, TO THE POINT OF BEGINNING; THENCE RUN S.89°08'09"W. FOR 278.36 FEET; THENCE RUN N.01°20'18"W. ALONG THE EAST LINE OF THE PLAT OF BEACHWALK ISLES, AS RECORDED IN PLAT BOOK 66, PAGES 31-36, PUBLIC RECORDS OF LEE COUNTY, FLORIDA, FOR 660.43 FEET; THENCE RUN N.89°07'11"E. FOR 275.00 FEET; THENCE RUN S.01°20'18"E. FOR 380.00 FEET; THENCE RUN N.89°08'22"E. FOR 173.36 FEET; THENCE RUN S.01°20'18"E. FOR 105.56 FEET; THENCE RUN S.89°08'22"W. FOR 170.00 FEET; THENCE RUN S.01°20'18"E. TO A POINT ALONG THE AFORESAID SOUTH LINE OF SECTION 31 FOR 174.95 FEET, TO THE POINT OF BEGINNING.

CONTAINING: 200,510.72 SQUARE FEET OR 4.60 ACRES MORE OR LESS.

REVIEWED
DCI2022-00044
Hunter Searson, GIS Planner
Lee County Government
6/28/2023

Phillip M Mould, P.S.M. 6515 State of Florida

Digitally signed by Phillip M Mould, P.S.M. 6515 State of Florida
Date: 2022.10.13 09:00:03 -04'00'

PHILLIP M. MOULD
PROFESSIONAL SURVEYOR AND MAPPER
LS6515 - STATE OF FLORIDA
04/18/2022

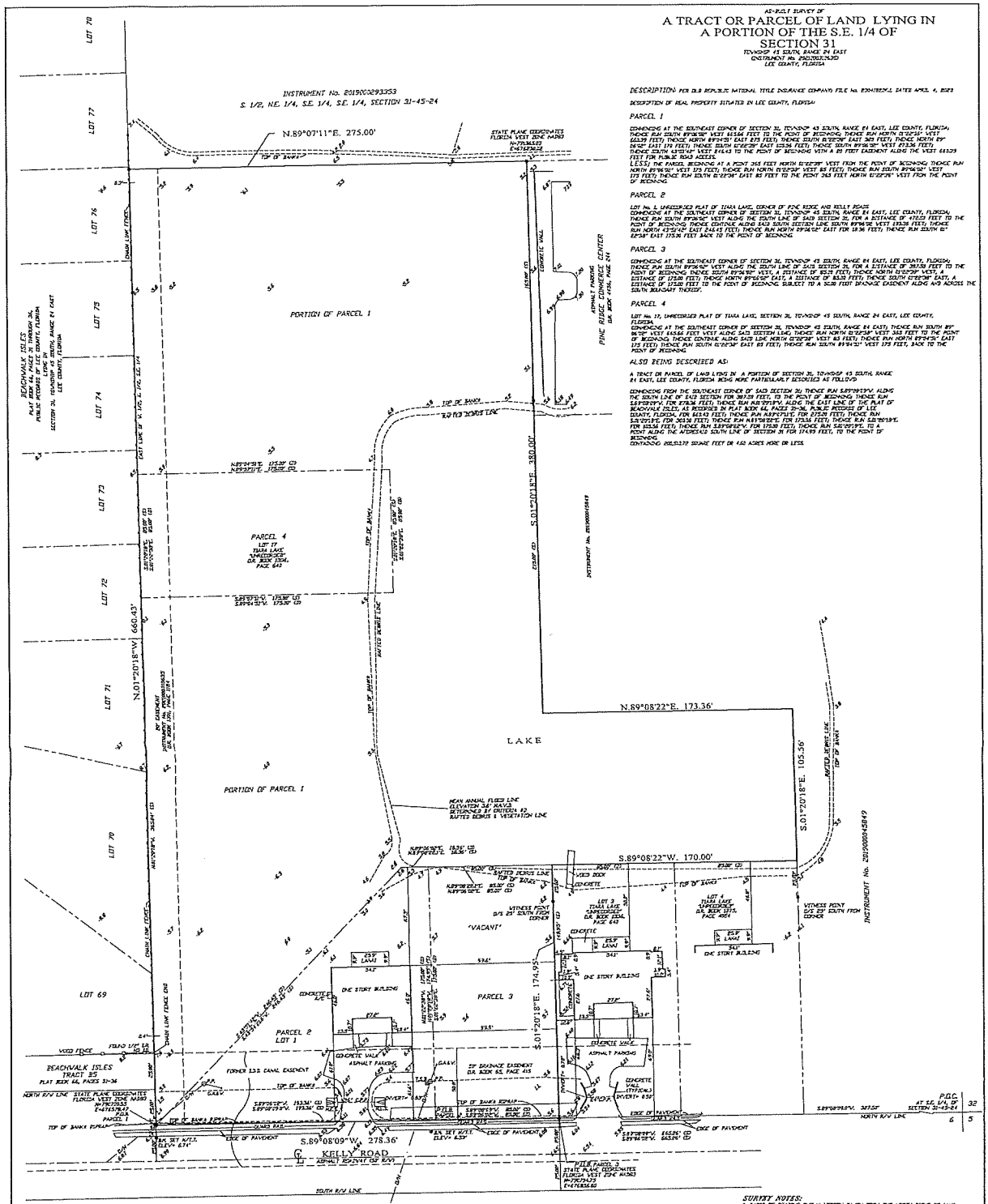
CERTIFICATE OF AUTHORIZATION: LB6921

HARRIS-JORGENSEN, LLC
3048 DEL PRADO BLVD. S.
#100
CAPE CORAL, FLORIDA 33904
(239)-257-2624

AS-BUILT SURVEY OF

A TRACT OR PARCEL OF LAND LYING IN A PORTION OF THE S.E. 1/4 OF SECTION 31

TOWNSHIP 43 SOUTH, RANGE 24 EAST
INSTRUMENT No. 2021000276349
LEE COUNTY, FLORIDA



DESCRIPTION: PER OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY FILE No. 8204182EM-2, DATED APRIL 4, 2022

DESCRIPTION OF REAL PROPERTY SITUATED IN LEE COUNTY, FLORIDA:

PARCEL 1

COMMENCING AT THE SOUTHEAST CORNER OF SECTION 31, TOWNSHIP 43 SOUTH, RANGE 24 EAST, LEE COUNTY, FLORIDA; THENCE RUN SOUTH 89°08'09" WEST, 661.86 FEET TO THE POINT OF BEGINNING; THENCE RUN NORTH 01°20'18" WEST 660.29 FEET; THENCE NORTH 89°14'31" EAST 275 FEET; THENCE SOUTH 01°20'18" EAST 385 FEET; THENCE NORTH 89°08'09" EAST 386.57 FEET; THENCE SOUTH 01°20'18" EAST 1275 FEET; THENCE SOUTH 89°08'09" WEST 273.36 FEET; THENCE SOUTH 43°51'47" WEST 814.43 TO THE POINT OF BEGINNING WITH A 80 FOOT EASEMENT ALONG THE WEST 660.29 FEET FOR PUBLIC ROAD ACCESS.

LESS: THE PARCEL BEGINNING AT A POINT 385 FEET NORTH 01°20'18" WEST FROM THE POINT OF BEGINNING; THENCE RUN NORTH 89°14'31" WEST 275 FEET; THENCE RUN NORTH 01°20'18" WEST 85 FEET; THENCE RUN SOUTH 89°08'09" WEST 173 FEET; THENCE RUN SOUTH 01°20'18" EAST 85 FEET TO THE POINT 385 FEET NORTH 01°20'18" WEST FROM THE POINT OF BEGINNING.

PARCEL 2

LOT No. 1, UNRECORDED PLAT OF TIARA LAKE, CORNER OF PINE RIDGE AND KELLY ROADS
COMMENCING AT THE SOUTHEAST CORNER OF SECTION 31, TOWNSHIP 43 SOUTH, RANGE 24 EAST, LEE COUNTY, FLORIDA; THENCE RUN SOUTH 89°08'09" WEST ALONG THE SOUTH LINE OF SAID SECTION 31, FOR A DISTANCE OF 472.03 FEET TO THE POINT OF BEGINNING; THENCE CONTINUE ALONG SAID SOUTH SECTION LINE SOUTH 89°08'09" WEST 139.36 FEET; THENCE RUN NORTH 43°51'47" EAST 244.45 FEET; THENCE RUN NORTH 89°08'09" EAST FOR 18.36 FEET; THENCE RUN SOUTH 01° 52'34" EAST 235.36 FEET BACK TO THE POINT OF BEGINNING.

PARCEL 3

COMMENCING AT THE SOUTHEAST CORNER OF SECTION 31, TOWNSHIP 43 SOUTH, RANGE 24 EAST, LEE COUNTY, FLORIDA; THENCE RUN SOUTH 89°08'09" WEST ALONG THE SOUTH LINE OF SAID SECTION 31, FOR A DISTANCE OF 383.58 FEET TO THE POINT OF BEGINNING; THENCE CONTINUE ALONG SAID SOUTH LINE NORTH 89°08'09" WEST, A DISTANCE OF 85.78 FEET; THENCE NORTH 01°52'34" WEST, A DISTANCE OF 235.36 FEET; THENCE NORTH 89°14'31" EAST, A DISTANCE OF 85.78 FEET; THENCE SOUTH 01°52'34" EAST, A DISTANCE OF 235.36 FEET TO THE POINT OF BEGINNING. SUBJECT TO A 30.00 FOOT DRAINAGE EASEMENT ALONG AND ACROSS THE SOUTH 30.00 PART THEREOF.

PARCEL 4

LOT No. 17, UNRECORDED PLAT OF TIARA LAKE, SECTION 31, TOWNSHIP 43 SOUTH, RANGE 24 EAST, LEE COUNTY, FLORIDA
COMMENCING AT THE SOUTHEAST CORNER OF SECTION 31, TOWNSHIP 43 SOUTH, RANGE 24 EAST; THENCE RUN SOUTH 89° 08'09" WEST 661.86 FEET; WEST ALONG SAID SECTION LINE; THENCE RUN NORTH 01°52'34" WEST 383 FEET TO THE POINT OF BEGINNING; THENCE CONTINUE ALONG SAID LINE NORTH 01°52'34" WEST 85 FEET; THENCE RUN NORTH 89°14'31" EAST 175 FEET; THENCE RUN SOUTH 01°52'34" EAST 85 FEET; THENCE RUN SOUTH 89°14'31" WEST 175 FEET, BACK TO THE POINT OF BEGINNING.

ALSO BEING DESCRIBED AS:

A TRACT OR PARCEL OF LAND LYING IN A PORTION OF SECTION 31, TOWNSHIP 43 SOUTH, RANGE 24 EAST, LEE COUNTY, FLORIDA BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING FROM THE SOUTHEAST CORNER OF SAID SECTION 31; THENCE RUN S.89°08'09"W. ALONG THE SOUTH LINE OF SAID SECTION FOR 383.58 FEET, TO THE POINT OF BEGINNING; THENCE RUN S.89°08'09"W. FOR 87.64 FEET; THENCE RUN N.01°52'34"W. ALONG THE EAST LINE OF THE PLAT OF BEACHWALK ISLES, AS RECORDED IN PLAT BOOK 66, PAGES 31-36, PUBLIC RECORDS OF LEE COUNTY, FLORIDA, FOR 661.43 FEET; THENCE RUN N.89°14'31"E. FOR 272.26 FEET; THENCE RUN S.43°51'47"E. FOR 562.58 FEET; THENCE RUN N.89°08'09"E. FOR 173.36 FEET; THENCE RUN S.01°20'18"E. FOR 660.29 FEET; THENCE RUN S.89°08'09"W. FOR 173.00 FEET; THENCE RUN S.01°52'34"E. TO A POINT ALONG THE AFORESAID SOUTH LINE OF SECTION 31 FOR 174.93 FEET, TO THE POINT OF BEGINNING.
CONTAINING 2,825,932 SQUARE FEET OR 4.83 ACRES MORE OR LESS.

SURVEY NOTES:

1. BASIS OF BEARING SHOWN HEREON TAKEN FROM THE NORTH RIGHT-OF-WAY LINE OF KELLY ROAD AS BEING "ASSUMED" S.89°08'09"W.
2. FIELD NOTES IN SE. 1/4 OF SECTION 31-45-24.
3. THIS CERTIFICATION IS ONLY FOR LANDS DESCRIBED HEREON. IT IS NOT A CERTIFICATION OF TITLE, ZONING OR FREEDOM OF ENCUMBRANCES.
4. THIS SURVEY IS BASED ON TITLE CERTIFICATION BY OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY, FILE No. 8204182EM-2, DATED APRIL 4, 2022
5. THIS SURVEY DOES NOT CONSTITUTE A TITLE OR EASEMENT SEARCH AND WAS BASED ON DESCRIPTION FURNISHED BY CLIENT AND/OR FIELD MONUMENTATION ON THE FIELD.
6. UNDERGROUND STRUCTURES AND UTILITIES, IF ANY, ARE NOT INCLUDED.
7. THIS MAP/PLAT IS CONSIDERED SIGNED USING A DIGITAL SEAL IN ACCORDANCE WITH THE APPLICABLE STATE LAWS AND STATUTES FS 668.003-.006 FS 668.50 FS 471.025, FLORIDA ADMINISTRATIVE CODE, STATE OF FLORIDA
8. ALL BEARINGS AND DISTANCES ARE PLAT AND MEASURED, UNLESS OTHERWISE SHOWN
9. THIS SURVEY IS INTENDED TO BE VIEWED AS AN 24x36, 24 SCALE DRAWING
10. BENCHMARK DERIVED FROM GPS TRIMBLE R7/R8 NETWORK TRIMBLE VRS, ELEVATION DATUM NAVD88
11. ELEVATIONS ARE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD)
12. BEING THE SAME LANDS AS DESCRIBED IN VESTING DEED RECORDED IN OFFICIAL RECORDS INSTRUMENT No. 2022000275941, PUBLIC RECORDS OF LEE COUNTY, FLORIDA

FLOOD ZONE "AE" ELEVATION 13' NAVD
COMMUNITY NO. 125124 PANEL No. 0419
SUFFIX — G REVISED DATED 11/17/2022
MAP NUMBER 12071C0419G

THIS SURVEY IS CERTIFIED TO:
TDH CONSULTING, INC.

SCALE IN FEET

LEGEND:

●	SET 5/8 IRON ROD CAP LB 8150	R/W	RECLAIM WATER BOX
○	FOUND IRON ROD (OR)	WB	WATER METER
⊡	CONCRETE MONUMENT FOUND	WV	WATER VALVE
P.R.M.	PERMANENT REFERENCE MONUMENT	FH	FIRE HYDRANT
P.C.P.	PERMANENT CONTROL POINT	BFP	BACKFLOW PREVENTER
P.O.B.	POINT OF BEGINNING	PP	POWER POLE
D.E.	DRAINAGE EASEMENT	G.A.W.	GUY ANCHOR & WIRE
L.M.E.	LAKE MAINTENANCE EASEMENT	E.B.	ELECTRIC BOX
P.C.	POINT OF CURVATURE	C.T.B.	CABLE TELEVISION BOX
P.T.	POINT OF TANGENCY	T.B.B.	TELEPHONE SERVICE BOX
O.R.	OFFICIAL RECORDS BOOK	M.B.	MAIL BOX
(M)	AS PER SURVEY	(M.E.)	MEASURED
(P)	AS PER PLAT	(R)	RADIAL
(C)	AS PER DEED	(E.)	ECCENTRIC
(D)	AS PER DEED	T.V.	TYPICAL ELEVATION
C.M.	CURVE MARKER	A/C	AIR CONDITIONER
L.M.	LINE MARKER	V.S.	WATER SYSTEM
R/W	RIGHT-OF-WAY	P.E.	POOL EQUIPMENT
℄	CENTERLINE	CONC.	CONCRETE
C.P.	CORRUGATED PLASTIC PIPE	P.O.B.	POINT OF BEGINNING
		P.O.C.	POINT OF COMMENCEMENT

REVISED	DESCRIPTION	BY
11/21/22	TITLE	PHM

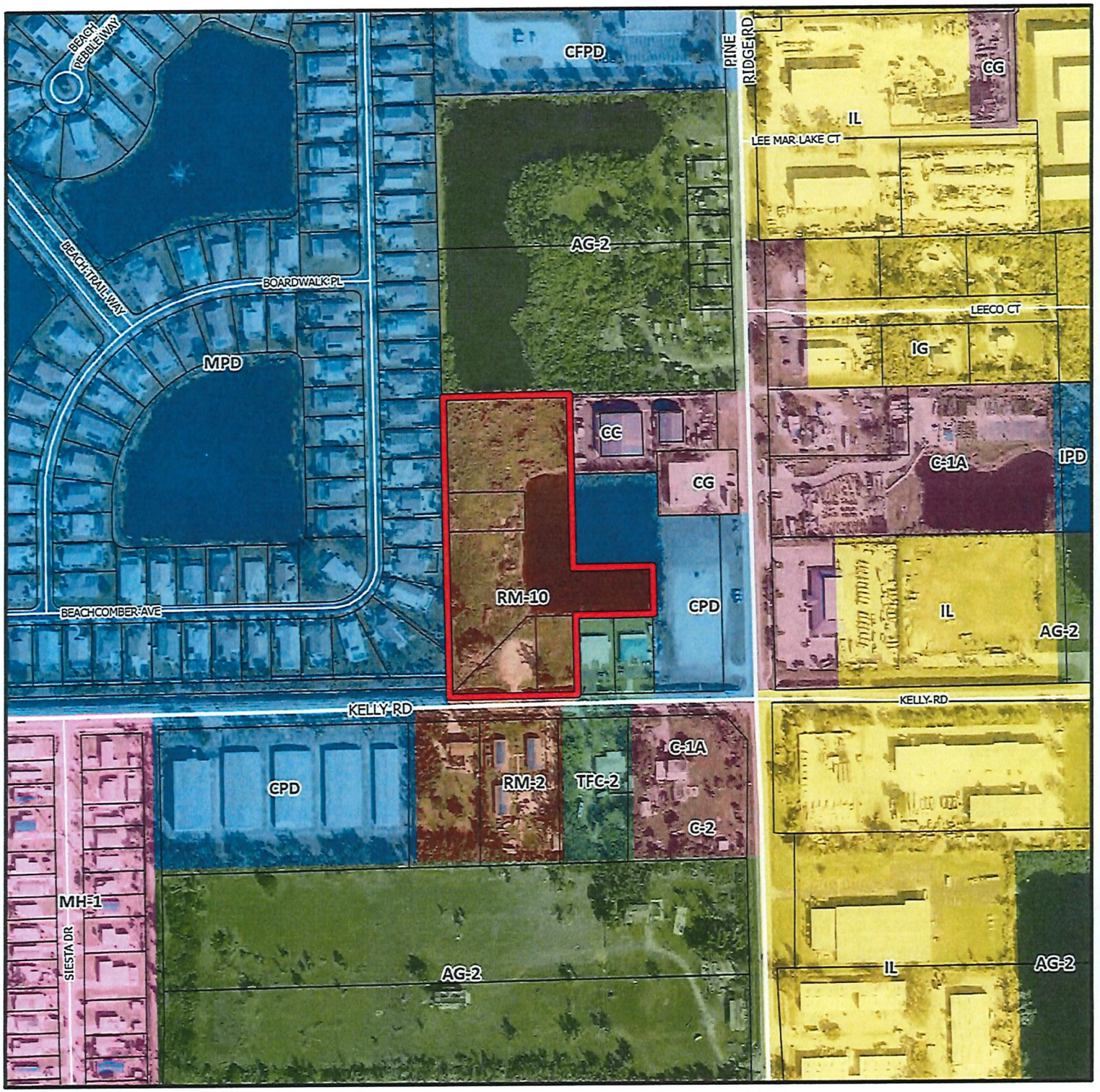
PHILLIP A. MOULD
PROFESSIONAL SURVEYOR AND MAPPER
LS6515 - STATE OF FLORIDA

DRAWN	CHECK	SCALE	FIELD BOOK
RLS	PHM	1"=30'	1130 KELLY RD
SURVEY DATE		FILE NO.	DWG. - 1
3/23/22		45-24-31	OF - 1

FLORIDA CERTIFICATE OF AUTHORIZATION LB6521

MAPPING & SURVEYING, LLC
3648 DEL PRADO BLVD S. SUITE 104
CAPE CORAL, FLORIDA 33904
PHONE (239) 257-2624
FAX (239) 257-2625

Phillip M Mould, LS6515, State of Florida
Digitally signed by Phillip M Mould, LS6515, State of Florida
Date: 2023.04.24 15:23:46 -04'00'



DCI2022-00044

Zoning

Subject Property

N
W E
S

0 250 500
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 the one-page MCP entitled "Kelly Road RPD MCP," received March 27, 2024 (Exhibit B1), except as modified by the conditions below.

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

   c. Development Parameters. Density may not exceed 46 standard units. 23 additional units may be obtained through the Lee County Bonus Density Program.

2. **Schedule of Uses and Property Development Regulations**

   a. Schedule of Uses

   Accessory uses and structures
   Administrative offices
   Dwelling unit (subject to Condition 5):
   - Multiple-family building

   Essential services
   Essential service facilities, Group I
   Excavation:
   - Water retention

   Fences, walls
   Home occupation
   Models:
   - Model unit

   Parking lot:
   - Accessory

   Recreation facilities:
   - Private on-site

   Signs
   Temporary uses

   b. Property Development Regulations

   Minimum Lot Area and Dimensions

   Area: 4.6 acres

Width:	275 feet
Depth:	660 feet

Minimum Building Setbacks, Maximum Building Heights and Lot Coverage:

Street:	25 feet
Side:	20 feet (See Condition 6)
Rear:	20 feet
Waterbody:	25 feet
Rear, accessory:	0 feet
Building separation:	10 feet
Maximum building height:	45 feet (See Condition 6)
Maximum Lot Coverage:	40 Percent

3. Open Space

Development order plans must depict a minimum of 40 percent (1.84 acres) open space in substantial compliance with the MCP.

4. Code Violations Abatement

a. Developer must comply with the following abatement conditions imposed under case VIO2022-06947:

1) Applicant must obtain a Limited Development Order to plant abatement trees and receive a Certificate of Compliance.

2) Landscape plans must depict new abatement plantings consisting of 27 Live Oaks and 36 Cabbage Palms. Live oaks must be planted a minimum of six feet in height with a minimum trunk diameter of one inch measured at three feet above the ground and have a minimum canopy diameter of two feet at installation. Cabbage Palms must have a minimum six feet of clear trunk at planting. Replacement trees/palms must meet or exceed Florida No. 1 standards. Existing onsite vegetation may not be claimed to satisfy restoration requirements. Plantings may not be counted to satisfy landscaping requirements resulting from new development.

3) Abatement trees must be planted in areas designated as open space on the MCP.

4) After issuance of the Certificate of Completion for the required restoration plantings, Developer must submit an annual monitoring report of restoration plantings for five consecutive years to Lee County Code Enforcement Staff.

5. Building Configuration

a. Building #1 (*see also* Condition 6)
   1) Maximum height of 35 feet;
   2) Set back at least 20 feet from the west boundary line; and
   3) Oriented so the short sides of the building face east/west.

b. Building #2
   1) Maximum height of 45 feet; and
   2) Set back at least 200 feet from the west boundary line.

c. Buildings #3 and #4
   1) Maximum height of 35 feet; and
   2) Set back at least 75 feet from the west boundary line.

d. Clubhouse
   1) Maximum height of 20 feet; and
   2) Private on-site recreation facilities must be located at least 100 feet from the west boundary line.

6. Masonry Wall/Berm Combination and Compatibility Enhancements

a. An opaque 8-foot-high masonry wall or 8-foot-high masonry wall and berm combination, measured from the finished grade, must be provided along the entire western boundary consistent with the MCP.

b. The combination masonry wall/berm must be set back 15 feet in the buffer segment on the MCP adjacent to Building #1 to allow for enhanced plantings.

c. Exterior stairwells are prohibited on the west elevation of Building #1. Balconies are prohibited on the west and south elevations of Building #1.

d. If Building #1 exceeds 28 feet in height, Type B buffer enhancements must be provided along the north 70 feet of the west boundary line depicted on the MCP as follows:

   1) Two additional clusters of three native palms and one small canopy tree. Palms must be specified at staggered heights of 12 to 16 feet clear trunk. Canopy trees must be 12 feet in height with a three-inch caliper and 6-foot canopy spread.

   2) Plant material must be 100 percent native and located on the exterior of the 8-foot-high wall/berm combination. Required tree clusters must be oriented to screen the west façade of Building #1 from single-family lots directly west. The wall/berm combination must be set back 15 feet from west boundary line in this area.

7. **Required Private Onsite Recreation Facilities**
Development order plans must include a pool and clubhouse, or at a minimum, swings, slides, or other playground equipment.

8. **Solid Waste/Recycling**
Additional garbage/recyclable material containers/receptacles must be set back 75 feet from the western boundary.

9. **Littoral Compliance**
Prior to development order issuance, Developer must redesign the existing onsite lake to:

a. Bring the lake littoral area into compliance with the LDC;

b. Provide 6:1 lake bank slopes; and

c. Provide sinuous shoreline in compliance with the LDC.

10. **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. **Connection Separation**. Deviation #1 seeks relief from LDC §10-285, which requires a minimum connection separation of 245 feet between private streets, accessways and access points, to allow 72 feet to the existing accessway east of the project entrance.

HEX Recommendation: APPROVAL

2. **Western Buffer**. Deviation #2 seeks relief from LDC §10-416(d)(6), which requires roads, drives, or parking areas of residential subdivisions or with a multifamily/nonresidential use located less than 125 feet from an existing single-family residential subdivision/single-family residential lots, to be buffered by a solid wall or combination berm and solid wall not less than eight feet in height, which must be constructed not less than 25 feet from the abutting property and landscaped (between the wall and the abutting property) with a minimum of five trees and 18 shrubs per 100 linear feet. Alternatively, a 30-foot-wide Type-F buffer with the hedge planted a minimum of 20 feet from the abutting property may be provided. Applicant proposes to provide an 8-foot-high solid wall or wall and berm combination located not less than 10 feet from the abutting property within a 15-

foot-wide buffer with a minimum of 5 trees per 100 linear feet and double-staggered hedgerow located between the wall and abutting property.

HEX Recommendation: Approval, *subject to* the following conditions:

1. Development order landscape plans must demonstrate shrubs installed at 24 inches in height and maintained at 60 inches in height. Trees must be ten feet in height, have a two-inch caliper (at six inches above the ground) and a four-foot spread at the time of installation.

2. Development order landscape plans must demonstrate 100 percent native vegetation.

3. **Kelly Road Buffer**. Deviation #3 seeks relief from LDC §10-416(d)(3), which requires a Type D buffer when multi-family developments abut a right-of-way, to allow no buffer along the 85-foot-wide drainage easement located along the Kelly Road right-of-way in the southeast corner of the site.

HEX Recommendation: Approval, *subject to* the following condition:

1. The deviation is limited to the area demarcated on the MCP. If Developer vacates the drainage easement, Developer must install the Code required right-of-way buffer.

4. **Kelly Road Design**. Deviation #4 seeks relief from LDC §10-296(e)(1), Table 6 Urban Major-Collector Road, which requires a shared bicycle lane, an 8-foot-wide planting strip, and an 8-foot-wide pedestrian facility along Kelly Road, to allow Kelly Road to remain as currently constructed due to existing conditions along the right-of-way.

HEX Recommendation: Approval, *subject to* approval by Lee County Department of Transportation and Development Services at time of local development order review.

Exhibits to Conditions:
B1 Master Concept Plan dated 3/24/2024

Exhibit 2

LEE COUNTY
HEARING EXAMINER
2024 MAR 27 AM 10:43

STREET ADDRESS

11070, 11088, 11100 KELLY ROAD
AND ACCESS UNDETERMINED
FORT MYERS, FL 33908

STRAP NUMBERS

31-45-24-00-00015.0010
31-45-24-00-00015.1010
31-45-24-00-00015.1000
31-45-24-00-00015.1030

PROJECT INFORMATION

CURRENT ZONING	= RM-10
PROPOSED ZONING	= RESIDENTIAL PLANNED DEVELOPMENT (RPD)
FUTURE LAND USE	= CENTRAL URBAN
PROPOSED DENSITY	= 14.9 DU/AC (69 DWELLING UNITS)
MIN. LOT SIZE	= 4.63 ACRES
MAX. HEIGHT	= BUILDINGS 1, 3 AND 4: 3-STORES/35 FEET BUILDING 2: 4-STORES/45 FEET
MIN. OPEN SPACE	= 40%

OPEN SPACE

REQUIRED: 200,511 SF X 40% = 80,204 SF

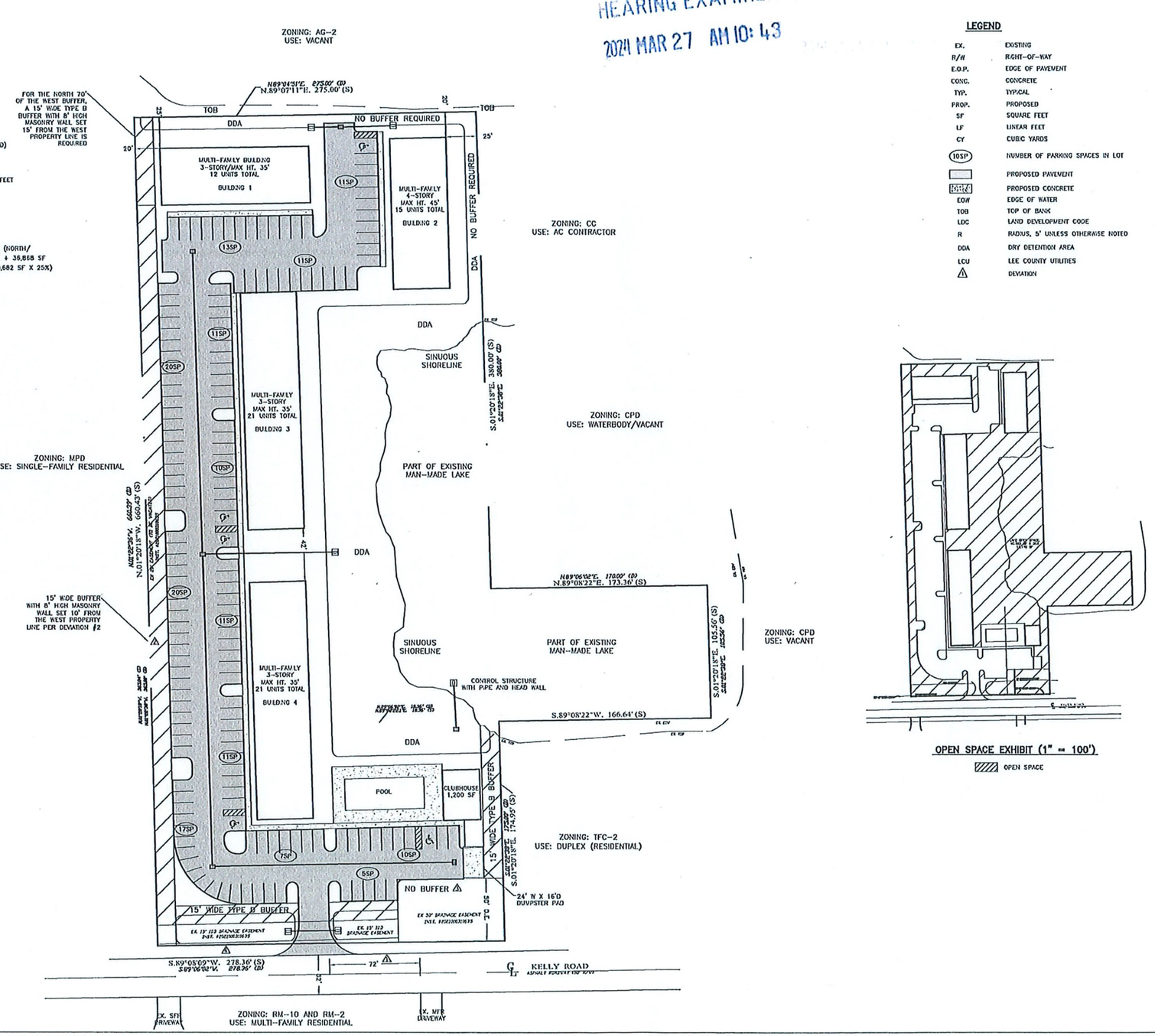
PROVIDED: 15,518 SF (WEST/SOUTH BUFFER + D.E.) + 9,250 SF (NORTH/EAST DDA) + 8,440 SF (EAST/SOUTH BUFFER + D.E.) + 36,868 SF (DDA/GREEN OPEN SPACE) + 10,170 SF (LAKE AT 40,682 SF X 25%) = 80,246 SF / 40.0%

PARKING REQUIREMENTS

REQUIRED: MULTI-FAMILY = 2 SPACES PER UNIT + 10% GUEST PARKING
CLUBHOUSE = 4 SPACES/1,000 SF

MULTI-FAMILY: 69 UNITS X 2 = 138 PARKING SPACES
138 X 10% = 13.8 PARKING SPACES
CLUBHOUSE: 1,200 SF / 1,000 SF X 4 = 4.8 SPACES

TOTAL REQUIRED: 138 + 13.8 + 4.8 = 156.6 SPACES
PROVIDED: 157 PARKING SPACES



LEGEND

EX.	EXISTING
R/W	RIGHT-OF-WAY
E.O.P.	EDGE OF PAVEMENT
CONC.	CONCRETE
TYP.	TYPICAL
PROP.	PROPOSED
SF	SQUARE FEET
LF	LINEAR FEET
CY	CUBIC YARDS
(10SP)	NUMBER OF PARKING SPACES IN LOT
	PROPOSED PAVEMENT
	PROPOSED CONCRETE
EOW	EDGE OF WATER
TOB	TOP OF BANK
LDC	LAND DEVELOPMENT CODE
R	RADIUS, 5' UNLESS OTHERWISE NOTED
DDA	DRY DETENTION AREA
LCU	LEE COUNTY UTILITIES
Δ	DEVIATION

TDM N

1" = 40'

OPEN SPACE EXHIBIT (1" = 100')

OPEN SPACE

Δ	DATE	REVISIONS	DESIGNED BY:	DATE: 02/16/2022
1	10/22	REVISED PER LEE COUNTY COMMENTS	PEM	
2	8/23	REVISED PER LEE COUNTY COMMENTS	DRAWN BY:	
3	12/23	REVISED PER LEE COUNTY COMMENTS	PEM	
4	1/24	REVISED PER LEE COUNTY STAFF REQUEST	CHECKED BY:	
5	3/24	REVISED PER LEE COUNTY STAFF REPORT	TDM	
6	3/24	REVISED PER HEX RECOMMENDATION	APPROVED BY:	
			TDM	

DRAWING NAME: J:\DGN\Graphic Standards\CADSITE

KELLY ROAD RPD

MASTER CONCEPT PLAN

EXHIBIT B-1

Civil Engineering and Planning
dean@tdmconsulting.com
www.tdmcivilengineering.com
CIVIL ENGINEERING TDM CONSULTING, INC.
43 Barkley Circle, Suite 200
Fort Myers, FL 33907
Phone: (239) 433-4231
Fax: (239) 433-9632

Dean Martin, P.E.
Florida #52022

DATE:

SHEET # 1 of 1

SCALE: AS NOTED

Exhibit C

EXHIBITS PRESENTED AT HEARING

STAFF EXHIBITS

1. *DCD Staff Report with attachments for DCI:* Prepared by Adam Mendez, Senior Planner, date received February 28, 2024 (multiple pages – 8.5"x11" & 11"x14") [black & white, color]

2. *Proof of Publication:* Prepared for Zoning Case DCI2022-00044, Kelly Road RPD, dated February 29, 2024 (1 page – 8.5"x11")

3. *PowerPoint Presentation:* Prepared by Lee Couty Staff for Kelly Road RPD, DCI2022-00044 (multiple pages – 8.5"x11)[color]

4. *Written Submissions:* Email from Adam Mendez to Maria Perez with copies to Veronica Mendez, dated Wednesday, March 27, 2024, 10:14 AM (multiple pages – 8.5"x11" and 1 page – 11"x17"){post hearing submission}

APPLICANT EXHIBITS

a. *48-Hour Notice:* Email from Veronica Martin to Hearing Examiner and Maria Perez, with copies to Adam Mendez, Anthony Rodriguez, Dean Martin, Guido Spinelli, and Juan A. Gaston, dated Tuesday, March 12, 2024, 12:21 PM (3 pages – 8.5"x11")

1. *PowerPoint Presentation:* Prepared for Zoning Case DCI2022-00044, Kelly Road RPD, dated March 14, 2024 (1 page – 8.5"x11")[color]

2. *Revised Justification Deviation #4:* For zoning case DCI2022-00044, Kelly Road RPD (multiple pages – 8.5"x11)

3. *Revised Master Concept Plan*: Prepared by TDM Consulting, Inc., last revised March 24, 2024 (1 page – 24"x36")

OTHER EXHIBITS

Thomas Seele

1. *Photograph:* (1 page – 8.5"x11")[color]

Exhibit D

HEARING PARTICIPANTS

County Staff:

1. Adam Mendez

Applicant Representatives:

1. Dean Martin
2. Veronica Martin

Public Participants:

1. Shannon Bell
2. Mary Buckley
3. Carl Jacona
4. Domingos Laureano
5. John O'Brien
6. Donna Ray
7. Thomas P. Seele
8. Peter Strahl
9. Mary Tamilia
10. Karen Wolmart

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.

Additional info submitted 03-26-2024
DCI2022-00044

STREET ADDRESS

11070, 11088, 11100 KELLY ROAD
AND ACCESS UNDETERMINED
FORT MYERS, FL 33908

STRAP NUMBERS

31-45-24-00-00015.0010
31-45-24-00-00015.1010
31-45-24-00-00015.1000
31-45-24-00-00015.1030

PROJECT INFORMATION

CURRENT ZONING	= RM-10
PROPOSED ZONING	= RESIDENTIAL PLANNED DEVELOPMENT (RPD)
FUTURE LAND USE	= CENTRAL URBAN
PROPOSED DENSITY	= 14.9 DU/AC (69 DWELLING UNITS)
MIN. LOT SIZE	= 4.63 ACRES
MAX. HEIGHT	= BUILDINGS 1, 3 AND 4: 3-STORIES/35 FEET BUILDING 2: 4-STORIES/45 FEET
MIN. OPEN SPACE	= 40%

OPEN SPACE

REQUIRED: 200,511 SF X 40% = 80,204 SF

PROVIDED: 15,518 SF (WEST/SOUTH BUFFER + D.E.) + 9,250 SF (NORTH/EAST DDA) + 8,440 SF (EAST/SOUTH BUFFER + D.E.) + 36,868 SF (DDA/GREEN OPEN SPACE) + 10,170 SF (LAKE AT 40,682 SF X 25%)
= 80,246 SF / 40.0%

PARKING REQUIREMENTS

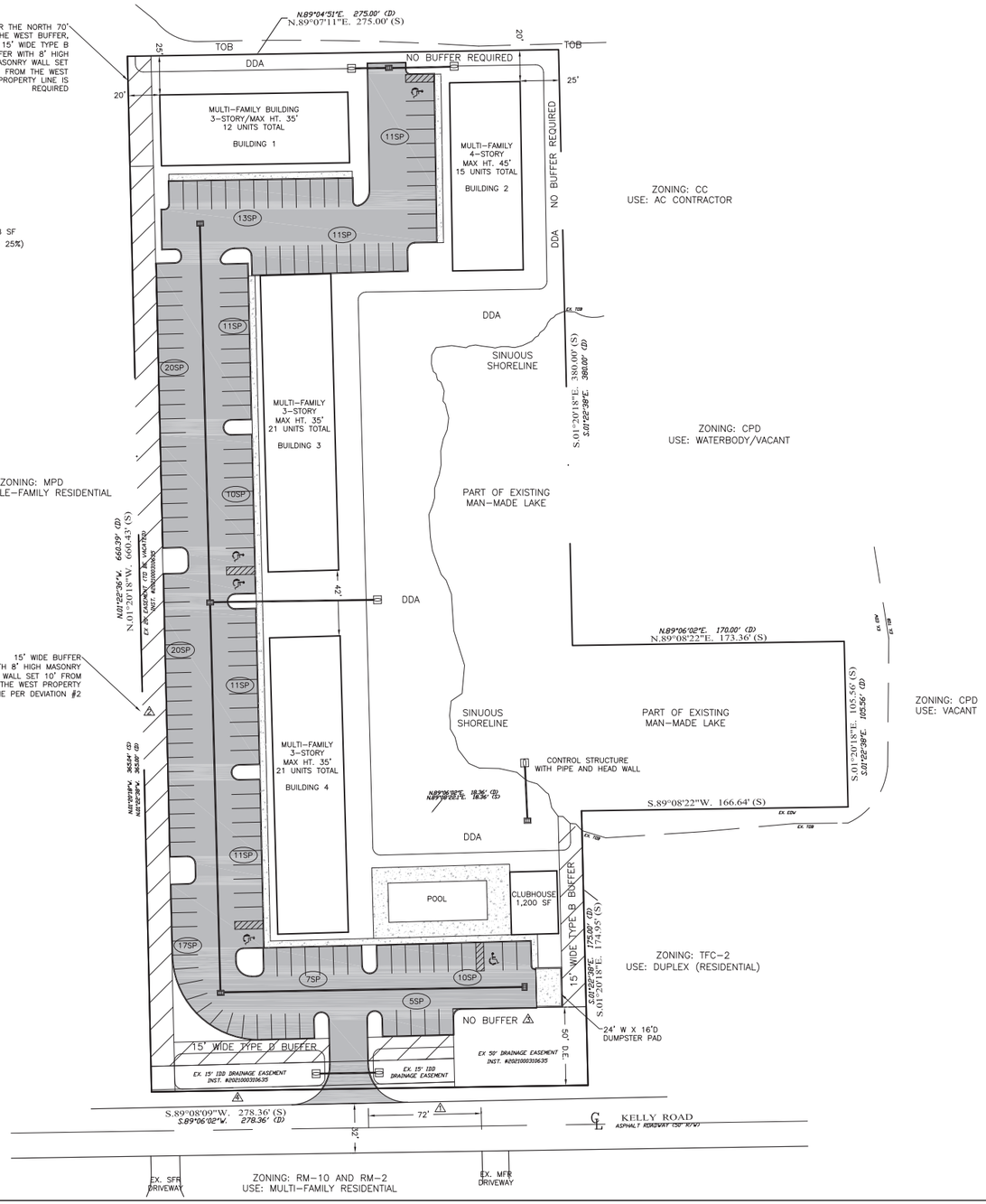
REQUIRED: MULTI-FAMILY = 2 SPACES PER UNIT + 10% GUEST PARKING
CLUBHOUSE = 4 SPACES/1,000 SF

MULTI-FAMILY: 69 UNITS X 2 = 138 PARKING SPACES
138 X 10% = 13.8 PARKING SPACES

CLUBHOUSE: 1,200 SF / 1,000 SF X 4 = 4.8 SPACES

TOTAL REQUIRED: 138 + 13.8 + 4.8 = 156.6 SPACES

PROVIDED: 157 PARKING SPACES

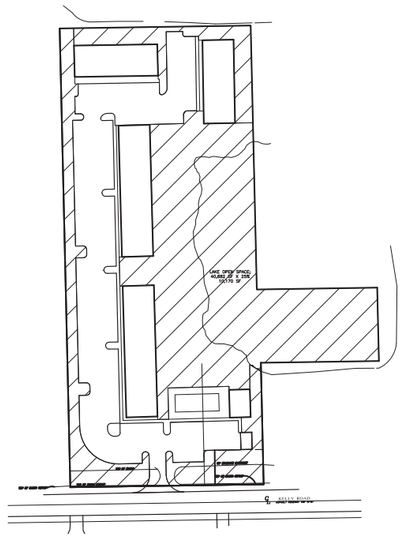


LEGEND

EX.	EXISTING
R/W	RIGHT-OF-WAY
E.O.P.	EDGE OF PAVEMENT
CONC.	CONCRETE
TYP.	TYPICAL
PROP.	PROPOSED
SF	SQUARE FEET
LF	LINEAR FEET
CY	CUBIC YARDS
10SP	NUMBER OF PARKING SPACES IN LOT
	PROPOSED PAVEMENT
	PROPOSED CONCRETE
EOW	EDGE OF WATER
TOB	TOP OF BANK
LDC	LAND DEVELOPMENT CODE
R	RADIUS, 5' UNLESS OTHERWISE NOTED
DDA	DRY DETENTION AREA
LCU	LEE COUNTY UTILITIES
⚠	DEVIATION

TDM
N

1" = 40'



DATE: 03/21/2022	DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED BY:
	PEM	PEM	TDM	TDM

	DATE	REVISIONS
1	10/22	REVISED PER LEE COUNTY COMMENTS
2	8/23	REVISED PER LEE COUNTY COMMENTS
3	12/23	REVISED PER LEE COUNTY COMMENTS
4	1/24	REVISED PER LEE COUNTY STAFF REQUEST
5	3/24	REVISED PER LEE COUNTY STAFF REPORT
6	3/24	REVISED PER HEX RECOMMENDATION

DRAWING NAME: I:\2SIS\Surgenht\~Drawings\Site\SITE

KELLY ROAD RPD
MASTER CONCEPT PLAN

CIVIL ENGINEERING
TDM CONSULTING, INC.
43 Barkley Circle, Suite 200
Fort Myers, FL 33907
Phone: (239) 433-4231
Fax: (239) 433-9632
Civil Engineering and Planning
dean@tdmconsulting.com
www.tdmcivilengineering.com

Dean Martin, P.E.
Florida #52022

DATE:

SHEET # 1 of 1

SCALE: AS NOTED

Conditions

All references to uses are as defined or listed in the Lee County Land Development Code (LDC).

(1) Master Concept Plan and Development Parameters

(a) Development of the subject property must be substantially consistent with the one-page Master Concept Plan Entitled "Kelly Road RPD Master Concept Plan"; last revised January of 2024, attached hereto as Attachment D, as further specified in Condition 5.
Staff Note: Applicant must prepare revised MCP consistent with northeastern buffer adjacent to Building #1, Condition 7 herein.

(b) Development must comply with all the requirements of the LDC at the time of local development order approval, except as may be subsequently granted by deviation as part of this planned development. Subsequent amendments to the Master Concept Plan or its auxiliary documentation attached thereto are subject to the planned development amendment process established by the Land Development Code.

(2) Schedule of Uses and Property Development Regulations

(a) Schedule of Uses

Accessory uses and structures
Administrative offices
Dwelling unit (subject to Condition 5):
    Multiple-family building
Essential services
Essential service facilities, Group I
Excavation:
    Water retention
Fences, walls
Home occupation
Models:
    Model unit
Parking lot:
    Accessory
Recreation facilities:
    Private on-site
Signs
Temporary uses

(b) Property Development Regulations

Minimum Lot Area and Dimensions

Area:	4.6 acres
Width:	275 feet
Depth:	660 feet

Minimum Building Setbacks, Maximum Building Heights and Lot Coverage:

Street:	25 feet
Side:	20 feet (See Condition 6)
Rear:	20 feet
Waterbody:	25 feet
Rear, accessory:	0 feet
Building separation:	10 feet
Maximum building height:	45 feet (See Condition 6)
Maximum Lot Coverage:	40 Percent

(3) Open Space

Prior to local development order approval the project must depict a minimum of 40 percent (1.84 acres) of open space in substantial compliance with the MCP.

(4) Notices of Code Violations Abatement.

a. The following conditions codify the abatement required by VIO2022-06947. If the conditions are not met, the restoration criteria of Chapter 14 of the LDC will apply in full and will be monitored through the Code Enforcement violation process:

1. Prior to the issuance of a development order, the applicant must obtain a Limited Development Order to plant the abatement trees and must receive a Certificate of Compliance for the abatement plantings.

2. Landscape plans must depict new abatement plantings consisting of twenty-seven (27) Live Oaks and thirty-six (36) Cabbage Palms. Live oaks must be planted at a minimum of six (6) feet in height with a minimum trunk diameter of one (1) inch measured at three (3) feet above the ground and must have a minimum canopy diameter of two (2) feet at installation. Cabbage Palms must have a minimum of six feet of clear trunk at planting. Replacement trees/palms must meet or exceed Florida No. 1 standards. Existing onsite vegetation may not be claimed to satisfy restoration requirement. These plantings may not be counted to satisfy any landscaping requirements resulting from new development.

3. Abatement trees must be planted in areas designated as open space on the master concept plan.

4. After the issuance of the Certificate of Completion for the required restoration plantings, the developer, its successors, or assignees must submit an annual monitoring report of the restoration plantings once annually for five consecutive years, to Lee County Code Enforcement Staff.

(5) Density

The project density may not exceed 46 standard units. 23 additional units may be obtained through the Lee County Bonus Density Program.

(6) Building Configuration

a. The following attributes will be the minimum to establish a finding of substantial compliance with the approved Master Concept Plan (MCP):

1. Buildings #1 is limited to a maximum building height of 35 feet and must be set back a minimum of 20 feet from the west boundary line and oriented so that the short sides of the building face east and west. Building #1 is further subject to Condition 7.

2. Building #2 is limited to a maximum building height of 45 feet and must be set back a minimum of 200 feet from the west boundary line.

3. Buildings #3 and #4 are limited to a maximum building height of 35 feet and must set back a minimum of 75 feet from the west boundary line.

4. The clubhouse is limited to a maximum building height of 20 feet and all private on-site recreation facilities must be located a minimum of 100 feet from the west boundary line.

(7) Building #1 Compatibility Enhancements

(a) The 8-foot-high wall/berm combination required per Deviation #2 must extend continuously to the north boundary line of the subject property. The wall/berm combination must be set back 15 feet in the annotated buffer segment on the MCP adjacent to Building #1 to allow for enhanced plantings in this area.
Staff Note: Applicant must prepare revised MCP consistent with this condition.

(b) Balconies and exterior stairwells are prohibited on the west building elevation of Building #1.

(c) If Building #1 exceeds 28 feet in height, then at time of local development order, the following Type B buffer enhancements must be provided along the north 70 feet of the west boundary line depicted on the MCP:

1. Two additional clusters of three native palms and one small canopy tree, palms must be specified at staggered heights of 12 to 16 feet clear trunk. Canopy trees must be 12 feet in height with a three-inch caliper and 6-foot canopy spread.

2. All plant material must be 100 percent native and must be located on the exterior of the 8-foot-high wall/berm combination. Required tree clusters must be oriented to screen the west façade of Building #1 from single-family lots directly west. The wall/berm combination must be set back 15 feet from west boundary line in this specified area.

(8) Private onsite recreation facilities required.

Development order plans must include or pool and clubhouse, or at a minimum, swings, slides, or other playground equipment.

Deviations

Deviation #1:

Seeks relief from LDC §10-285, which requires a minimum connection separation of 245 feet between private streets, accessways and access points, to allow 72 feet to the existing accessway east of the project entrance.

Staff recommends **APPROVAL** of this deviation.

Deviation #2:

Seeks relief from LDC §10-416(d)(6), which requires roads, drives, or parking areas associated with residential subdivisions or with a multifamily or nonresidential use located less than 125 feet from an existing single-family residential subdivision or single-family residential lots, to be buffered by a solid wall or combination berm and solid wall not less than eight feet in height, which must be constructed not less than 25 feet from the abutting property and landscaped (between the wall and the abutting property) with a minimum of five trees and 18 shrubs per 100 linear feet. Alternatively, a 30-foot-wide Type-F buffer with the hedge planted a minimum of 20 feet from the abutting property may be provided. The applicant proposes to provide an 8-foot-high solid wall or wall and berm combination to be located not less than 10 feet from the abutting property within a 15-foot-wide buffer with a minimum of 5 trees per 100 linear feet and double-staggered hedgerow located between the wall and abutting property.

Staff recommends **APPROVAL** of this deviation, subject to following conditions.

1. **Prior to the issuance of the first development order, the landscape plans must demonstrate shrubs installed at 24 inches in height and maintained at 60 inches in height. Trees must be ten feet in height, have a two-inch caliper (at six inches above the ground) and a four-foot spread at the time of installation.**

2. **Prior to the issuance of the first development order, the landscape plans must demonstrate 100 percent native vegetation.**

Deviation #3:

Seeks relief from LDC §10-416(d)(3), which requires a Type D buffer when multi-family developments abut a right-of-way, to allow no buffer in along the 85-foot-wide drainage easement located along the Kelly Road right-of-way in the southeast corner of the site.

Staff recommends **APPROVAL** of this deviation subject to the following condition:

1. **The deviation is only applicable in the area demarcated on the MCP. If the drainage easement is subsequently vacated, this deviation is nullified and the code required right-of-way buffer must be provided.**

Deviation #4

Seeks relief from LDC §10-296(e)(1), Table 6 Urban Major-Collector Road, which requires a shared bicycle lane, an 8-foot-wide planting strip, and an 8-foot-wide pedestrian facility along Kelly Road, to allow Kelly Road to remain as currently constructed due to existing conditions along the right-of-way.

Staff recommends **WITHDRAWAL** of this deviation as expanded on in the staff report discussion.

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

Case Number: DCI2022-00044
Case Name: Kelly Road RPD
Area to be Rezoned: +/- 4.6 Acres
Case Type: Minor Planned Development Rezoning
Sufficiency Date: January 10, 2024
Hearing Date: March 14, 2024

REQUEST:

Veronica Martin has filed an application to rezone 4.6 acres from Residential Multiple-Family (RM-10) to Residential Planned Development (RPD) to permit a maximum of 69 multi-family units not to exceed 45 feet in height. The maximum requested density includes 23 bonus density units.

The property is located in the Iona/McGregor Planning District, Commissioner District #3. The applicant has indicated the property's address is 11100, 11070 and 11088 Kelly Road, and the request also includes a fourth landlocked parcel without a street address. A legal description and boundary survey of the subject property is attached as Attachment B of this report.

SUMMARY:

Staff recommends **APPROVAL** of the applicant's request, including approval of 23 bonus density units, with the terms of conditions and deviations found in Attachment E of this report. The existing RM-10 conventional zoning district is not bound by site-specific conditions of approval that consider proximity to single-family residences located in the Beachwalk Isles Subdivision. The minimum code requirements applicable to the RM-10 District create potential for multi-family development at significantly greater building height/building stories and similar density without the necessity of public hearing approval, as further detailed in the analysis herein. The parameters of the proposed Residential Planned Development Zoning District provide for greater predictability and compatibility through site plan considerations and effective conditions of approval inherent to planned development zoning.

HISTORY OF PARCEL:

The subject property was originally rezoned from Agricultural (AU) [as converted to Agricultural (AG-2)] to Residential (RU-2) [as converted to Residential Two-Family Conservation (TFC-2)] by Resolution Z-76-070 (circa 1976). A northern ±1.8-acre portion of the of subject property held Industrial (IU) zoning [as converted to light Industrial (IL)] for a brief stint in connection with Resolution Z-77-261 (circa 1977). In 1978, the IL portion of the property was rezoned to Residential Multi-Family (RM-2) by Resolution Z-78-346. The RM-2 zoning was modified to RM-5 (RM-6 as converted) by Resolution Z-83-195, which found that the 1978 RM-2 approval was not in compliance with the Lee County Comprehensive Plan (circa 1983).

In 2006 the entirety of the subject property was rezoned from TFC-2 and RM-6 to Residential Multi-Family (RM-10).

All referenced Resolutions are attached with this report as Attachment L.

A duplex, constructed in the late 1970s, existed on the subject property until removal in 2022 (Demolition Permit DEM2022-00220). An application to vacate the 20-foot roadway easement along the west side of the subject property and the southern 50-foot drainage easement is concurrently sought with this rezoning request (VAC2022-00022).

Two active Notices of Code Violation (NOVs) currently exist on the subject property for land clearing and removal of protected trees without permits, which took place in March of 2022 (VIO2022-06947 and VIO2022-06948). Pre and post clearing photos, as well as photos captured by the county Code Officer, are included as Attachment N of this report. Details regarding required violation abatement are included in the ensuing environmental discussion herein.

CHARACTER OF THE AREA:

The subject property is located adjacent to the intersection of Kelly Road and Pine Ridge Road, where three Future Land Use Map categories converge: Central Urban, Urban Community and Industrial Development (see Attachment C, Case Maps). Consequently, the land uses and underlying zoning designations depicted are notably diverse within the surrounding area. The extent of the Case Maps is approximately one-quarter mile (1,320 feet) or less from the boundary of the subject property, as the crow flies. In addition to the subject property's RM-10 designation, the range of zoning districts depicted within the extent of the Case Maps include:

- Mixed Use Planned Development (MPD)
- Mobile Home (MH-1)
- Residential Multiple Family (RM-2)
- Two-Family Conversation (TFC-2)
- Agricultural (AG-2)
- Community Facilities Planned Development (CFPD)
- Commercial (C-1A)
- Community Commercial (CC)
- General Commercial (CG)
- Commercial (C-2)
- Commercial Planned Development (CPD)
- Light Industrial (IL)
- General Industrial (IG)
- Industrial Planned Development (IPD)

The assortment of land uses in this area includes varying residential dwelling unit types, shopping centers and personal services west of San Carlos Boulevard (approximately 0.4 miles from the subject property), and heavy commercial and light industrial uses within and surrounding the Industrial Future Land Use corridor along Pine Ridge Road, which is notably the largest future industrial area in the Iona/McGregor Planning District (See Lee Plan Maps 1-A and 1-B).

Property immediately surrounding the subject property is located in the Central Urban Future Land Use category, depicted in Attachment C of this report, and can be characterized as follows:

North

Lands to the north are vacant and Agriculturally (AG-2) zoned with no agricultural activity. This remnant agricultural zoning area encompasses a large waterbody adjacent to the subject property.

East

Lands immediately to the east of the subject property along Kelly Road include two developed residential duplex lots which abut Commercial Planned Development[1] (CPD) Zoning to the east. The commercial frontage along Pine Ridge Road adjoins the subject property for the rest of its extent north. The northeastern abutting property is conventionally-zoned Community Commercial (CC) and Commercial (C-1A) and developed with warehouse buildings serving contractor and builder and business services uses.

South

Lands to the south of the subject property, across Kelly Road, are zoned Two-Family Conservation (TFC-2) and Residential Multiple-Family (RM-2 and RM-10) and are developed with single-family, two-family and multiple-family residences.

West

Lands to the west of the subject property are zoned Mixed Use Planned Development (MPD) and are developed with single-family residences located in the Beachwalk Isles Subdivision. The MPD, originally approved in 1998[2], includes a high density residential multi-family component along Gladiolus Drive to the north, a commercial component along San Carlos Boulevard to the west, and the single-family component abutting the subject property.

Availability of Urban 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 public services currently serving the subject property are as follows:

Public water and sewer: The applicant has provided a public water and sewer availability letter from Lee County Utilities. Potable water and wastewater utility lines are available adjacent to the subject property with sufficient capacity available for the proposed development (see Attachment H).

Paved streets and roads: The entrance to the subject property will be via Kelly Road, a county-maintained major collector road.

[1] Resolution Z-20-009 is approved for 12,000 square feet of non-residential floor area (10,000 square feet of warehouse and 2,000 feet of commercial/retail).
[2] See Resolution Z-98-070 as Attachment L.

Public transit and pedestrian facilities: A sidewalk is located on the south side of Kelly Road directly across from the subject property, which connects to the nearest bus stop served by LeeTran Route 130 (Edison Mall/Beach Park & Ride), approximately 0.4 miles west along San Carlos Boulevard.

Police, fire, and emergency services: McGregor Fire Department Station 75, Lee County Sheriff's Office West District Substation and Lee County EMS Medic 26 are collocated in the Pine Ridge Government Complex (Circa 2009), ±670 feet north at 15650 and 15660 Pine Ridge Road.

Public Schools/Parks: Harlem Heights Community Park is located approximately 0.3 miles east at the end of Kelly Road. The project is located in the South Concurrency Service Area (CSA) for elementary through High School. The Lee County School District has provided a concurrency analysis of the project and estimates approximately 10 school aged children will be generated by the proposed 69 dwelling units (see Attachment K). The report indicates the South CSA is nearing capacity at the elementary school level, however, there is also available capacity in the adjacent CSA.

ANALYSIS:

The subject property has been largely zoned for residential multiple-family uses for over 45 years.[3] Therefore, the analysis herein considers development potential under the current Residential Multiple-Family (RM-10) requirements and auxiliary LDC standards, as compared to the curated development plan proposed with this request.

Subsequent to the adoption of unified RM-10 zoning across the 4.6-acre subject site, Ordinance 16-19 amended the Land Development Code in November of 2016 to reform LDC Table 34-715 (Property development regulations for multiple-family districts), specifically removing "Lot area per unit (square feet)" and other per [dwelling] unit requirements that created overlapping density standards in RM zoning areas. Prior to this amendment, the RM-10 District included a minimum lot area per (dwelling) unit of 4,000 square feet (10.89 dwelling units per acre), whereas the Central Urban Future Land Use Map category permits one unit per 4,356 square feet of lot area within the standard maximum density range (10 dwelling units per acre) and one unit per 2,904 square feet of lot area within the maximum bonus density range (15 dwelling units per acre).

The RM-10 Zoning District establishes a maximum building height of 35 feet.[4] LDC Section 34-2174 provides that "any building or structure may be permitted to exceed the height limitations specified by the zoning district regulations in which the property is located provided every required street, side, waterbody, and rear setback is increased by one-half foot for every one foot by which the building or structure exceeds the specified height limitation."[5] In application to the subject property, a building or buildings containing multiple-family dwelling units at a height[6] of 75 feet is permitted provided all minimum setbacks are increased by 20 feet.[7] This requirement is feasible given the property's size and design considerations, such as parking below buildings. The potential building height may further increase

[3] See Resolution Z-78-346, attached as Attachment L, and zoning history outlined on Page 1 of this report.
[4] See Table 34-715, Property development regulations for multiple-family districts.
[5] Subject to special maximum height cap of 135 feet in Central Urban Map Category, see LDC Table 2175(b).
[6] Building height is measured per LDC 34-2171.
[7] Front setback 45 feet, side setback 40 feet, rear setback 40 feet, waterbody setback 45 feet.

toward the maximum cap by right under these provisions. The request caps maximum building heights at 35 feet for multi-family buildings closest to single-family rear yard areas to the west, and 45 feet for the multi-family building that is situated closest to the warehouse building (see Attachment D, Master Concept Plan). Conditions of approval solidify the conceptual location, orientation and height proposed and improve compatibility with the Beachwalk Isles Subdivision, as compared to the general conventional zoning standards currently in effect.

Density

Density means "an existing or projected relationship between numbers of dwelling or housing units (Du) and land area" (LDC Section 34-2, Definitions). Below are tables outlining permissible density on the subject property:

FUTURE LAND USE CATEGORY	MAXIMUM STANDARD DENSITY RANGE	UNITS
CENTRAL URBAN	4.6 Acres @ 10 Du/Acre	46 Du
	TOTAL: 46 DU	

FUTURE LAND USE CATEGORY	MAXIMUM BONUS DENSITY RANGE	UNITS
CENTRAL URBAN	4.6 Acres @ 15 Du/Acre	69 Du
	TOTAL: 69 DU (INCLUDES 23 BONUS DENSITY UNITS)	

The project proposes a total 69 units (including 23 bonus density units) which falls within the maximum range at 15 dwelling units per acre. The bonus density incentive programs include the Affordable Housing Program, in accordance with the site-built provisions or the cash contribution provisions set forth in Administrative Code 13-5, and the transfer of Development Rights (TDR) Program, in accordance with the provisions set forth in Administrative Code 13-5. LDC Section 2-147(b)(2) provides administrative authorization to the Director of Community Development to approve the use of bonus density to increase the density of a proposed development in a conventional zoning district under certain criteria. The applicant must utilize the Affordable Housing program option at time of local development order approval due to the property's location in the Coastal High Hazard Area. LDC Section 2-147 requires applications for planned development rezoning requests incorporating bonus density to comply with the following review criteria:

a) The additional traffic will not be required to travel through areas with significantly lower densities before reaching the nearest collector or arterial road.

The sole entrance to the project is located on Kelly Road, a county-maintained major collector, and is over 100 feet from the Beachwalk Isles subdivision boundary. The nearest linking collector roadway is Pine Ridge Road, approximately 380 feet east, which hosts a wide range of industrial and commercial intensities, high density mobile home parks, multi-family and sparse residential single-family and two-family sites. The project's traffic generation will not be required to travel through areas with significantly lower densities before reaching the nearest collector or arterial road.

b) Existing and committed public facilities are not so overwhelmed that a density increase would be contrary to the overall public interest.

The proposed density increase from 46 multi-family dwelling units per acre to 69 multi-family dwelling units will not have an adverse impact on public facilities. As indicated above, public services are available with sufficient capacity to support the proposed bonus units. Sufficient capacity is projected on surrounding roadway segments to accommodate the projected trip generation as further detailed in this report.

c) Storm shelters or other appropriate mitigation is provided if the development is located within the coastal high hazard area as defined in LDC Section 2-483.

The property is located within the Coastal High Hazard Area pursuant to Lee Plan Map 5-A. Storm shelters or other appropriate mitigation will be required and provided pursuant to LDC requirements[8], which will be demonstrated as part of the development order for the subject property.

d) The resulting development will be compatible with existing and planned surrounding land uses.

Compatible means "in describing the relation between two land uses, buildings or structures, or zoning districts, the state wherein those two things exhibit either a positive relationship based on fit, similarity or reciprocity of characteristics, or a neutral relationship based on a relative lack of conflict (actual or potential) or on a failure to communicate negative or harmful influences one to another" (LDC Section 34-2).

The applicant proposes a Master Concept Plan (MCP) depicting the general location of multi-family buildings, a clubhouse and pool amenities, internal parking/circulation, and access points, as well as open space, landscape buffers and existing lake (see Attachment D). The planned development rezoning process includes the latitude to employ conditions that reasonably relate to the proposed development and its expected impacts on public services, facilities, and public health, safety and general welfare. If approved, conditions may be adopted as part of the zoning resolution and as an appendix to the approved master concept plan which governs the planned development.

Contextually, the multiple-family development serves as a typical transition of land use from the existing single-family neighborhood to the west and the existing and future commercial/industrial land uses along Pine Ridge Road to the east. It should be noted that the remaining two residential duplexes abutting to this development to the south are subject to baseline ambient intensity from adjacent future/existing commercial and industrial land uses at the Kelly Road/Pine Ridge intersection, and therefore, development of proposed multi-family and accessory uses, as

[8] See LDC Chapter 2, Article XI, Hurricane Preparedness.

buffered and further conditioned, is a less intensive and more appropriate abutting land use to the west.

The location and orientation of buildings and building heights depicted on the Master Concept Plan provide the abutting single-family residences to the west with **significant separation** between Buildings #3 and #4 (±80 feet) and Building #2 (±205) feet from west project boundary. Building #1 is the nearest building proposed to the western project boundary at 20 feet. This building is limited to 35 feet in building height and is oriented so the shortest side of the building (approximately 45 feet wide) interfaces with adjacent rear yard lot lines. Recommended conditions of approval prohibit this west elevation of Building #1 from containing balconies or exterior stairwells to reduce potential outdoor activity on the west side of Building #1.

The recommendation also includes a condition that requires the continuation of the required wall/berm combination between the parking areas and the west boundary to the north property line, with the wall in this area set back 15 feet from the west property line to increase plantable area on the exterior side of the wall, and requires specific trees that provide greater canopy spread to effectively screen the maximum multiple-family building height potential situated 20 feet from the rear lot lines of existing single-family lots. This recommendation will require a revision to the MCP to reflect the continuation of the wall/berm combination buffer annotation and planting specifications in the defined area with corresponding cross sections.

The bonus density results in a net increase of 23 dwelling units and complies with the established review criteria as conditioned.

Property Development Regulations & Off-Street Parking

The applicant proposes property development regulations that include maximum heights, minimum setbacks, and maximum lot coverage (see Attachment F). Staff recommend further specificity with respect to western boundary setbacks consistent with the MCP to ensure the proposed distances of Buildings 2, 3 and 4 remain substantially consistent with the MCP under the terms of this RPD. Code-required off-street parking is proposed in accordance with LDC Section 34-2020(a).

Proposed Deviations

Deviation "means a departure from a specific regulation of LDC Chapter 34, as well as from any separate land development regulation or code, when requested as part of the application for a planned development in accordance with LDC Section 34-373(a)(9), based on the findings established in LDC Section 34-377(a)(4)." Each deviation must enhance the achievement of the objectives of the planned development and preserve and promote the general intent of the LDC to protect the public health, safety and welfare. Staff notes the applicant initially included a deviation from minimum required open space, due to maximum open space that can be attributed from waterbodies (maximum 25% of required open space) and a deviation from the minimum required number off-street parking spaces. Both deviation requests have been withdrawn by the applicant to address staff concerns.

The applicant's revised Schedule of Deviations now contains four deviations from the LDC with corresponding justification (see Attachment F).

Deviation #1:

Seeks relief from LDC §10-285, which requires a minimum connection separation of 245 feet between private streets, accessways and access points, to allow 72 feet to the nearest existing accessway east of the project entrance (south side of Kelly Road) and 97 feet to the nearest driveway west (also south side of Kelly Road). Both connection separation distances are depicted on the proposed MCP (see Attachment D).

The applicant's justification highlights the property's irregular shape and existing driveway. As termed in the deviation language above, the applicability of connection separation requirements in LDC Section 10-285 is specific to private streets, accessways and access points. All terms are defined in LDC Section 10-1 and are distinguished from the term "driveway" which means "*a type of access point which provides vehicle access from a street to a single parcel of land containing two or fewer dwelling units in a single structure and from which vehicles may legally enter or leave the street in a forward or backward motion."* Connection separation requirements in 10-285 are not applicable to driveways, therefore, the single-family driveway to the southwest does not require a connection separation standard.

Due to the extensive distance to nearest applicable western access point on Kelly Road (±495 feet from subject property), it is theoretically possible to relocate the driveway further west to create the greatest possible connection separation from the nearest aforementioned accessway to the southeast. However, the effort would require significant modification to the existing drainage infrastructure given the special design considerations required to cross the existing drainage canal on north side of Kelly Road, and due to the property's limited frontage, the effort would remain short of the 245-foot code requirement.

Such undertaking would prove disproportionate when considering the minimal public benefit of relocation, as the nearest accessway to the southeast serves a limited seven dwelling units in total.[9] Further, access relocation to the west boundary of the subject property would inflame compatibility concerns with abutting single-family subdivision.

The subject property's existing (and proposed) driveway location is roughly centered on the frontage of the property with the nearest accessway; therefore, future redevelopment of this property would likely require the accessway be relocated to align with the subject property's access point considering the south side of Kelly Road right-of-way is relatively flat and obstacle free for such improvement.

Lee County Department of Transportation and Development Services Staff have reviewed the requested deviation and finds the proposed connection separation of 72 feet will not adversely impact the surrounding roadway system. Therefore, Staff recommends **APPROVAL** of this deviation.

[9] Property address 11093 Kelly Road: Existing property density based on Lee County Property Appraisers' Property Details (Current Working Values), listed as of 2/23/2024.

Deviation #2:

Seeks relief from LDC §10-416(d)(6), which requires roads, drives, or parking areas associated with residential subdivisions or with a multifamily or nonresidential use located less than 125 feet from an existing single-family residential subdivision or single-family residential lots, to be buffered by a solid wall or combination berm and solid wall not less than eight feet in height, which must be constructed not less than 25 feet from the abutting property and landscaped (between the wall and the abutting property) with a minimum of five trees and 18 shrubs per 100 linear feet. Alternatively, a 30-foot-wide Type-F buffer with the hedge planted a minimum of 20 feet from the abutting property may be provided. The applicant proposes to provide an 8-foot-high solid wall or wall and berm combination to be located not less than 10 feet from the abutting property within a 15-foot-wide buffer with a minimum of 5 trees per 100 linear feet and double-staggered hedgerow located between the wall and abutting property.

The applicant notes that the alternative standard effectively screens and separates the parking areas from the single-family lots. Environmental staff has reviewed Deviation #2 and recommends **APPROVAL,** as conditioned with increased planting material specified in the Environmental Report (see Attachment G).

Deviation #3:

Seeks relief from LDC §10-416(d)(3), which requires a Type D buffer when multi-family developments abut a right-of-way, to allow no buffer in along the 85-foot-wide drainage easement located along the Kelly Road right-of-way in the southeast corner of the site.

The easement is 50-feet in depth for the 85-foot span and separates few parking spaces adjacent to amenity area from the right-of-way. Environmental staff has reviewed Deviation #3 and recommends **APPROVAL.**

Deviation #4:

Seeks relief from LDC §10-296(e)(1), Table 6 Urban Major-Collector Road, which requires a shared bicycle lane, an 8-foot-wide planting strip, and an 8-foot-wide pedestrian facility along Kelly Road, to allow Kelly Road to remain as currently constructed due to existing conditions along the right-of-way.

The applicant's justification primarily references right-of-way and onsite constraints and existing physical obstacles without further details on the spatial relationship between these factors. Further, the rationale to allow the current conditions is requested without specifying what the exact current conditions are as compared to the applicable LDC requirement. The granular detail that is required to make a complete assessment is typically carried out at time of local development order approval, with companion administrative deviation requests analyzed with civil engineered plans establishing a baseline and alternative standard formed on sound engineering principles.[10]

[10] see LDC Sections 10-104(a)(5) and 10-104(b) Review Criteria and 10-104(c) Submittal Requirements.

Staff recommends the applicant **WITHDRAWAL** this deviation. The applicant may pursue such relief at time of local development order when further details are available concerning the condition of Kelly Road in comparison to the current LDC Urban Major Collector road standards, as well as the required review of the absence of need for bikeways and pedestrian facilities established in LDC Section 10-256.

Rezoning 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 proposed rezoning with analysis of the applicable criteria (see Attachment F). Staff's analysis of the request, as measured by the established criteria, follows.

a) *Compliance with the Lee Plan*

The project is located on the eastern edge of the sole Central Urban enclave in the Iona/McGregor Planning District (**Lee Plan Maps 1-A and 1-B**). This Central Urban enclave is approximately 1,250 acres and encompasses all of the abutting Beach Walk Mixed Use Planned Development. **Policy 1.1.3** of the Lee Plan establishes that the Central Urban areas are "*characterized as the "urban core" of the County. These areas are already the most heavily settled and have, or will have, the greatest range and highest levels of public services. Residential, commercial, public and quasi-public, and limited light industrial land uses will continue to predominate in the Central Urban future land use category*." The standard density range in this category is from four dwelling units per acre (4 du/acre) to ten dwelling units per acre (10 du/acre), with a maximum total density of fifteen dwelling units per acre (15 du/acre). The maximum total density may be increased to twenty dwelling units per acre (20 du/acre) utilizing Greater Pine Island Transfer of Development Units (TDUs). **Policy 101.3.7** states bonus density for site-built affordable housing development will be considered within the Coastal High Hazard Area.

The request seeks density of 15 units per acre with utilization of site-built affordable housing development in a heavily settled urban core of the Iona/McGregor Planning District. Staff finds the request **CONSISTENT with Policies 1.1.3 and 101.3.7.**

Lee Plan Objective 2.1 and Policy 2.1.1 promote contiguous and compact growth patterns within designated future urban areas to contain urban sprawl, minimize energy costs, conserve land, water, and natural resources, and minimize the cost of services. **Lee Plan Objective 2.2 and Policy 2.2.1** seek to direct new growth to portions of future urban areas where adequate public facilities and services exist, where compact and contiguous development patterns can be created, and where compatibility with surrounding land uses is assured. The subject property is located within a designated future urban area with an array of public services, shopping and nearby employment centers and will collocate adjacent to other residential land uses in a compatible manner**.** As indicated, the Lee County Utilities potable water and wastewater franchise area has sufficient capacity to support the proposed density and the project will make these connections consistent with **Lee Plan Standards 4.1.1 and 4.1.2.** The subject property will be served by existing infrastructure as an infill development with nearby access to a community park, schools, police, fire protection and emergency services. Staff finds that the request is **CONSISTENT with Objectives 2.1 and 2.2, Policies 2.1.1, and 2.2.1, and Standards 4.1.1 and 4.1.2 of the Lee Plan.**

Goal 5 aims to accommodate the projected population of Lee County in the year 2045 in appropriate locations, guided by the Future Land Use Map, and in attractive and safe neighborhoods with a variety of price ranges and housing types. **Policy 5.1.3** states "*during the rezoning process, direct high-density residential developments to locations that are near employment and shopping centers; are close to parks and schools; and are accessible to mass transit and bicycle facilities.*" As identified in this report, approval of this request would direct urban levels of density in close proximity to employment and shopping centers, parks and schools as well as access to mass transit and bicycle facilities. Staff finds the request **CONSISTENT with Policy 5.1.3.**

Policy 5.1.4 Prohibits "residential development in all Industrial Development areas" It is staff's position this policy speaks to the Industrial Future Land Use Map Categories as the correlating land use policies do not establish residential density ranges. The property is in close proximity to, but not located in an Industrial Development Area.

The project will provide adequate locations of low- and moderate-income housing and directly accessible open space, buffering, landscaping, and recreation areas appropriate to its density and design **CONSISTENT with Policies 5.1.6, 5.1.7 and 5.1.8**. Staff finds the request, as conditioned, **CONSISTENT** with **Goal 5**.

Policy 101.3.2 restricts development in Coastal High Hazard area to uplands except for provision of public facilities. The applicant's Florida Land Use and Cover and Forms Classification Systems (FLUCFCS) Map demonstrates all development will occur on uplands (see Exhibit 1 of Attachment G). The request is **CONSISTENT** with the **Lee Plan.**

b) *Land Development Code Compliance*

Staff has found the proposed MCP to be in compliance with the LDC, including regulations which pertain to:

- Use and corresponding supplemental regulations, such as parking;
- Practicality of meeting LDC Chapter 10 Development Standards; and
- Minimum 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 departed 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.

c) *Compatibility with existing and planned uses in the surrounding area*

Staff finds the requested rezoning, as conditioned, to be compatible with existing and planned uses in the surrounding area.

d) *Sufficiency of Access and Transportation Impacts*

The applicant has provided a traffic impact statement (TIS) concerning trip generation expected by the project (see Attachment I). Development Services Section staff has reviewed the Applicant's TIS and has provided separate memorandum concerning the project's transportation impacts (see Attachment J). Staff concludes that the proposed project, limited to 69 dwelling units, will not have a detrimental impact on the surrounding roadway system. Further evaluation of the traffic impacts will take place at time of local development order approval in compliance with existing county regulations.

f) *No adverse impacts to environmentally critical or sensitive areas and natural resources*

The Environmental Staff Report is attached as Attachment G of this report and details the environmental characteristics of the site, active notices of code violation and abatement method, which will require the following abatement plantings in addition to the required landscape buffer and general trees emanating from this RPD request.

- 27 Live Oaks
- 36 Cabbage Palms

The abatement method is included in the staff recommended conditions of approval with corresponding standards and a period of annual monitoring to ensure survivability. No environmentally sensitive areas or natural resources are located on the subject property.

g) *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 public services to accommodate the development proposed by the requested rezoning. 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.

h) *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;

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, as conditioned:

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.

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. The RPD rezoning is consistent with the Central Urban Future Land Use designation and other applicable goals, objectives and policies of the Lee Plan. The request, as conditioned, is appropriate in the context of its surroundings.

The shape, size and topographical irregularities of the infill property are appropriately considered by the requested RPD zoning to facilitate optimal yield of Central Urban designated acreage in alignment with the growth horizon realized by the Lee Plan and in near proximity to employment/shopping centers. The proposed zoning is bound by the traditional guard rails of the LDC, and also creation of site-specific recommended conditions of approval which are reasonably related to the impacts of the development.

Staff recommends **APPROVAL** of the request to rezone from Residential Multi-Family (RM-10) to Residential Planned Development (RPD) to facilitate a multiple-family development program on the subject property governed by conditions attached as Attachment E of this report.

ATTACHEMENTS:

A. Expert Witness Information
B. Legal Description and Boundary Survey
C. Aerial, Future Land Use, and Current Zoning Maps
D. Master Concept Plan
E. Development Regulations, Conditions and Deviations
F. Applicant's
   Project Narrative
   Schedule of Uses
   Schedule of Deviations
   Property Development Regulations
   Stormwater Narrative
   Maps
G. Environmental Sciences Staff Report
   Protected Species Report/ FLUCCS Map
H. Utility Availability Letter
I. Applicant's Transportation Impact Statement
J. Development Services Transportation Memorandum
K. School District CSA Report
L. Consolidated Zoning History
   Z-06-100
   Z-78-346
   Z-77-261
   Z-76-070
   Z-98-070
M. Signed Submittal Waiver
N. Code Violation Photos

CPA2023-00008

Water Supply Plan Update

SUMMARY SHEET
CAP2023-00008 – WATER SUPPLY PLAN UPDATE
ADOPTION HEARING

BOARD DIRECTION AND PROPOSED AMENDMENTS:
The Board of County Commissioners initiated the amendment on August 1, 2023. The proposed amendment incorporates 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, 54.1.15, and 54.1.16[1].
- Table 5 - Ten Year Water Supply Development Projects

TRANSMITTAL HEARING:
The Transmittal Hearing was held on March 6, 2024. A motion was made to transmit CPA2023-00008 as recommended by staff and the LPA. The motion passed 4 to 0.

VOTE:

MIKE GREENWELL	**AYE**
BRIAN HAMMAN	**AYE**
CECIL L. PENDERGRASS	**ABSENT**
KEVIN RUANE	**AYE**
RAY SANDELLI	**AYE**

PUBLIC INPUT:
No members of the public addressed the Board of County Commissioners concerning the proposed amendment.

STATE REVIEW:
Lee County received correspondence from: FloridaCommerce, Florida Department of Transportation (FDOT), Florida Fish and Wildlife Conservation Commission (FWC), and Florida Department of Environmental Protection (FDEP).

There were no objections to the proposed amendments. Comments were received from the South Florida Water Management District (SFWMD). Staff has incorporated the comments and responses into Part 4 of the staff report. The comments requested additional information be added to the Work Plan to address relevant regional issues, clarify calculations, and provide more information on intergovernmental coordination.

STAFF RECOMENDATION:
Staff recommends that the Board of County Commissioners ***adopt*** the amendments to the Lee Plan, as amended to address the comments from the South Florida Water Management District, and provided in Attachment 1.

[1] Staff recommends adding Policy 54.1.16, in part, to address comments received from the South Florida Water Management District on April 5, 2024

LEE COUNTY ORDINANCE NO. ____
(Water Supply Plan Update)
(CPA2023-00008)

AN ORDINANCE AMENDING THE LEE COUNTY COMPREHENSIVE PLAN, COMMONLY KNOWN AS THE "LEE PLAN," ADOPTED BY ORDINANCE NO. 89-02, AS AMENDED, SO AS TO ADOPT AMENDMENT PERTAINING TO THE WATER SUPPLY PLAN UPDATE (CPA2023-00008) APPROVED DURING A PUBLIC HEARING; PROVIDING FOR PURPOSE, INTENT, AND SHORT TITLE; AMENDMENTS TO ADOPTED MAP AND TEXT; LEGAL EFFECT OF "THE LEE PLAN"; PERTAINING TO MODIFICATIONS THAT MAY ARISE FROM CONSIDERATION AT PUBLIC HEARING; GEOGRAPHICAL APPLICABILITY; SEVERABILITY, CODIFICATION, SCRIVENER'S ERRORS, AND AN EFFECTIVE DATE.

WHEREAS, the Lee County Comprehensive Plan ("Lee Plan") and Chapter XIII, provides for adoption of amendments to the Plan in compliance with State statutes and in accordance with administrative procedures adopted by the Board of County Commissioners ("Board"); and,

WHEREAS, the Board, in accordance with Section 163.3181, Florida Statutes, and Lee County Administrative Code AC-13-6 provide an opportunity for the public to participate in the plan amendment public hearing process; and,

WHEREAS, 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; and,

WHEREAS, on December 8, 2022, the District's Lower West Coast Regional Water Supply Plan (LWCWSP) Update was approved by the District's Governing Board; and,

WHEREAS, on August 1, 2023, the Board initiated this amendment to incorporate the Work Plan into the Lee Plan as required by statute; and,

WHEREAS, the Lee County Local Planning Agency ("LPA") held a public hearing on the proposed amendment in accordance with Florida Statutes and the Lee County Administrative Code on January 22, 2024; and,

WHEREAS, the Board held a public hearing for the transmittal of the proposed amendment on March 6, 2024. At that hearing, the Board approved a motion to send, and did later send, proposed amendment pertaining to Water Supply Plan Update (CPA2023-00008) to the reviewing agencies set forth in Section 163.3184(1)(c), F.S. for review and comment; and,

WHEREAS, at the March 6, 2024 meeting, the Board announced its intention to hold a public hearing after the receipt of the reviewing agencies' written comments; and,

WHEREAS, on May 22, 2024, the Board held a public hearing and adopted the proposed amendment to the Lee Plan set forth herein.

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF LEE COUNTY, FLORIDA, THAT:

SECTION ONE: PURPOSE, INTENT AND SHORT TITLE

The Board of County Commissioners of Lee County, Florida, in compliance with Chapter 163, Part II, Florida Statutes, and with Lee County Administrative Code AC-13-6, conducted public hearings to review proposed amendments to the Lee Plan. The purpose of this ordinance is to adopt map and text amendments to the Lee Plan discussed at those meetings and approved by a majority of the Board of County Commissioners. The short title and proper reference for the Lee County Comprehensive Land Use Plan, as hereby amended, will continue to be the "Lee Plan." **This amending ordinance may be referred to as the "Water Supply Plan Update Ordinance (CPA2023-00008)."**

SECTION TWO: ADOPTION OF COMPREHENSIVE PLAN AMENDMENT

The Lee County Board of County Commissioners amends the existing Lee Plan, adopted by Ordinance Number 89-02, as amended, by adopting an amendment, to incorporate the Lee County Water Supply Facilities Work Plan (Work Plan) by reference as required by Florida Statutes (F.S.) §163.3177(6), and text amendments to ensure consistency with regional water supply plans and water use planning.

The corresponding Staff Reports and Analysis, along with all attachments and application submittals for this amendment are adopted as "Support Documentation" for the Lee Plan. Proposed amendments adopted by this Ordinance are attached as Exhibit A.

SECTION THREE: LEGAL EFFECT OF THE "LEE PLAN"

No public or private development will be permitted except in conformity with the Lee Plan. All land development regulations and land development orders must be consistent with the Lee Plan as amended.

SECTION FOUR: MODIFICATION

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

SECTION FIVE: GEOGRAPHIC APPLICABILITY

The Lee Plan is applicable throughout the unincorporated area of Lee County, Florida, except in those unincorporated areas included in joint or interlocal agreements with other local governments that specifically provide otherwise.

SECTION SIX: SEVERABILITY

The provisions of this ordinance are severable and it is the intention of the Board of County Commissioners of Lee County, Florida, to confer the whole or any part of the powers herein provided. If any of the provisions of this ordinance are held unconstitutional by a court of competent jurisdiction, the decision of that court will not affect or impair the remaining provisions of this ordinance. It is hereby declared to be the legislative intent of the Board that this ordinance would have been adopted had the unconstitutional provisions not been included therein.

SECTION SEVEN: INCLUSION IN CODE, CODIFICATION, SCRIVENERS' ERROR

It is the intention of the Board of County Commissioners that the provisions of this ordinance will become and be made a part of the Lee County Code. Sections of this ordinance may be renumbered or relettered and the word "ordinance" may be changed to "section," "article," or other appropriate word or phrase in order to accomplish this intention; and regardless of whether inclusion in the code is accomplished, sections of this ordinance may be renumbered or relettered. The correction of typographical errors that do not affect the intent, may be authorized by the County Manager, or his designee, without need of public hearing, by filing a corrected or recodified copy with the Clerk of the Circuit Court.

SECTION EIGHT: EFFECTIVE DATE

The plan amendments adopted herein are not effective until 31 days after the State Land Planning Agency notifies the County that the plan amendment package is complete. If timely challenged, an amendment does not become effective until the State Land Planning Agency or the Administrative Commission enters a final order determining the adopted amendment to be in compliance. No development orders, development permits, or land uses dependent on this amendment may be issued or commence before the amendment has become effective. If a final order of noncompliance is issued by the Administration Commission, this amendment may nevertheless be made effective by adoption of a resolution affirming its effective status.

THE FOREGOING ORDINANCE was offered by Commissioner _____, who moved its adoption. The motion was seconded by Commissioner _____. The vote was as follows:

Kevin Ruane	_____
Cecil L Pendergrass	_____
Raymond Sandelli	_____
Brian Hamman	_____
Mike Greenwell	_____

DONE AND ADOPTED this 22nd day of May 2024.

ATTEST:
KEVIN C. KARNES
CLERK OF CIRCUIT COURT

BY:_____
Deputy Clerk

BOARD OF COUNTY COMMISSIONERS
OF LEE COUNTY FLORIDA

BY: _____
Mike Greenwell, Chair

DATE:_____

APPROVED AS TO FORM FOR THE
RELIANCE OF LEE COUNTY ONLY

_____
County Attorney's Office

Exhibit A (Adopted by BOCC May 8, 2024): Adopted revisions to Text;
Adopted revisions to Table 5 – Ten Year Water Supply Development Projects

CAO Draft 4/26/2024 11:59:25 AM

EXHIBIT A

Note: Text depicted with underscore represents additions to the Lee Plan. Strike-through text represents deletions from 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.~~

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)

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, 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 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 54.1.16: Use of a low volume irrigation system, as defined by SFWMD, and water efficiency plan that includes drought-tolerant species, real-time pumping technology, advanced/Smart irrigation controllers, mico-irrigation, or other water use efficiency devices are encouraged.

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~~[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)

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)

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~~

STAFF REPORT FOR Water Supply Plan: CPA2023-00008

Text Amendment to the Lee Plan

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

Staff Recommendation:
Adopt

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: 05/

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, 54.1.15, and 54.1.16 [1].
- 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.

[1] Staff recommends adding Policy 54.1.16, in part, to address comments received from the South Florida Water Management District on April 5, 2024

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.

PART 3
BOARD OF COUNTY COMMISSIONERS
TRANSMITTAL HEARING

DATE OF PUBLIC HEARING: March 6, 2024

A. BOARD REVIEW

Staff provided a presentation for the proposed amendment, which included the purpose of the proposed amendments, statutory requirements, Work Plan requirements, and staff recommendation. Board members did not ask staff any questions.

There were no members of the public present to provide comment on the proposed amendment.

B. BOARD ACTION

A motion was made to ***transmit*** CPA2023-00008 as recommended by staff. The motion passed 4 to 0.

VOTE:

MIKE GREENWELL	**AYE**
BRIAN HAMMAN	**AYE**
CECIL L. PENDERGRASS	**ABSENT**
KEVIN RUANE	**AYE**
RAY SANDELLI	**AYE**

PART 4
STATE REVIEWING AGENCIES'
OBJECTIONS, RECOMMENDATIONS, AND COMMENTS

Comments from the State reviewing Agencies were due to Lee County by April 7, 2024

A. OBJECTIONS, RECOMMENDATIONS AND COMMENTS:

Lee County received responses from the following review agencies addressing the transmitted amendment:

- FloridaCommerce,
- South Florida Water Management District (SFWMD),
- Florida Department of Transportation (FDOT),
- Florida Fish and Wildlife Conservation Commission (FWC), and
- Florida Department of Environmental Protection (FDEP)

No comments were received from FloridaCommerce, FDOT, FWC, and FDEP.

The following comments were received from the South Florida Water Management District. Staff responses and clarification are provided after each comment in **bold**.

2.2 Relevant Regional Issues

Please identify implementation efforts the County is undertaking to address the regional issues listed in the Work Plan. For example, specific programs, grants, education, partnerships, etc. that the County is utilizing to address each of these regional issues. If an issue does not apply to the County, include a statement and reasons why the regional issue does not apply.

- **Specific implementation efforts have been identified and added to the Work Plan.**

3.3 Potable Water Level of Service Standard

Table 3-2 calculates the Annual Average Daily Flow (AADF)/erc from 2017 to 2022, which ranged from 146 to 164 gpd/erc. What is the county's estimated persons per erc? Assuming 2.5 persons per erc, this equates to a per capita usage of between 58 and 66 gpd/person. However, based on the demands and population listed in Table 3-3, a per capita use rate (PCUR) of 104 gpd is used. The PCUR in the LWC Water Supply Plan was calculated to be 93 gpd using permanent population. An appropriate PCUR based on the data should be used in estimating future water needs and noted in the Work Plan. Table 3-3 should be revised accordingly.

- **Table 3-2 has been updated to compare potable water level of service demands. This updates the Annual Average Daily Flow per erc to range from 133 to 155 gpd/erc. The County assumes 2.5 persons per erc, this equates to a per capita usage between 53 and 62 gpd/person. The population projections in Table 3-3 are from Table A-1 in Appendix A of the 2022 LWCWSP. The potable water supply demand projections have been updated in Table 3-3 from the Table A-5 (raw water) to Table A-3 (potable water) in Appendix A of the 2022 LWCWSP. When determining PCUR for future needs, consideration is given to facility**

reliable capacity rate of 15% and max month to average day conversion rate of 20%. In this case, using the 62 gpd/person and adjusting for reliable capacity of 15% increases it to 73 gpd/person. Finally adjusting for average day to max month of 20% increases it to 91 gpd/person. With this, the 93 gpd/person is within 2% of the actual and no adjustment is necessary.

3.5.1 Water Use Permit Information

Table 3-5 lists Consumptive Use Permits for Lee County Utilities. Permit 36-00152-W needs to be updated with more recent information from modification approvals with regards to expiration date and allocations.

- **Table 3-5 on Page 12 of the Work Plan has been updated to reflect the revised expiration date and allocations in the permit modification approved February 9, 2024.**

3.6.1.2 Consumptive Use Permits

The narrative under 3.6.1.2 Consumptive Use Permits states BSU has two Consumptive Use Permits but one permit is described in the section. BSU has one Consumptive Use Permit. Change narrative to reflect this.

- **Paragraph 3.6.1.2, page 17, has been revised to reflect that one Consumptive Use Permit has been issued by SFMWD to Bonita Springs Utilities.**

3.6.6.2 Consumptive Use Permit

FGUA Lake Fairways has a Maximum Monthly, not Daily, allocation of 4.3667 mgd.

- **Paragraph 3.6.6.2, page 27, has been revised to reflect a monthly allocation of 4.3667 mgd.**

3.7.1.1 Restrictions on Permitted Water Use

If appropriate, update text to include the newly adopted (2024) Ordinance restricting irrigation to one day per week during end of dry-season from February to May.

- **Staff recommends the proposed amendment include Lee Plan Policy 54.1.16. This is reflected in double underlined text in Attachment 1. This policy will encourage development to use low volume irrigation systems and water efficiency plans to further the water conservation goals of Ordinance 24-01, adopted January 16, 2024. In Section 3.7.1.1 (page 29) the reference to Ordinance 24-01 replaced 17-04 and an explanation of the additional restrictions was added.**

3.8.1.2 Lee County Land Development Code and Reclaimed Water

Map 4B, Lee County Utilities Future Sewer Service Areas, of the Lee Plan referenced in this Section should be updated to reflect expansion and planned expansion of wastewater sewers to southeast portions of the County.

- **Map 4B – Lee County Utilities Future Sewer Service Areas in the Lee Plan has been updated to include the Daniels South development in Ordinance 23-24 approved September 7, 2023. Other potential future developments such as Kingston and FFD have not been added to Map**

4B. These developments were not approved through the traditional development process. At this time there is no existing development therefore staff recommends these locations not be added to the Lee County Utilities Future Sewer Service Area Map at this time.

Section 4 Intergovernmental Coordination
The Work Plan is missing an Intergovernmental Coordination Section.

The County should review data, analysis, goals, objectives, policies, and other coordination activities to determine if they need to be revised or because of changes in statutory requirements. Please include the following items in this section:

- Coordination activities with all water suppliers, relevant agencies, and partners.
- Needs for additional coordination activities.
- Information on Memoranda of Understanding, bulk service agreements, contracts, etc.
- Coordination with the LWCWSP
- If Intergovernmental coordination activities are adequate and no new activities will be needed, the local government should include a narrative of how this was determined and how all issues listed above have been addressed.

- **Page 33, Section 3.9 was added to address Intergovernmental Coordination**

5.0 Goals, Objectives, and Policies
VI. Capital 'Implements' Element on page 35 should be changed to Capital Improvements Element.

- **Page 37 has been revised to read: VI. Capital Improvements Element.**

7.0 Summary Analysis of Lee County's Water Supply
Revise title to "Summary Analysis of Lee County Water Supply."

- **Page 38 has been revised to read: 7.0 Summary Analysis of Lee County Water Supply.**

The District also requested Lee County forward a copy of the adopted amendments to the District.

- **A copy of the adopted amendments and ordinance will be forwarded to the District per their request.**

B. STAFF RECOMMENDATION

Staff recommends that the Board of County Commissioners ***adopt*** the amendments to the Lee Plan, as amended to address the comments from the South Florida Water Management District and provided in Attachment 1.

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, 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 54.1.16:** Use of a low volume irrigation system, as defined by SFWMD, and water efficiency plan that includes drought-tolerant species, real-time pumping technology, advanced/Smart irrigation controllers, mico-irrigation, or other water use efficiency devices are encouraged.

- Add language to support the goal of the water conservation ordinance (Ord. 24-01).

> **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~~[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)

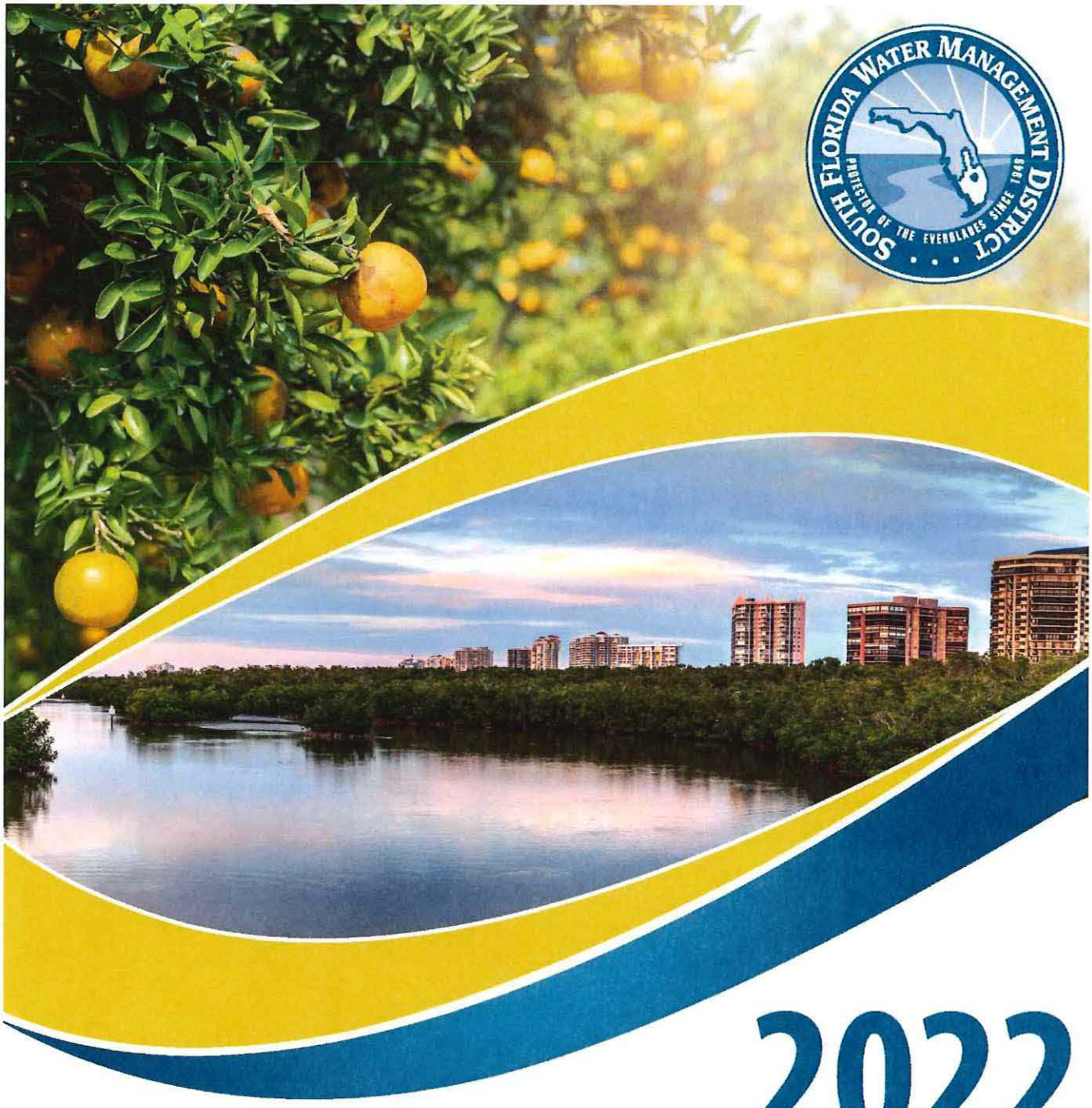
- Add language to remove potential inconsistencies with state or federal regulations.

Table Amendments:

Table 5 – Ten Year Water Supply Development Projects

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.

For further information about this document, please contact:

Bob Verrastro, P.G.
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406
Telephone: (561) 682-6136
Email: bverras@sfwmd.gov

sfwmd.gov

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.

Table of Contents

Chapter 1: Introduction **1**
2022 LWC Plan Update 3
Goal and Objectives 3
Legal Authority and Requirements 4
Seminole Tribe of Florida Immokalee Reservation 4
Regional and Local Planning Linkage 4
Plan Development Process 6
Progress Since the 2017 LWC Plan Update 7
References 11

Chapter 2: Demand Estimates and Projections **13**
Water Demand 14
Water Use Categories 14
Population Estimates and Projections 15
Public Supply 16
Domestic Self-Supply 17
Agriculture 18
Commercial/Industrial/Institutional 21
Landscape/Recreational 21
Power Generation 23
Summary of Demand Estimates 24
Demand Projections in Perspective 25
References 25

Chapter 3: Demand Management: Water Conservation **27**
Conservation Measures 27
Conservation Programs 30
Regulatory Initiatives 33
Potential for Water Conservation Savings 34
Conclusions 38
References 38

Chapter 4: Water Resource Protection **41**
Water Resource Protection Standards 43
Regulatory Protection of Water Resources 44
Summary of Water Resource Protection 52
References 53

Chapter 5: Water Source Options **55**
Surface Water 57
Groundwater 61
Reclaimed Water 73
Water Storage 76
Seawater 79
Summary of Water Source Options 79
References 80

Chapter 6: Water Resource Analyses **81**
Summary of Issues Identified for 2045 81
Evaluation and Analysis 82
Surface Water Availability 83
Groundwater Availability 84
Climate Change and Sea Level Rise 126
Summary of Water Resource Analyses 126
References 127

Chapter 7: Water Resource Development Projects **129**
Regional Groundwater Modeling 131
Districtwide Water Resource Development Projects 132
Comprehensive Everglades Restoration Plan 135
Northern Everglades and Estuaries Protection Program 138
Big Cypress Basin Programs 142
References 143

Chapter 8: Water Supply Development Projects **145**
Projects Identified for this Plan Update 146
Cooperative Funding Program 150
Summary of Water Supply Development Projects 152
References 157

Chapter 9: Conclusions and Future Direction **159**
Demand Summary 160
Demand Management: Water Conservation 160
Natural Systems and Resource Protection 161
Water Source Options 162
Coordination 167
Climate Change and Sea Level Rise 167
Conclusions 168
References 168
Glossary **169**

List of Tables

Table 2-1. Estimated (2020) and projected (2045) average gross water demands (in mgd) for the LWC Planning Area by use category.....15
Table 2-2. Permanent resident population served by PS and DSS in the LWC Planning Area in 2020 and 2045.....16
Table 2-3. PS gross (raw) water demands in the LWC Planning Area by county.....17
Table 2-4. PS net (finished) water demands in the LWC Planning Area by county.....17
Table 2-5. DSS gross (raw) water demands in the LWC Planning Area by county.....18
Table 2-6. AG irrigated acres and gross water demands (in mgd) in the LWC Planning Area by crop type.....20
Table 2-7. AG gross water demands for all agricultural acreage, livestock, and aquaculture in the LWC Planning Area by county.....21
Table 2-8. CII gross water demands in the LWC Planning Area by county.....21
Table 2-9. L/R gross irrigation demands under average rainfall conditions in the LWC Planning Area (including reclaimed water).....22
Table 2-10. Average gross water demands for PG in the LWC Planning Area between 2020 and 2045.....23
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.....24
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.....25
Table 3-1. List of local governments in the LWC Planning Area and their irrigation ordinance adoption status.....34
Table 3-2. Potential water saved (in mgd) in the LWC Planning Area based on demand reduction estimates achievable by 2045.....38
Table 5-1. Documented 2020 and estimated 2045 reuse and related flows by county.....76
Table 6-1. Major Public Supply Upper Floridan aquifer wellfields discussed in this section.....116
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).....133
Table 8-1. Number and capacity of potable and nonpotable water supply development projects proposed by utilities for construction/implementation between 2020 and 2045.....147
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).....151
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).....152
Table 8-4. Existing and proposed increase in water supply capacities (in mgd) for Public Supply utilities in the LWC Planning Area.....154
Table 8-5. Proposed potable and nonpotable Public Supply development projects in the LWC Planning Area (2020 to 2045).....155

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. 160

List of Figures

Figure 1-1. LWC Water Supply Planning Area. 2
Figure 2-1. Agricultural irrigated land in the LWC Planning Area (Data from FDACS 2021)..... 19
Figure 3-1. Net (finished) water per capita use rate (in gallons per capita per day) within the LWC Planning Area. 28
Figure 4-1. Adopted minimum flows and minimum water levels, water reservations, and restricted allocation areas in the LWC Planning Area. 42
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.). 43
Figure 4-3. Location of Picayune Strand and Fakahatchee Estuary water reservations. 48
Figure 4-4. Comprehensive Everglades Restoration Plan (CERP) Picayune Strand Restoration Project site (From USACE 2021). 49
Figure 4-5. Historical water inflow locations into Picayune Strand from Miller, Faka Union, and Merritt canals. 50
Figure 4-6. Historical inflow locations into Fakahatchee Estuary from Picayune Strand. 51
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). 56
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.) 56
Figure 5-3. Water control districts in the LWC Planning Area. 58
Figure 5-4. Permitted surface water withdrawal locations for irrigation within the LWC Planning Area. 60
Figure 5-5. Generalized hydrogeologic cross section of the LWC Planning Area. 61
Figure 5-6. Permitted surficial aquifer system withdrawal locations for irrigation within the LWC Planning Area. 63
Figure 5-7. Permitted surficial aquifer system withdrawal locations for Public Supply and Domestic Self-Supply within the LWC Planning Area. 64
Figure 5-8. Permitted intermediate aquifer system withdrawal locations for irrigation within the LWC Planning Area. 66
Figure 5-9. Permitted intermediate aquifer system withdrawal locations for Public Supply and Domestic Self-Supply within the LWC Planning Area. 67
Figure 5-10. Public Supply withdrawals from the surficial, intermediate, and Floridan aquifer systems in the LWC Planning Area (2005 to 2020). 69
Figure 5-11. Permitted Floridan aquifer system wells in the LWC Planning Area. 72
Figure 5-12. Annual average reclaimed water reuse in the LWC Planning Area from 1994 to 2020. 74
Figure 5-13. ASR wellfields in the LWC Planning Area. 78
Figure 6-1. Active surficial aquifer system groundwater monitor wells in the LWC Planning Area. 86
Figure 6-2. Water levels in Lower Tamiami aquifer monitor well C-492, northwestern Collier County. 87
Figure 6-3. Water levels in USGS Lower Tamiami aquifer monitor well C-600, Collier County. 88
Figure 6-4. Water levels in surficial aquifer system monitor well L-1999, Lee County. 88

Figure 6-5. Water levels in surficial aquifer system monitor well FTDN-S, Hendry County. 89
Figure 6-6. Water levels in surficial aquifer system monitor well L-2195, Lee County..... 89
Figure 6-7. Active intermediate aquifer system water level monitor wells in the LWC Planning Area..... 91
Figure 6-8. Water levels in Sandstone aquifer well L-729 in Lehigh Acres. 92
Figure 6-9. Water levels in Sandstone aquifer well L-2186 in Lehigh Acres..... 93
Figure 6-10. Water levels in Sandstone aquifer well L-1965 in Lehigh Acres..... 93
Figure 6-11. Water levels in Mid-Hawthorn aquifer well L-581 in southern Cape Coral. 94
Figure 6-12. Water levels in Mid-Hawthorn aquifer well L-4820 in northern Cape Coral. 95
Figure 6-13. Chloride concentrations in the Naples Coastal Ridge wellfield. 97
Figure 6-14. Chloride concentrations in the Bonita Springs West wellfield. 98
Figure 6-15. Chloride concentrations in the Lee County Green Meadows surficial aquifer system wellfield. 99
Figure 6-16. 2014 to 2040 water level difference in the Water Table aquifer (SAS). 101
Figure 6-17. 2014 to 2040 water level difference in the Sandstone aquifer (IAS). 102
Figure 6-18. Regional Floridan Aquifer Groundwater monitoring wells in the LWC Planning Area..... 104
Figure 6-19. Water levels in Floridan aquifer system monitor well BICY-MZ2 (BICY-TW), Big Cypress Swamp, Collier County..... 105
Figure 6-20. Water levels in Floridan aquifer system monitor well I75-MZ2 (I75-TW), Collier County. 106
Figure 6-21. Water levels in Upper Floridan aquifer monitor well LAB-MZ1 (LAB-PW2), Glades County. 107
Figure 6-22. Water levels in Upper Floridan aquifer monitor well L2-PW2, western Hendry County. 108
Figure 6-23. Chloride concentrations in Upper Floridan aquifer monitor well BSU-MZU (BSU-MW), southwestern Charlotte County..... 109
Figure 6-24. Chloride concentrations in Upper Floridan aquifer monitor well BICY-MZ2 (BICY-TW), Big Cypress Swamp. 110
Figure 6-25. Chloride concentrations in Upper Floridan aquifer monitor well I75-MZ2 (I75-TW), Naples..... 111
Figure 6-26. Chloride concentrations in Upper Floridan aquifer monitor well IWSD-TW (IWSD-MZ2), Immokalee. 112
Figure 6-27. Chloride concentrations in Upper Floridan aquifer monitor well LAB-MZ1 (LAB-PW2), LaBelle. 113
Figure 6-28. Chloride concentrations in Upper Floridan aquifer monitor well L2-PW2, western Hendry County. 114
Figure 6-29. Upper Floridan aquifer chloride concentrations during the 2020-2021 sampling event. 115
Figure 6-30. Chloride concentration trends at production wells in the Fort Myers wellfield. 117
Figure 6-31. Changes in chloride concentrations in operational and nonoperational wells in the Lee County Utilities North wellfield. 118
Figure 6-32. Changes in chloride concentrations in production wells at the Collier County Utilities North wellfield. 119
Figure 6-33. Changes in chloride concentrations in production wells at the Cape Coral South wellfield. 120
Figure 6-34. Changes in chloride concentrations in production wells in the Cape Coral North wellfield. 121
Figure 6-35. Changes in chloride concentrations in production wells in the Clewiston wellfield. 122

Figure 6-36. Upper Floridan aquifer water level differences between 2014 and 2040. 124
Figure 7-1. Caloosahatchee River Watershed projects 136
Figure 7-2. The Caloosahatchee River (C-43) West Basin Storage Reservoir site plan. 137
Figure 7-3. Lake Hicpochee Storage and Hydrologic Enhancement Project. 141
Figure 7-4. C-43 Water Quality Treatment Feature. 142

List of Appendices

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

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.

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 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

Planning and Assessment

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.

2

Data Collection, Analyses, and Issue Identification

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**).

3

Evaluation of Water Resources and Water Source Options

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.

4

Identification of Water Resource and Water Supply Development Projects

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.

Geddes, E., S. Coonts, and B. Collins. 2018. *Geochemistry of the Upper Floridan Aquifer and Avon Park Permeable Zone Within the South Florida Water Management District*. Technical Publication WS-47. South Florida Water Management District, West Palm Beach, FL. August 2018.

SFWMD. 2021. *Support Document for the 2021-2024 Water Supply Plan Updates*. South Florida Water Management District, West Palm Beach, FL. November 2021.

Shaw, J.E. and M. Zamorano. 2020. *Saltwater Interface Monitoring and Mapping Program*. Technical Publication WS-58. South Florida Water Management District, West Palm Beach, FL. December 2020.

Smith, K., E. Richardson, L. Lindstrom, and B. Collins. 2017. *Aquifer Performance Testing of the Sandstone Aquifer, Lower West Coast Planning Area.* Technical Publication WS-42. South Florida Water Management District, West Palm Beach, FL. June 2017.

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**.

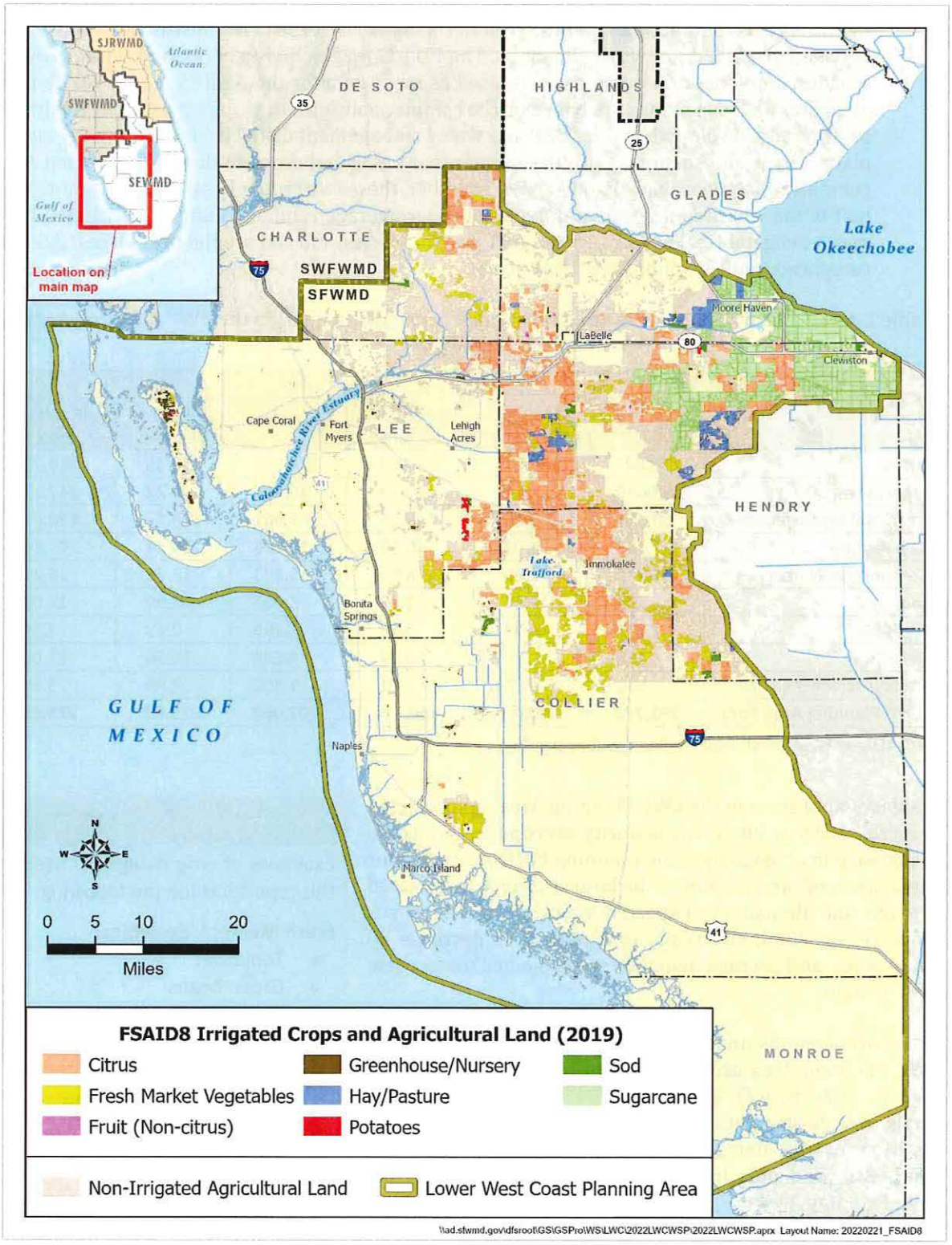


Figure 2-1. Agricultural irrigated land in the LWC Planning Area (Data from FDACS 2021).

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 2040 Demand (mgd)	2022 LWC Plan Update 2045 Demand (mgd)	Percent Difference
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.

REFERENCES

FDACS. 2021. *Florida Statewide Agricultural Irrigation Demand Estimated Agricultural Water Demand, 2019-2045*. Prepared by the Balmoral Group for the Florida Department of Agricultural and Consumer Services, Tallahassee, FL. June 2021.

Rayer, S. and Y. Wang. (2021). *Projections of Florida Population by County, 2025–2045, with Estimates for 2020*. Florida Population Studies, Bulletin 189. University of Florida, Bureau of Economics and Business Research, Gainesville, FL.

SFWMD. 2021. *Support Document for the 2021-2024 Water Supply Plan Updates*. South Florida Water Management District, West Palm Beach, FL. November 2021.

SFWMD. 2022. *South Florida Water Management District 2020 Estimated Water Use Report*. South Florida Water Management District, West Palm Beach, FL. February 2022.

Smajstrla, A.G. 1990. *Agricultural Field Scale Irrigation Requirements Simulation (AFSIRS) Model, Version 5.5*. Agricultural Engineering Department, University of Florida, Gainesville, FL.

United States Census Bureau. 2020. *2020 Decennial Census Redistricting Data* (Public Law 94-171). United States Department of Commerce, Washington, D.C.

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.

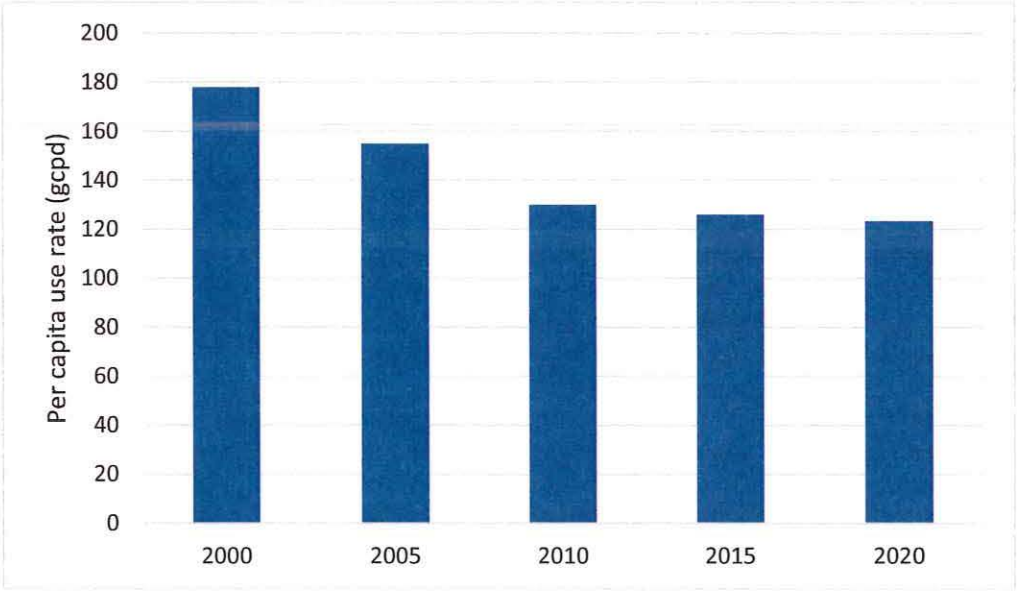


Figure 3-1. Net (finished) water per capita use rate (in gallons per capita per day) within the LWC Planning Area.

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

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.

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).

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.

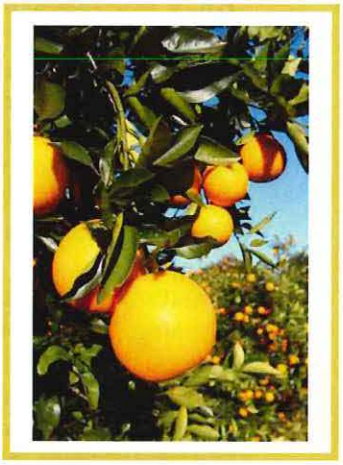
Local Governments in the LWC Planning Area	Adopted Irrigation Ordinance	
	YES	NO
Bonita Springs, City of	×	
Cape Coral, City of	×	
Charlotte County*	×	
Clewiston, City of		×
Collier County	×	
Estero, Village of	×	
Everglades, City of	×	
Ft. Myers, City of	×	
Ft. Myers Beach, Town of		×
Glades County		×
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.

REFERENCES

Alliance for Water Efficiency. 2021. Water Conservation Tracking Tool, Version 4.0 [Excel spreadsheet tool]. Alliance for Water Efficiency, Chicago, IL.

Chesnutt, T.W., D. Pekelney, and J.M. Spacht. 2018. *Lower Water Bills: The City of Los Angeles Shows How Water Conservation and Efficient Water Rates Produce Affordable and Sustainable Use.* California Water Efficiency Partnership, Sacramento, CA, and Alliance for Water Efficiency, Chicago, IL.

FDACS. 2021. *Florida Statewide Agricultural Irrigation Demand Estimated Agricultural Water Demand, 2019-2045*. Prepared by the Balmoral Group for the Florida Department of Agricultural and Consumer Services, Tallahassee, FL. June 2021.

Feinglas, S., C. Gray, and P. Mayer. 2013. *Conservation Limits Rate Increases for a Colorado Utility*. Alliance for Water Efficiency, Chicago, IL.

Golf Course Superintendents Association of America. 2021. *Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses.* Published in association with the University of Florida and the Florida Department of Environment Protection. Florida Chapter of the Golf Course Superintendents Association of America, Jensen Beach, FL.

Irwin, D. and R. Wanvestraut. 2020. *Golf Course Survey on Water Conservation 2019*. St. Johns River Water Management District, Palatka, FL, and South Florida Water Management District, West Palm Beach, FL.

Rasoulkhani K., B. Logasa, M. Presa Reyes, and A. Mostafavi. 2018. Understanding fundamental phenomena affecting the water conservation technology adoption of residential consumers using agent-based modeling. *Water* 10(8):993.

SFWMD. 2008. *Water Conservation: A Comprehensive Program for South Florida*. South Florida Water Management District, West Palm Beach, FL. September 2008.

SFWMD. 2013. *Water Efficiency and Self-Conducted Water Audits at Commercial and Institutional Facilities, A Guide for Facility Managers*. South Florida Water Management District, West Palm Beach, FL. July 2013.

SFWMD. 2021. *Support Document for the 2021-2024 Water Supply Plan Updates*. South Florida Water Management District, West Palm Beach, FL. November 2021.

SFWMD. 2022. *Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District*. South Florida Water Management District, West Palm Beach, FL. June 2022.

UF/IFAS. 2022. *Florida Automated Weather Network*. University of Florida, Institute of Food and Agricultural Sciences Extension, Gainesville, FL. http://www.fawn.ifas.ufl.edu.

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).

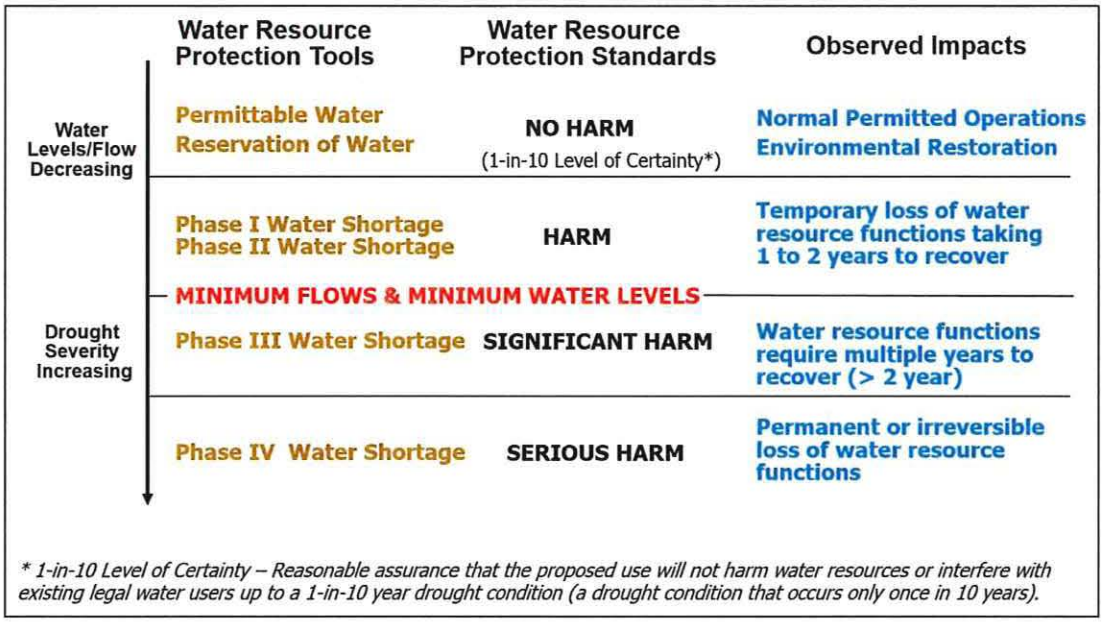


Figure 4-2. Conceptual relationship among water resource protection standards at various levels of water resource harm (Modified from Rule 40E-8.421, F.A.C.).

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.

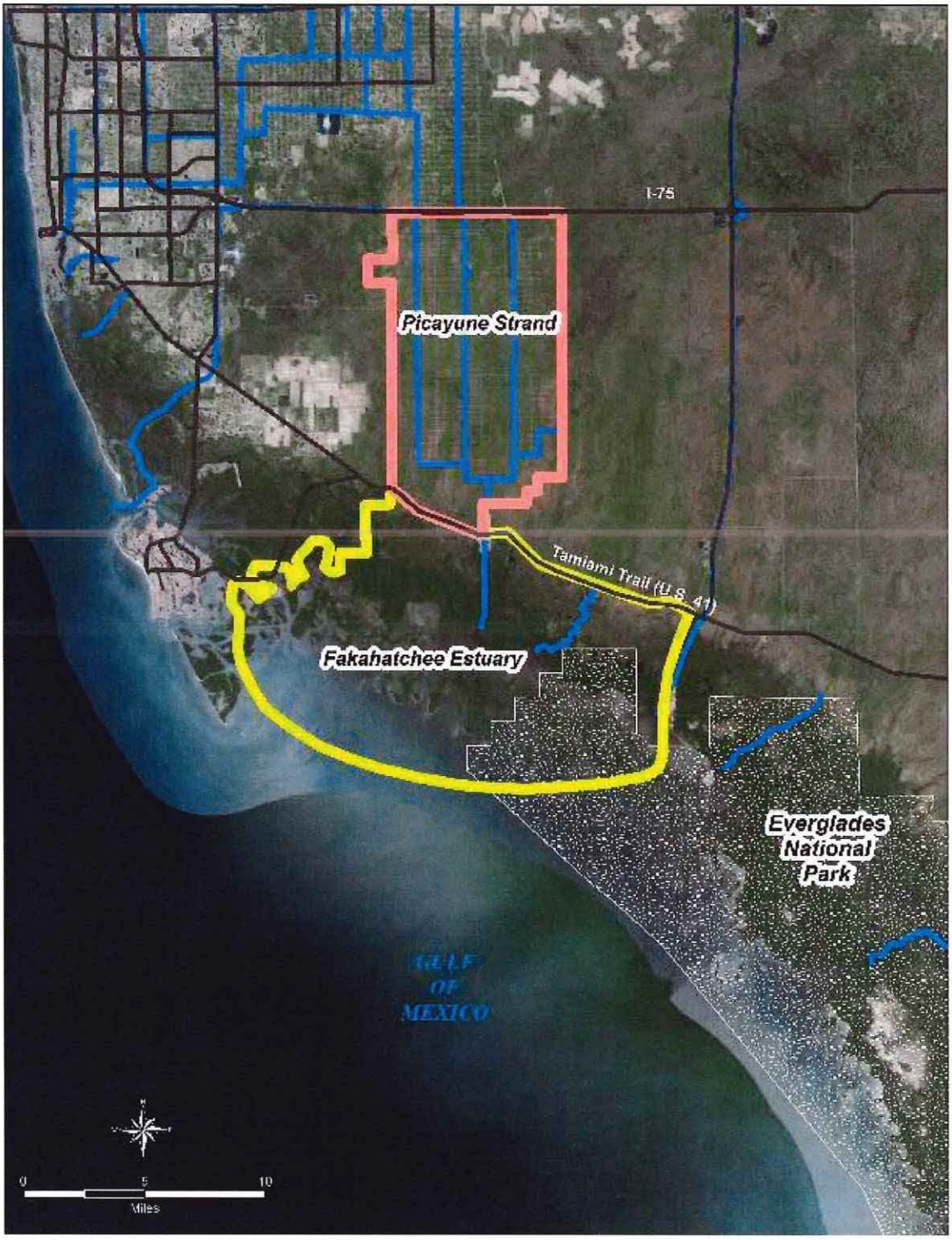


Figure 4-3. Location of Picayune Strand and Fakahatchee Estuary water reservations.

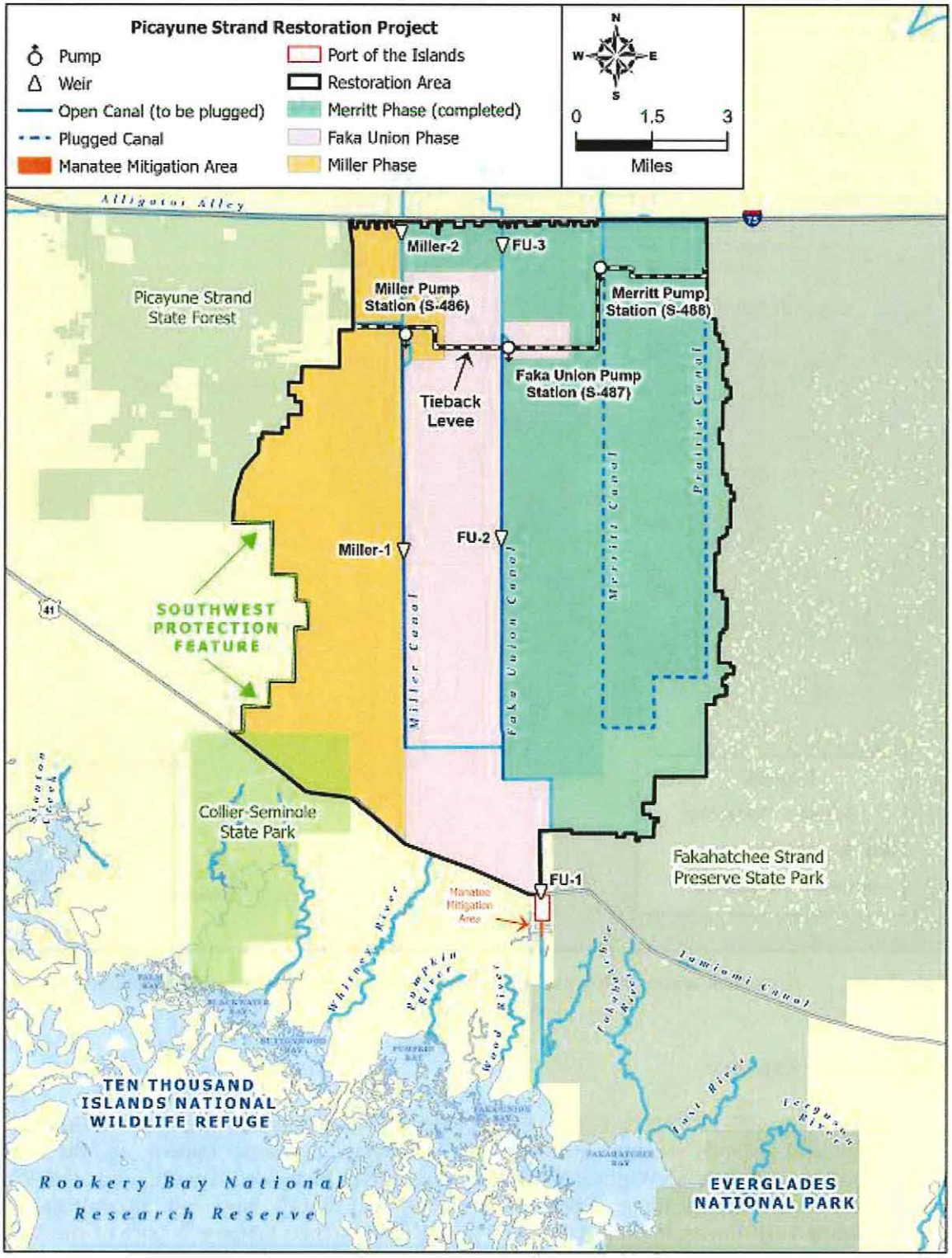


Figure 4-4. Comprehensive Everglades Restoration Plan (CERP) Picayune Strand Restoration Project site (From USACE 2021).

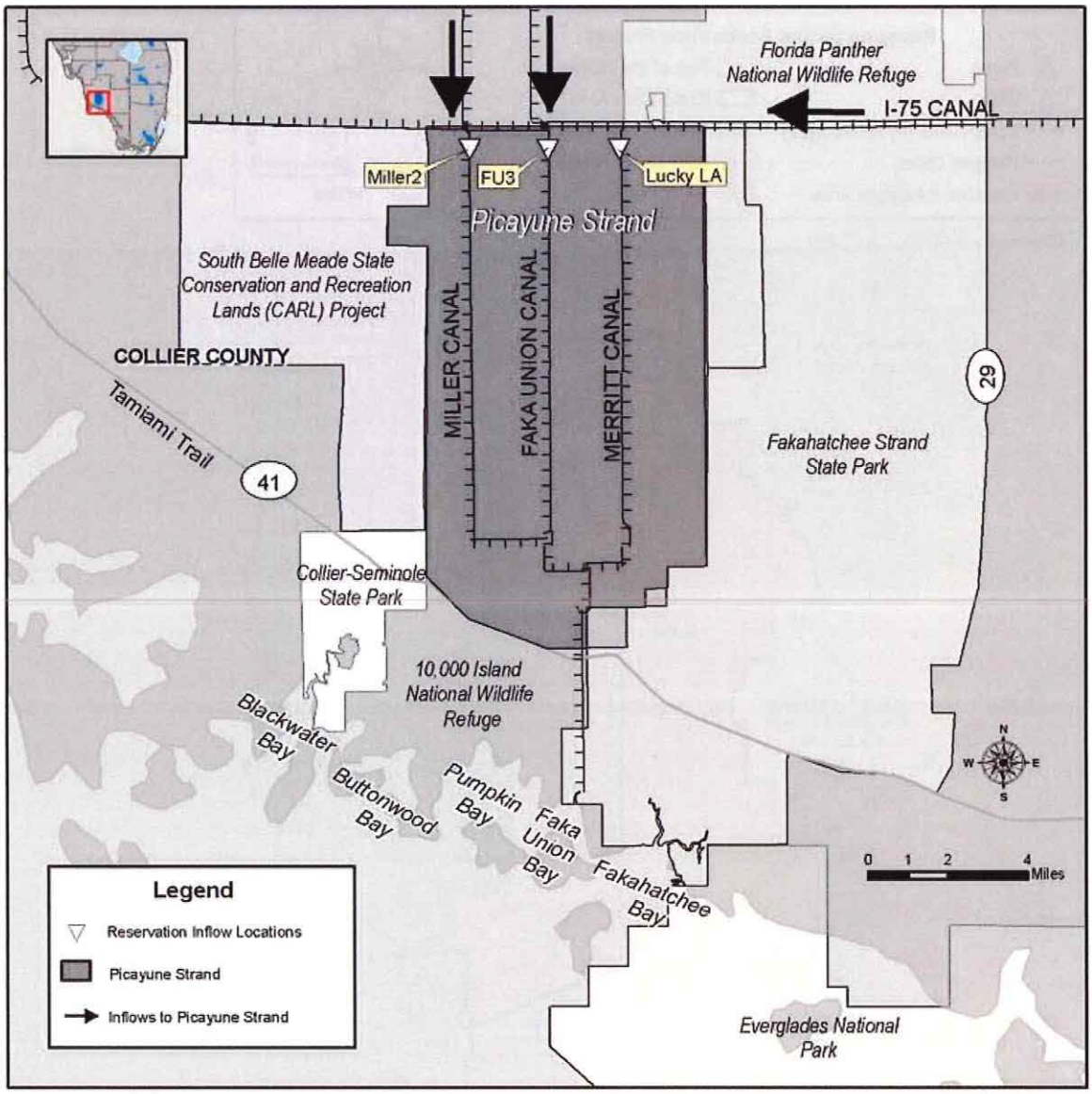


Figure 4-5. Historical water inflow locations into Picayune Strand from Miller, Faka Union, and Merritt canals.

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.

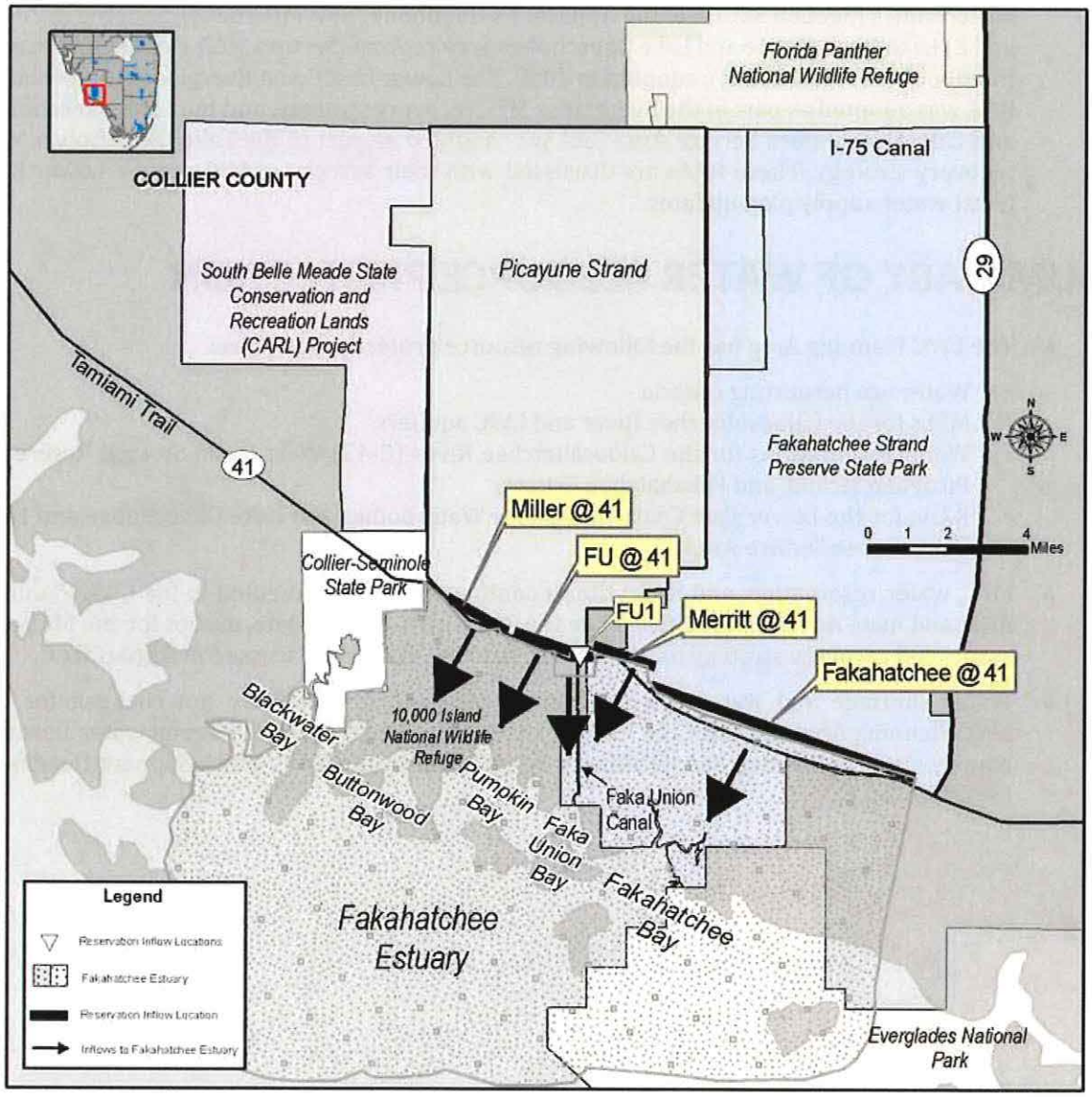


Figure 4-6. Historical inflow locations into Fakahatchee Estuary from Picayune Strand.

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**.

REFERENCES

SFWMD. 2021. *Support Document for the 2021-2024 Water Supply Plan Updates.* South Florida Water Management District, West Palm Beach, FL. November 2021.

SFWMD. 2022. *Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District.* South Florida Water Management District, West Palm Beach, FL. June 2022.

United States Fish and Wildlife Service. 2017. *Ten Thousand Islands National Wildlife Refuge*. United States Fish and Wildlife Service, Washington, DC. Available online at https://www.fws.gov/refuges/profiles/index.cfm?id=41555.

USACE. 2021. *Picayune Strand Restoration Project Fact Sheet.* United States Army Corps of Engineers, Jacksonville, FL. September 2021. Available online at https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll11/id/5369.

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**).

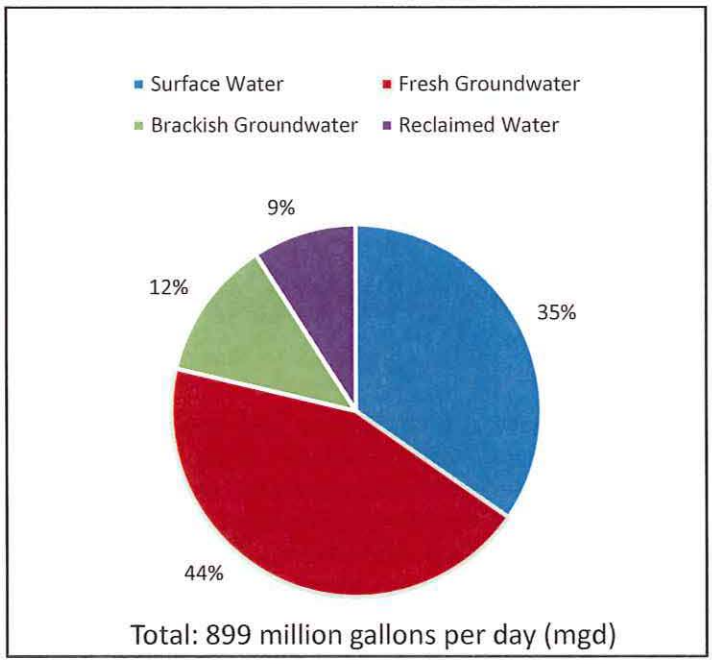


Figure 5-1. Water use percentage of the estimated total use of 899 mgd in the LWC Planning Area in 2020 by source (Data from SFWMD 2022).

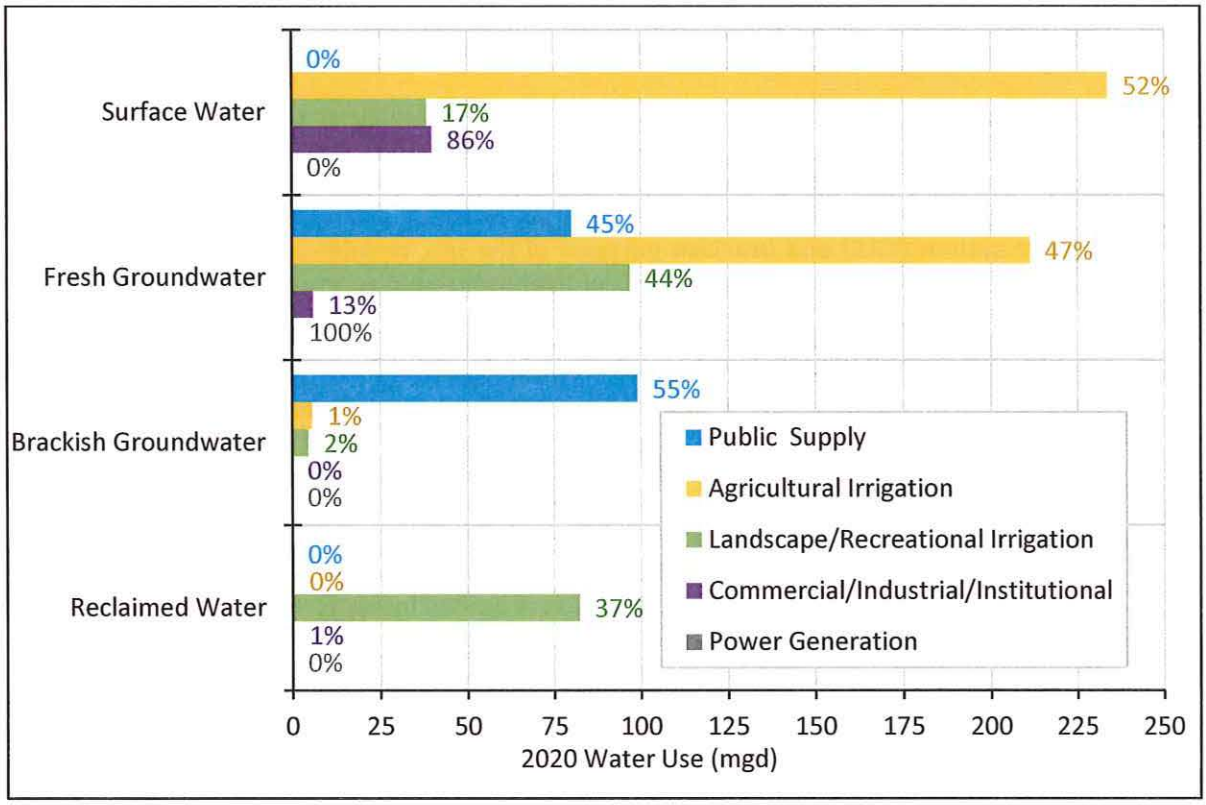


Figure 5-2. Estimated water use in the LWC Planning Area in 2020 by source and use type (Data from SFWMD 2022). (Notes: Fresh groundwater supplies 100% of Domestic Self-Supply demand. Percentages may not equal 100% due to rounding.)

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.

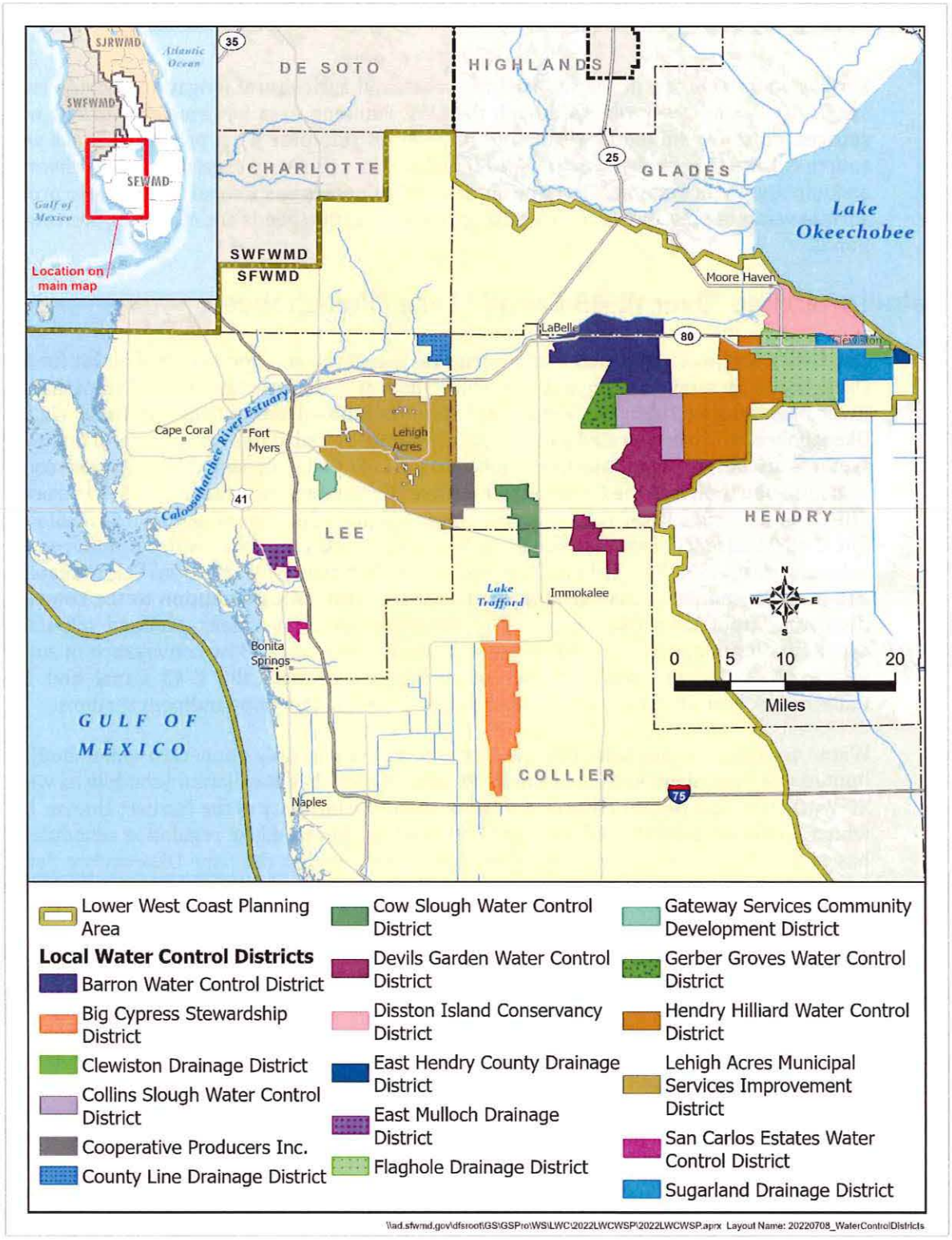


Figure 5-3. Water control districts in the LWC Planning Area.

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.

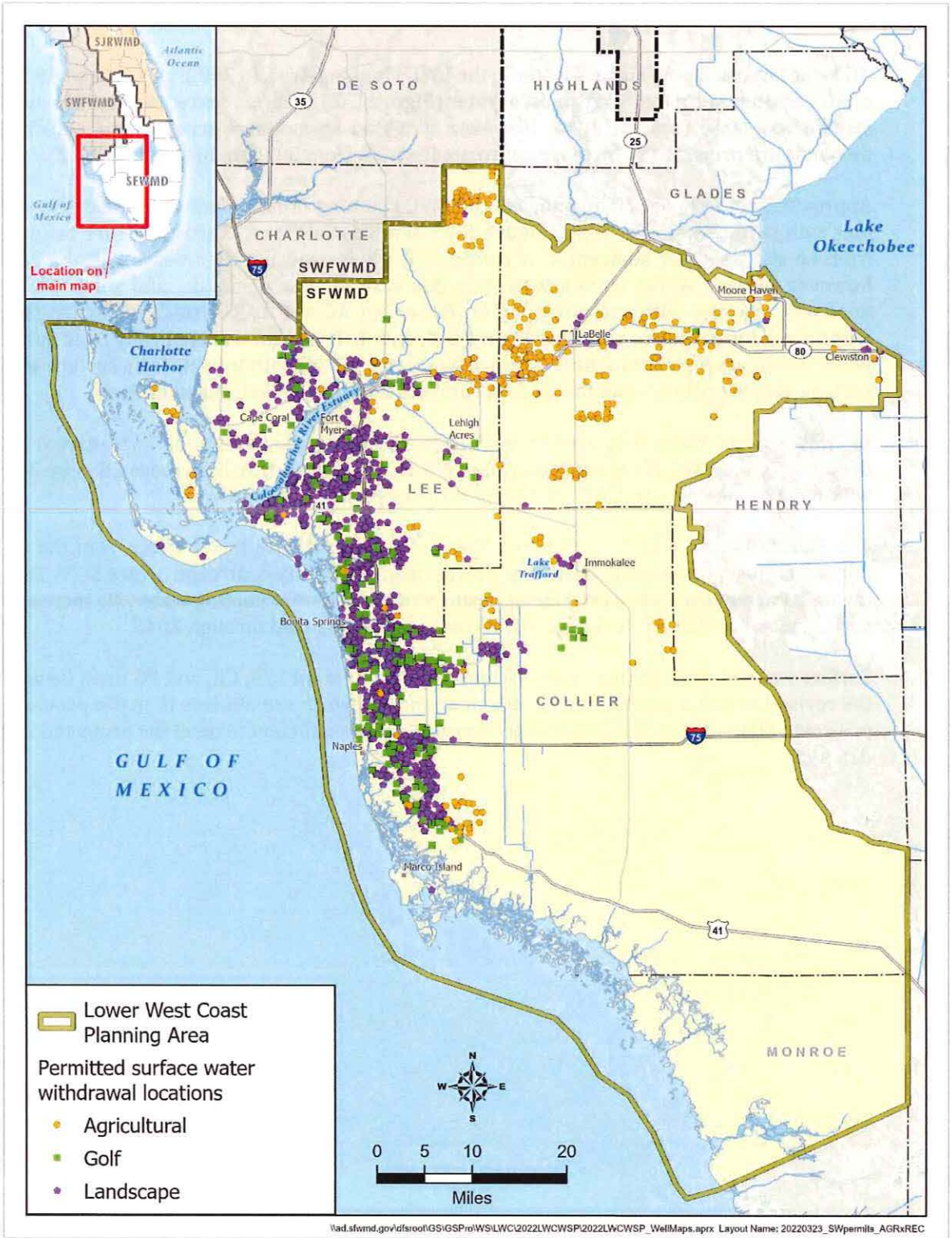


Figure 5-4. Permitted surface water withdrawal locations for irrigation within the LWC Planning Area.

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).

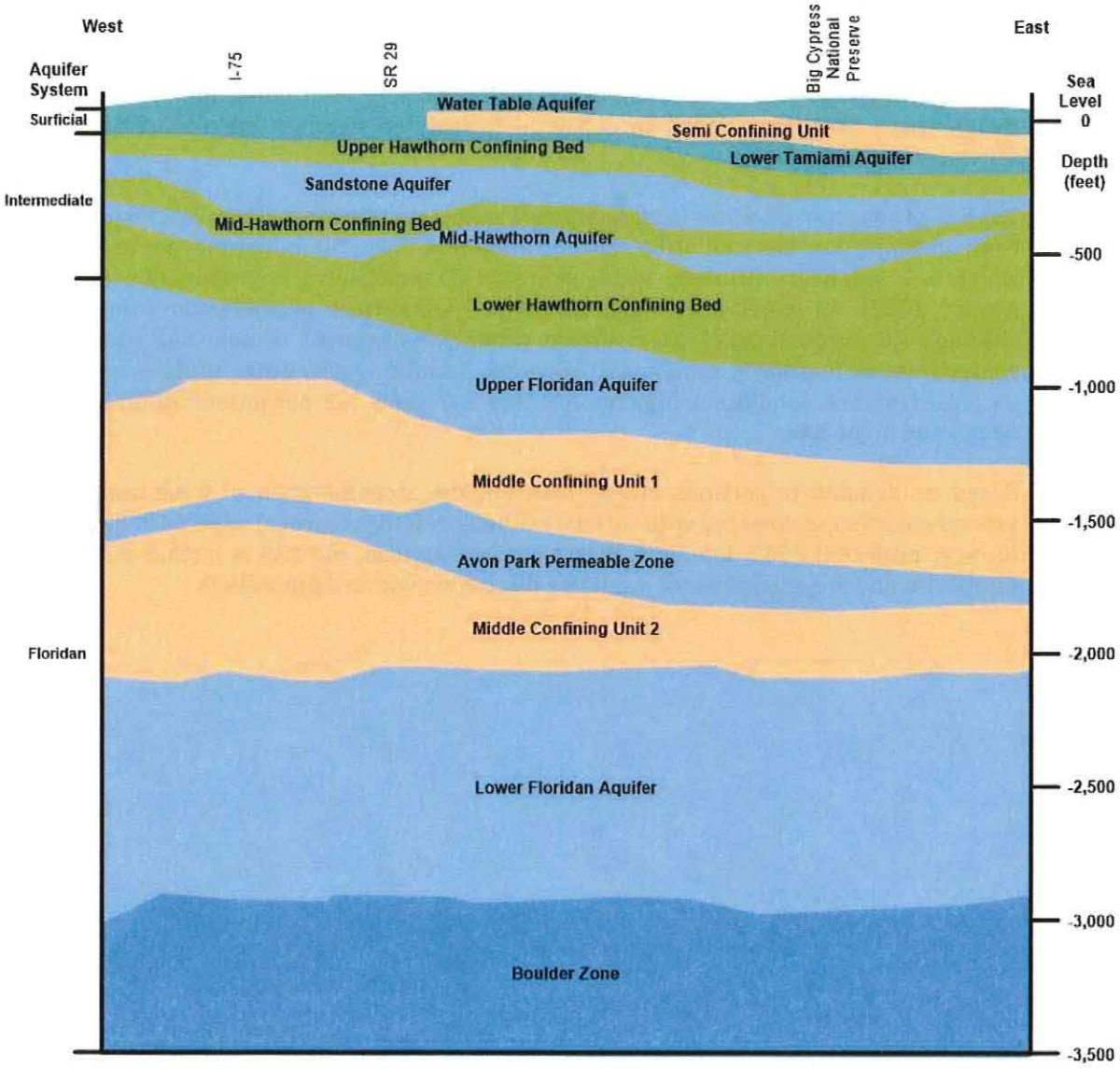


Figure 5-5. Generalized hydrogeologic cross section of the LWC Planning Area.

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**.

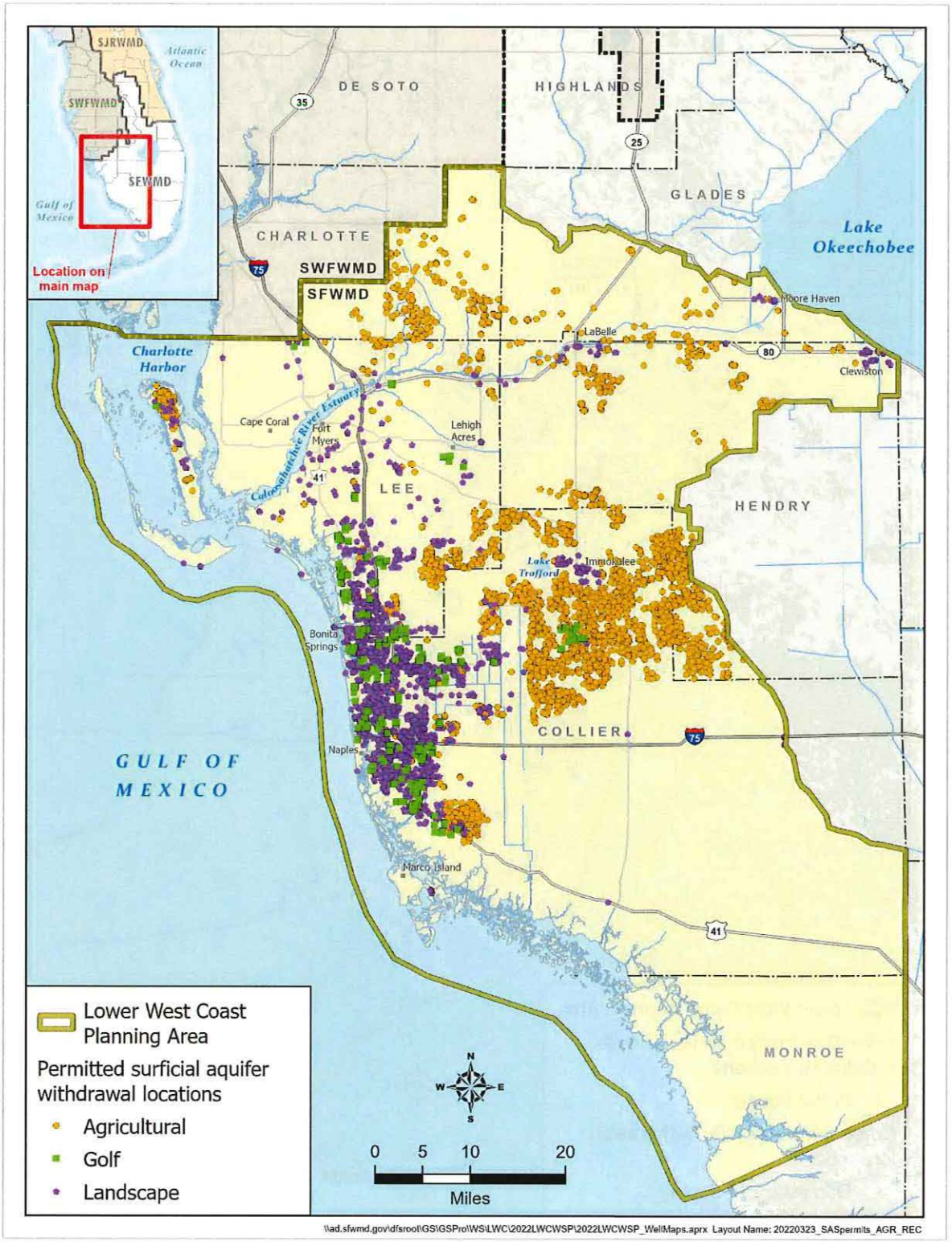


Figure 5-6. Permitted surficial aquifer system withdrawal locations for irrigation within the LWC Planning Area.

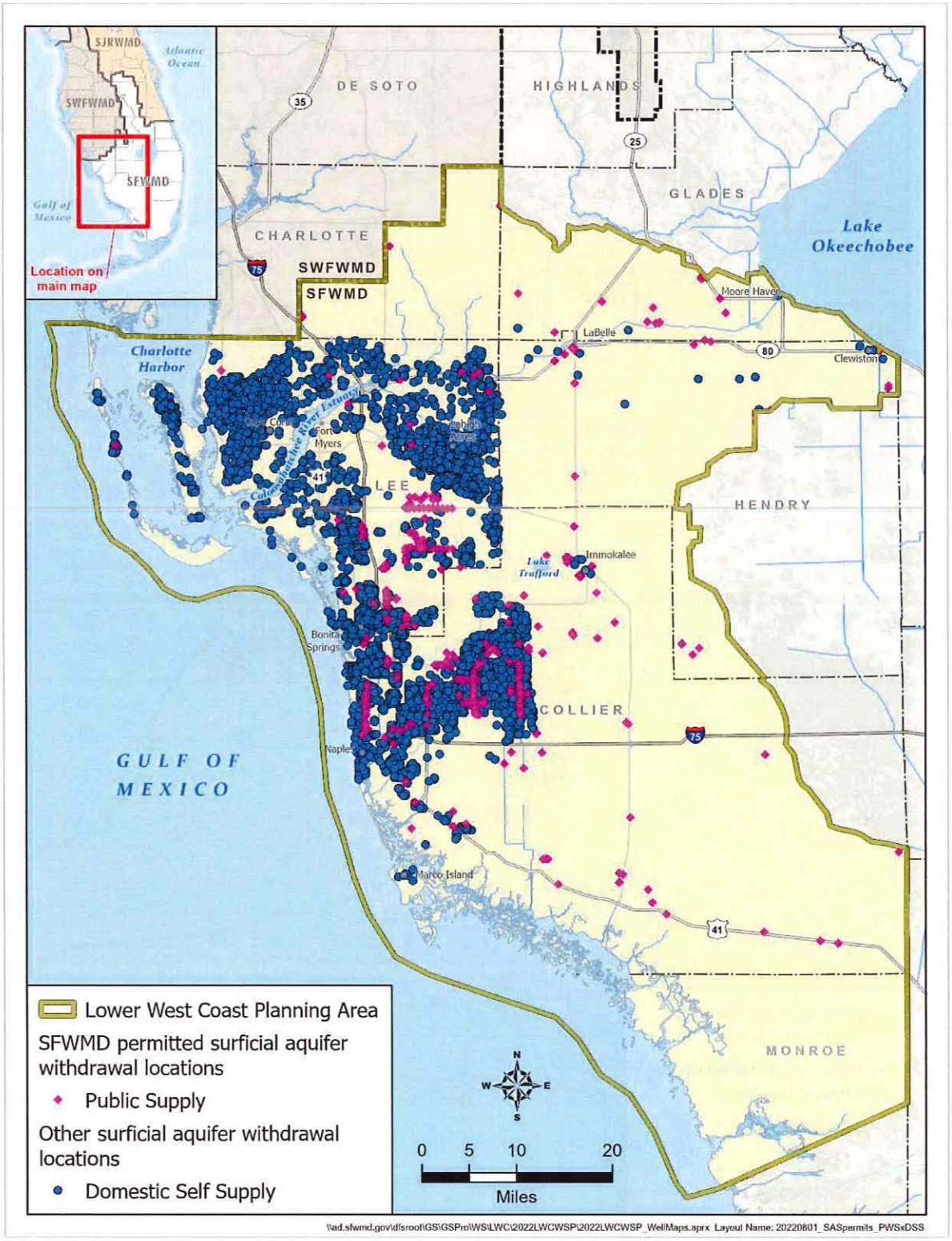


Figure 5-7. Permitted surficial aquifer system withdrawal locations for Public Supply and Domestic Self-Supply within the LWC Planning Area.

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**.

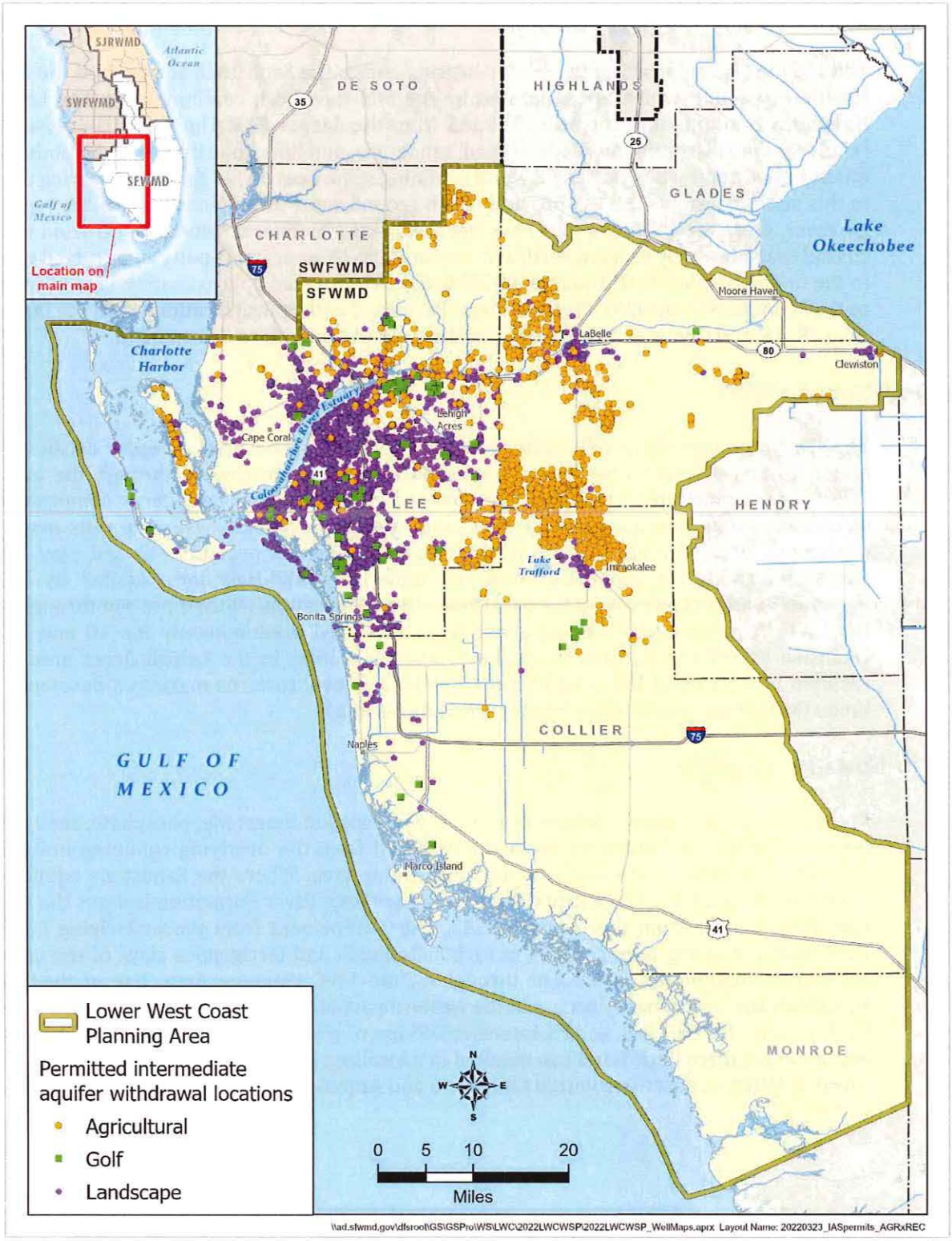


Figure 5-8. Permitted intermediate aquifer system withdrawal locations for irrigation within the LWC Planning Area.

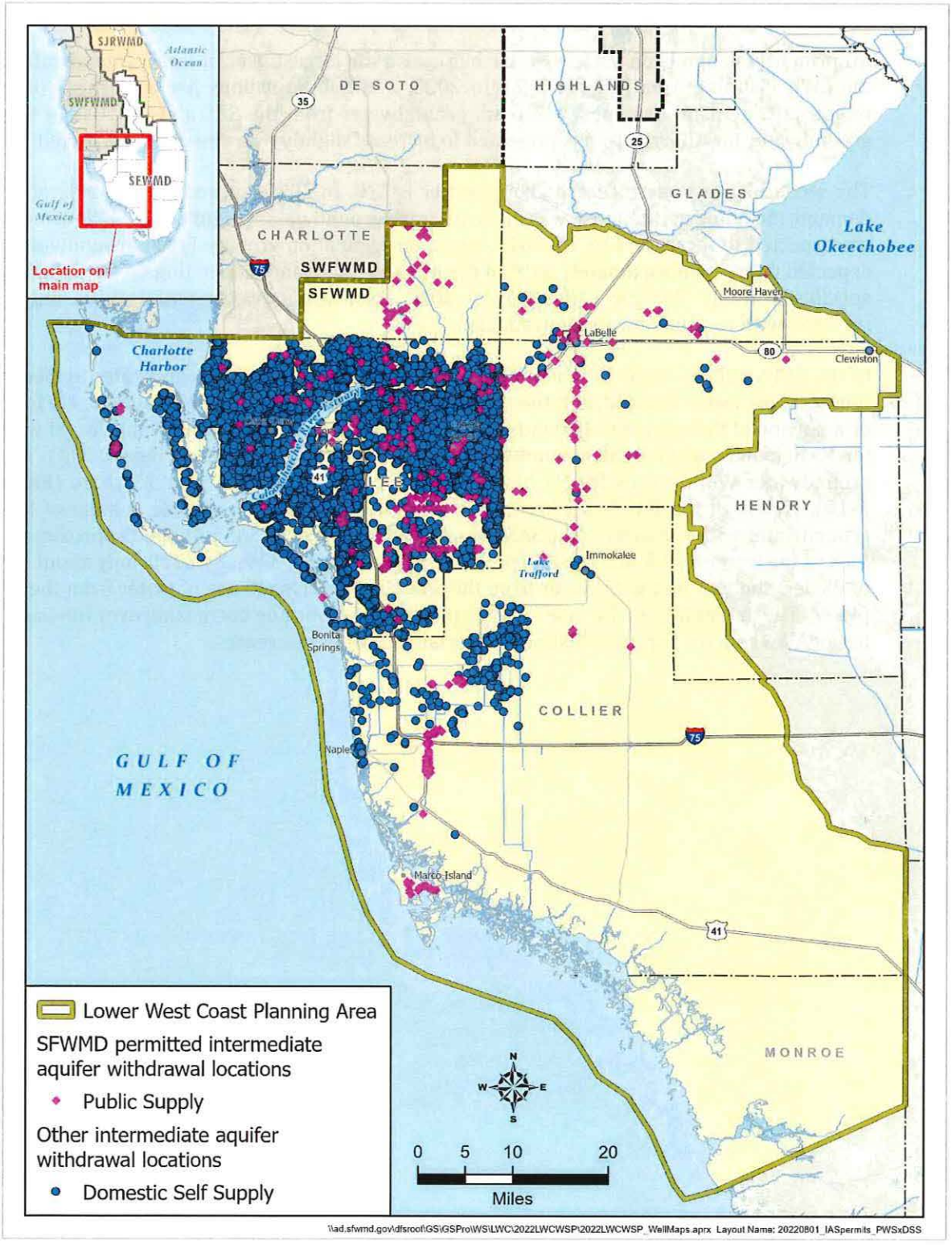


Figure 5-9. Permitted intermediate aquifer system withdrawal locations for Public Supply and Domestic Self-Supply within the LWC Planning Area.

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.

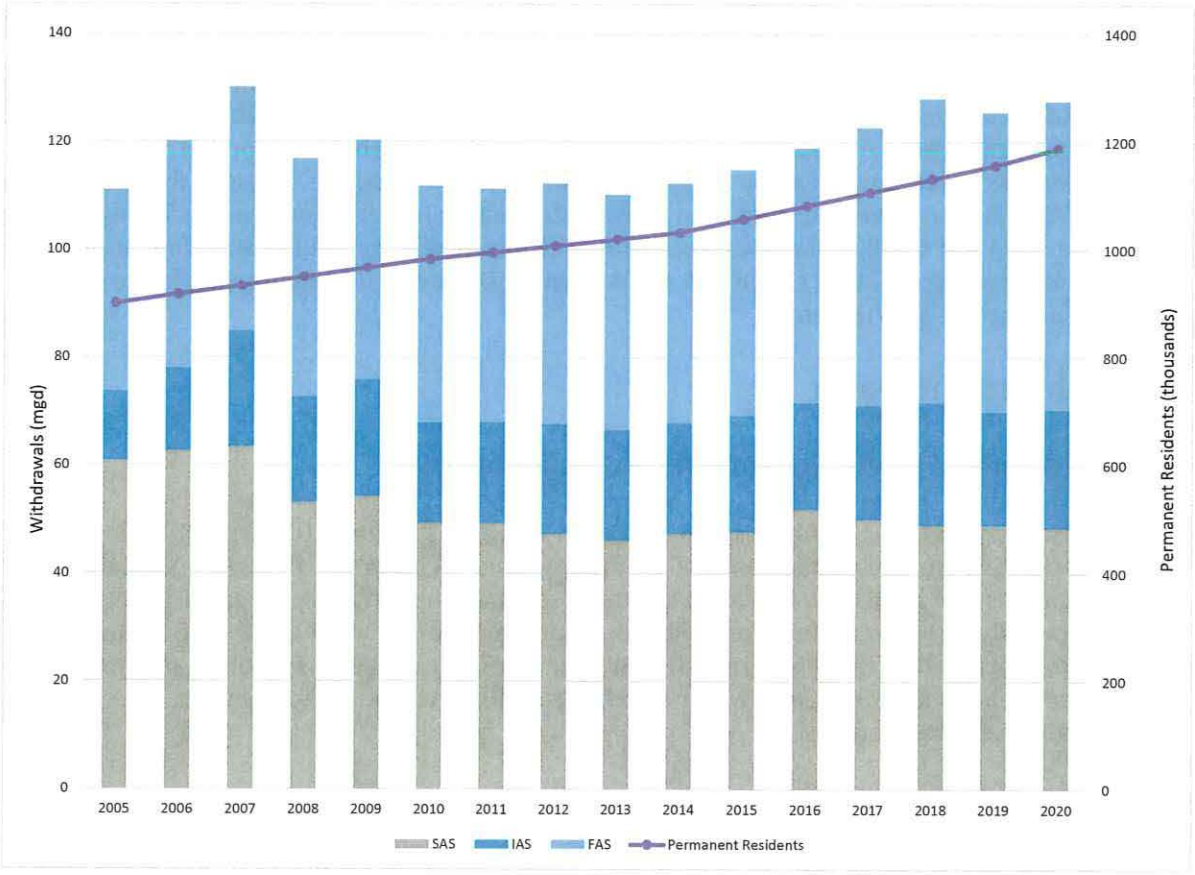


Figure 5-10. Public Supply withdrawals from the surficial, intermediate, and Floridan aquifer systems in the LWC Planning Area (2005 to 2020).

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.

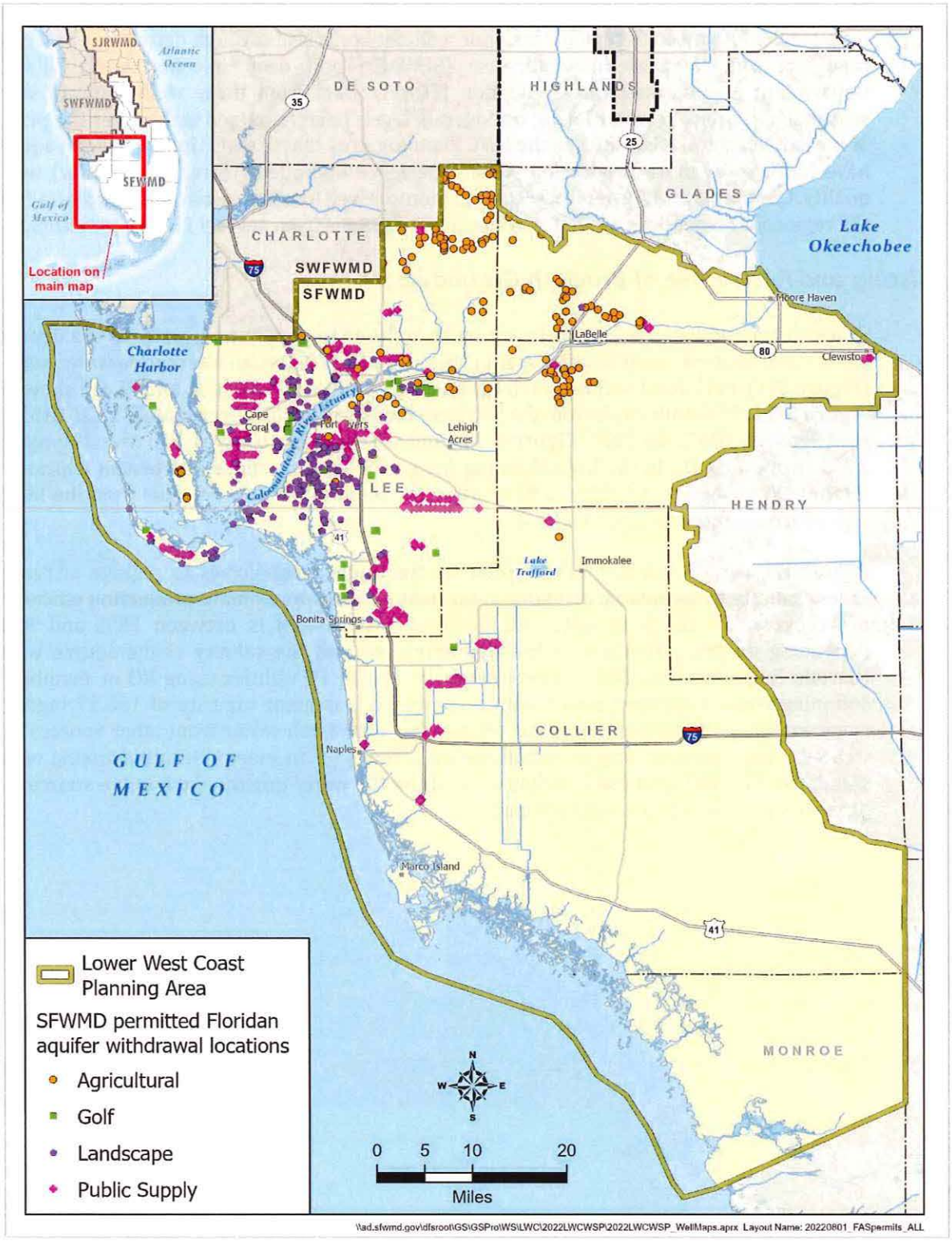


Figure 5-11. Permitted Floridan aquifer system wells in the LWC Planning Area.

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.

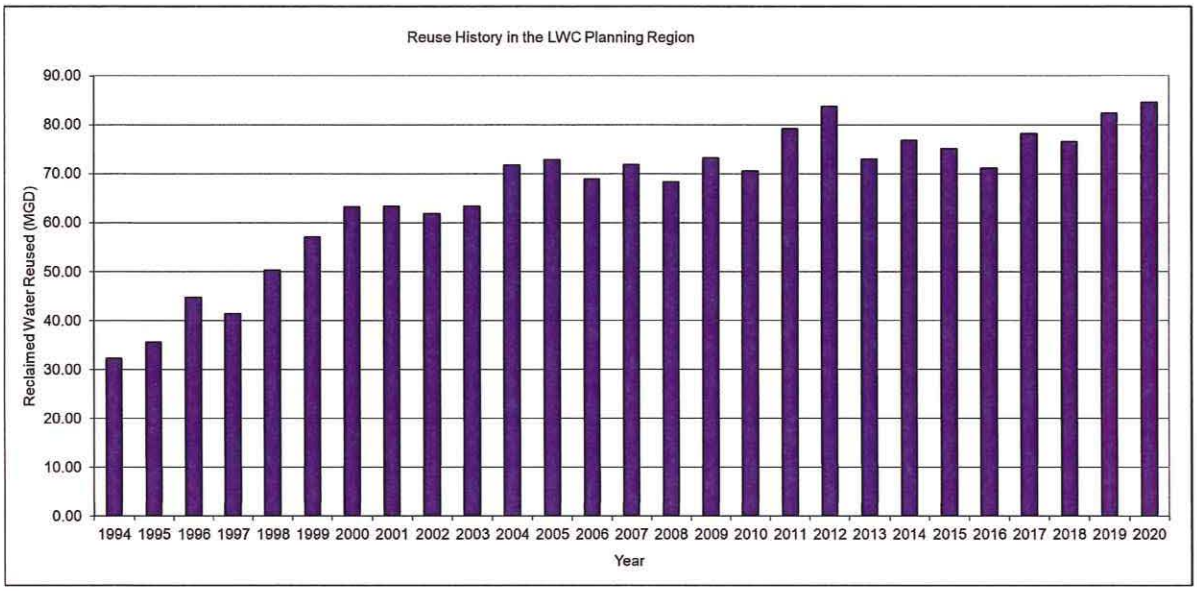


Figure 5-12. Annual average reclaimed water reuse in the LWC Planning Area from 1994 to 2020.

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

Carollo Engineers, Inc. 2009. *Water Desalination Concentrate Management and Piloting*. Prepared by Carollo Engineers, Inc., Sunrise, FL, for the South Florida Water Management District, West Palm Beach, FL. December 2009.

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.

SFWMD. 2022. *South Florida Water Management District 2020 Estimated Water Use Report*. South Florida Water Management District, West Palm Beach, FL. February 2022.

United States Environmental Protection Agency. 2022. *Secondary Drinking Water Standards: Guidance for Nuisance Chemicals*. United States Environmental Protection Agency, Washington, DC. Available online at https://www.epa.gov/sdwa/secondary-drinking-water-standards-guidance-nuisance-chemicals.

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**.

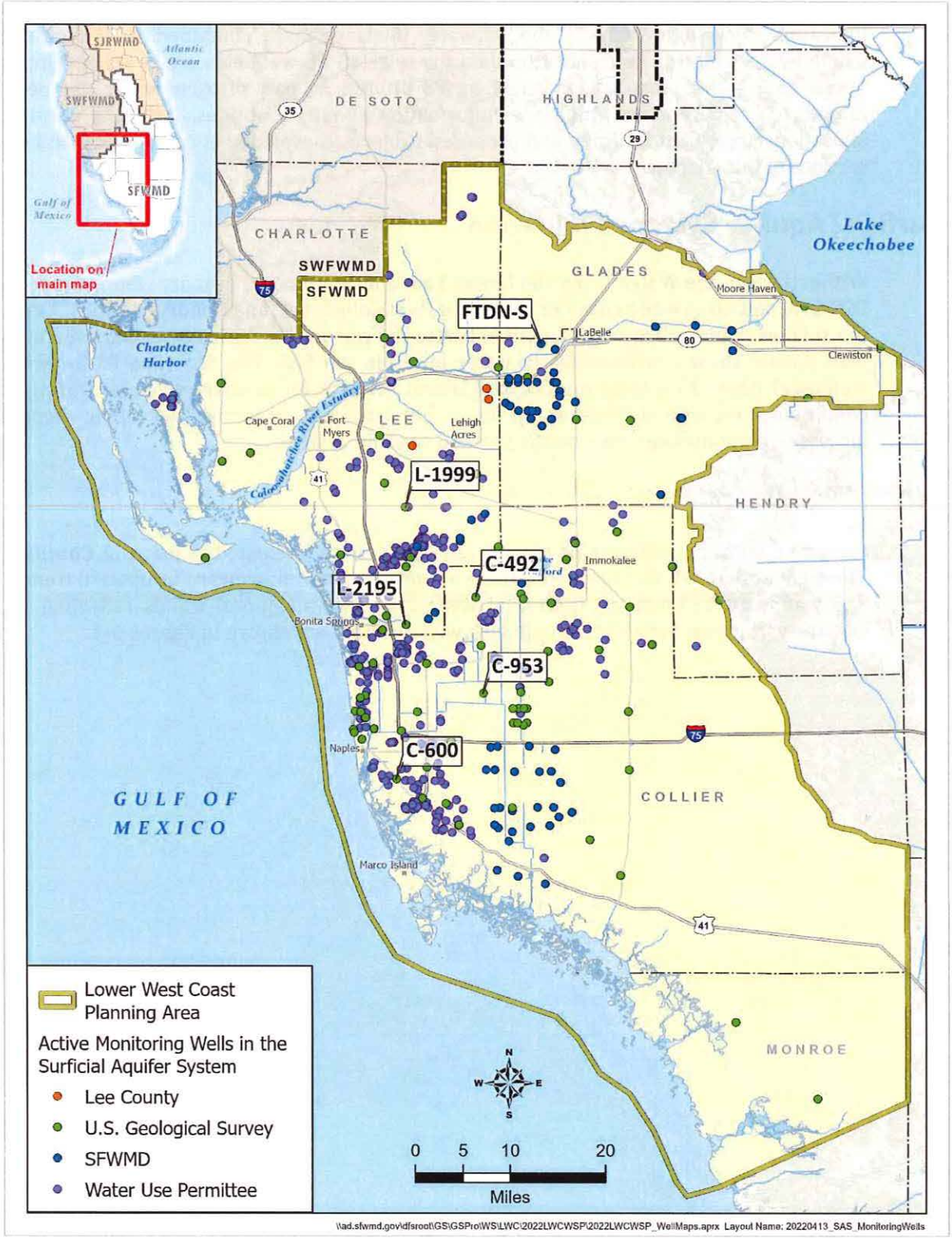


Figure 6-1. Active surficial aquifer system groundwater monitor wells in the LWC Planning Area.

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.

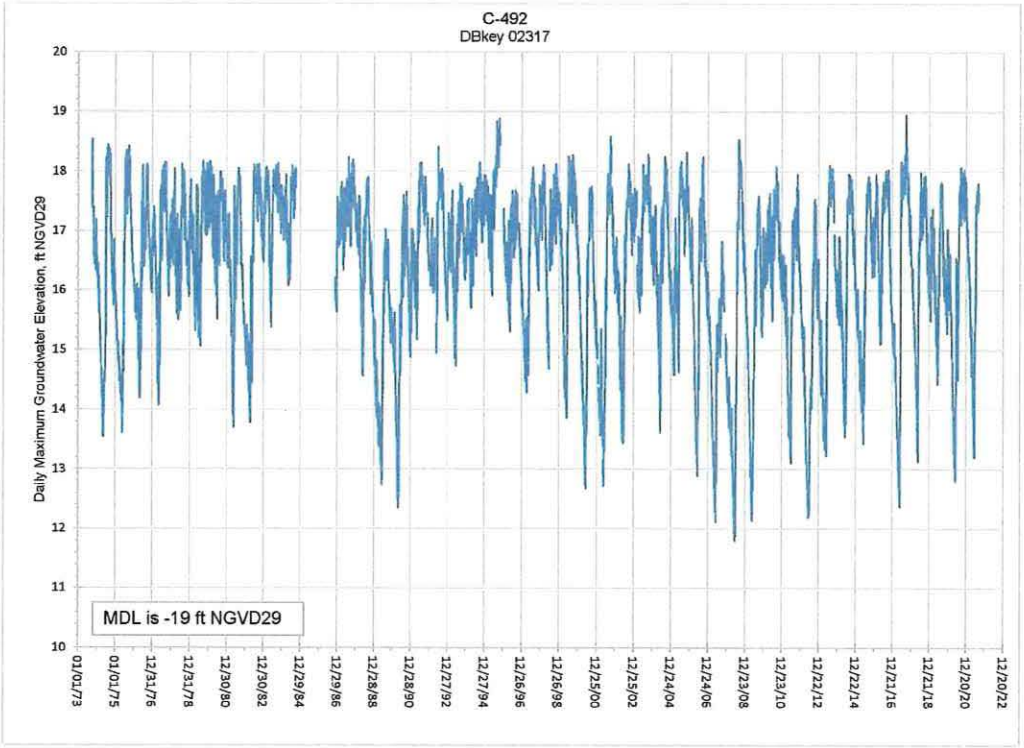


Figure 6-2. Water levels in Lower Tamiami aquifer monitor well C-492, northwestern Collier County.

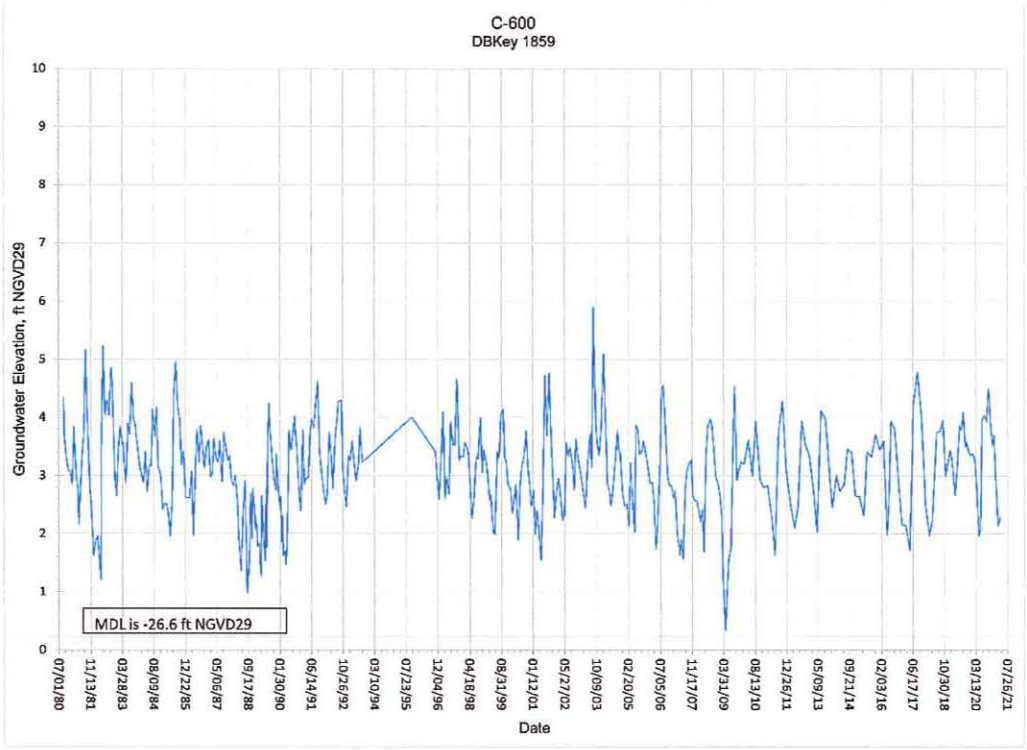


Figure 6-3. Water levels in USGS Lower Tamiami aquifer monitor well C-600, Collier County.

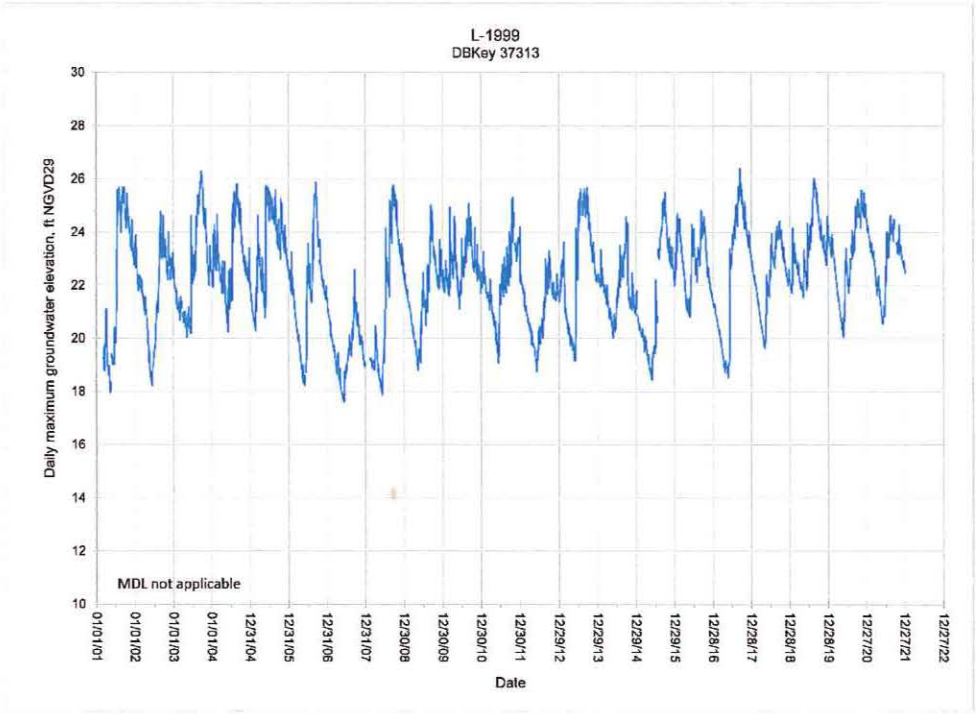


Figure 6-4. Water levels in surficial aquifer system monitor well L-1999, Lee County.

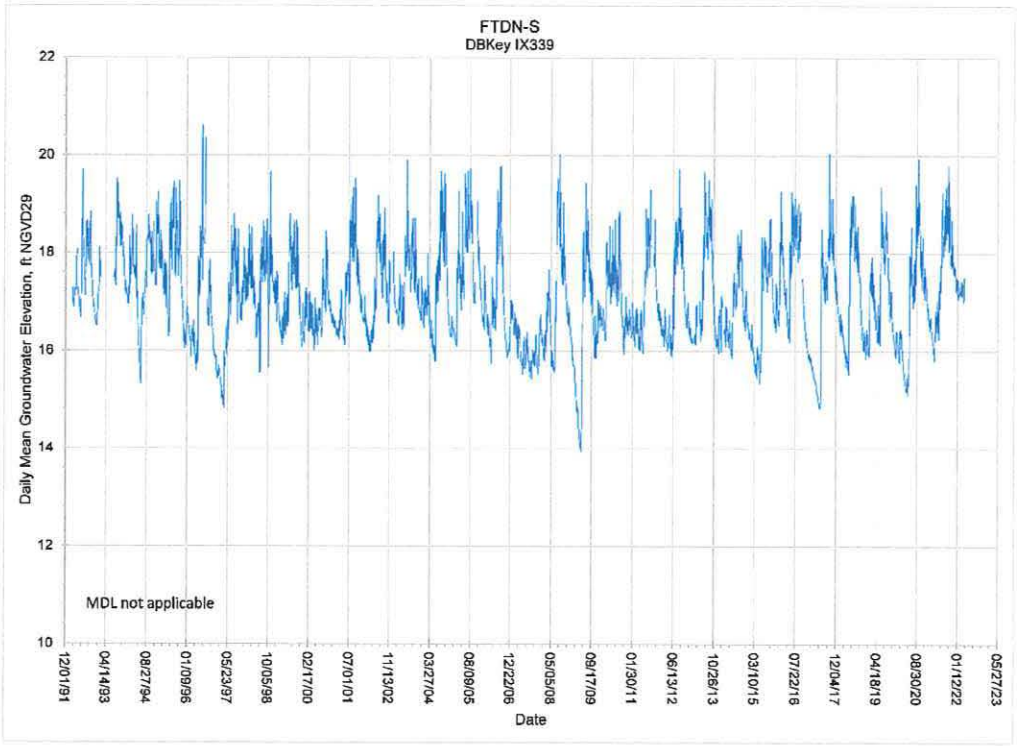


Figure 6-5. Water levels in surficial aquifer system monitor well FTDN-S, Hendry County.

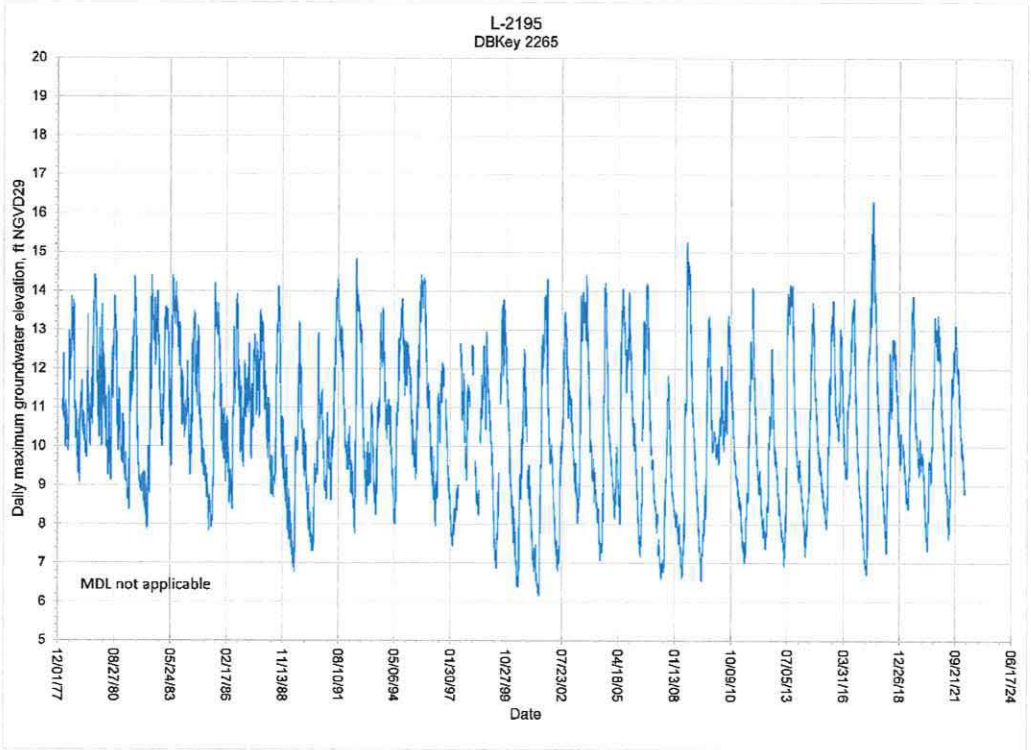


Figure 6-6. Water levels in surficial aquifer system monitor well L-2195, Lee County.

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.

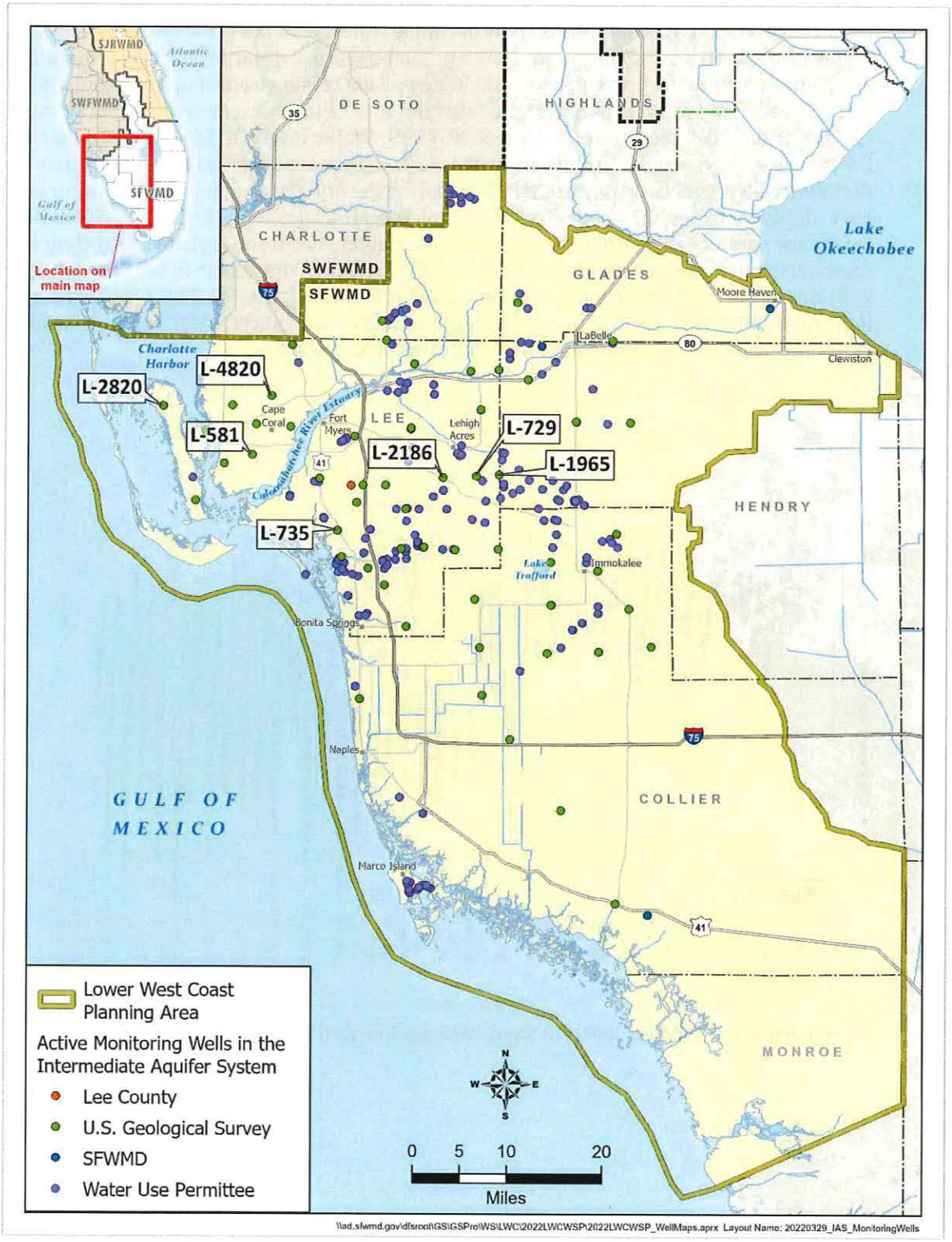


Figure 6-7. Active intermediate aquifer system water level monitor wells in the LWC Planning Area.

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.

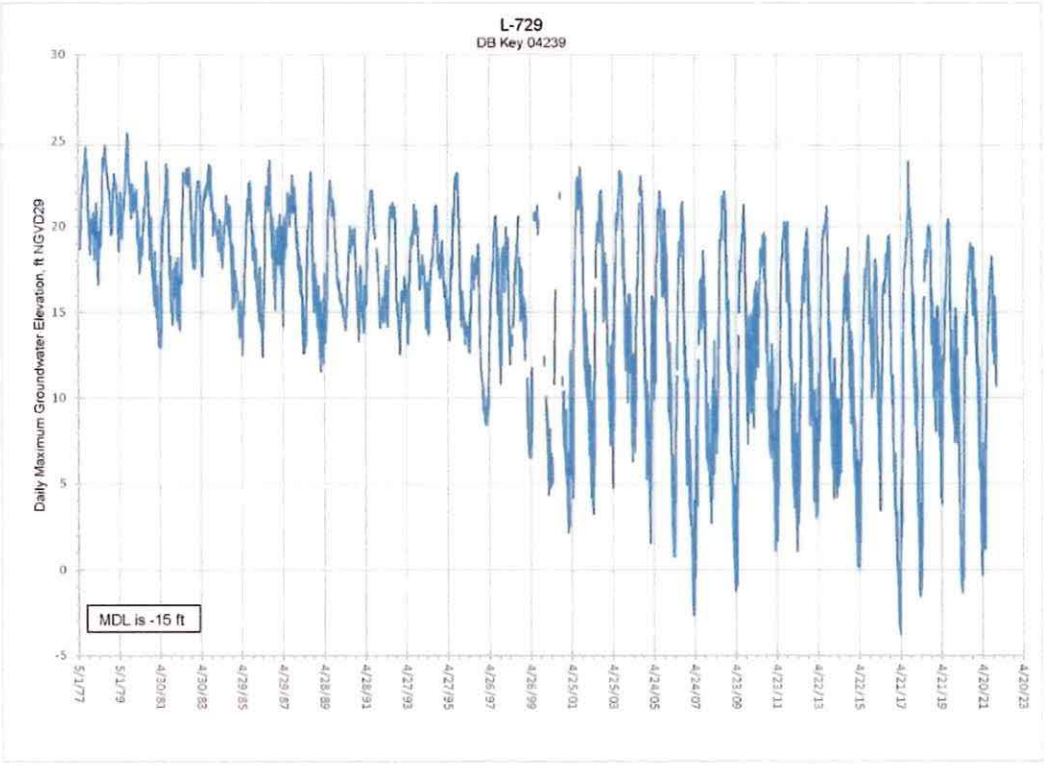


Figure 6-8. Water levels in Sandstone aquifer well L-729 in Lehigh Acres.

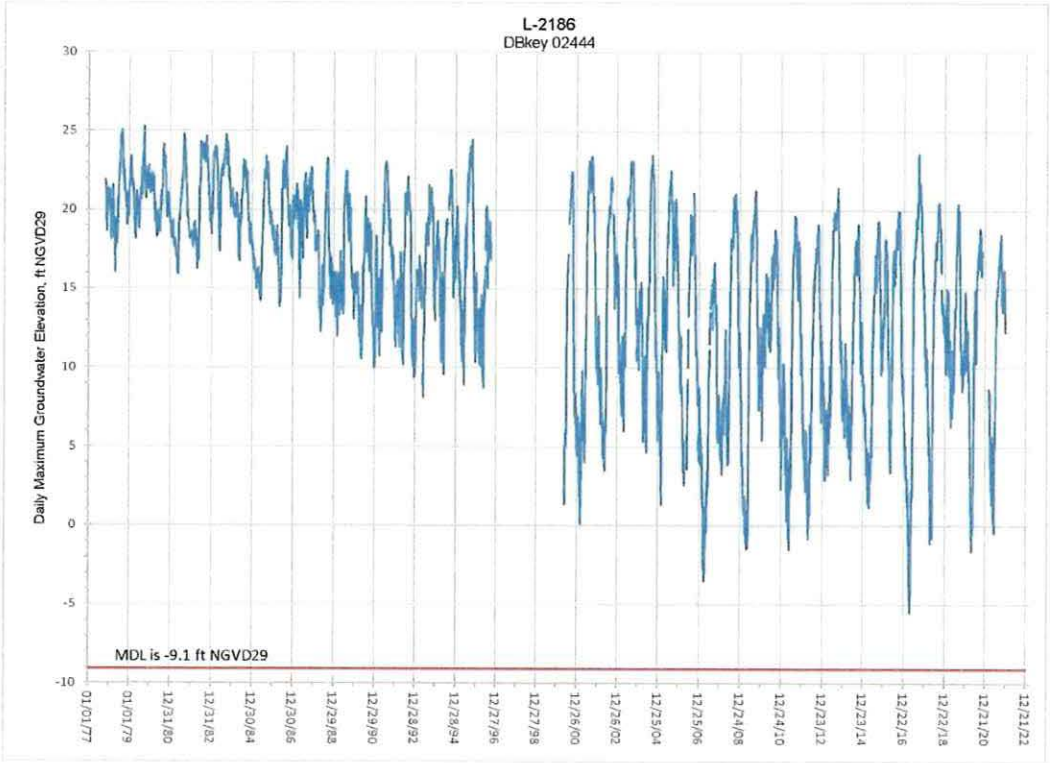


Figure 6-9. Water levels in Sandstone aquifer well L-2186 in Lehigh Acres.

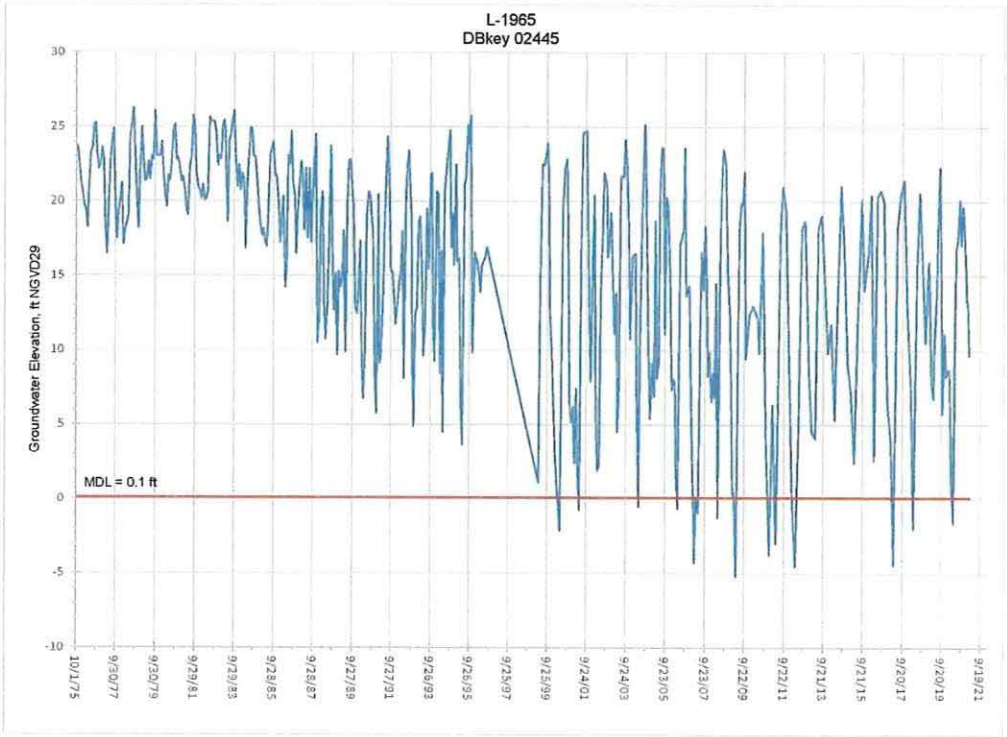


Figure 6-10. Water levels in Sandstone aquifer well L-1965 in Lehigh Acres.

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.

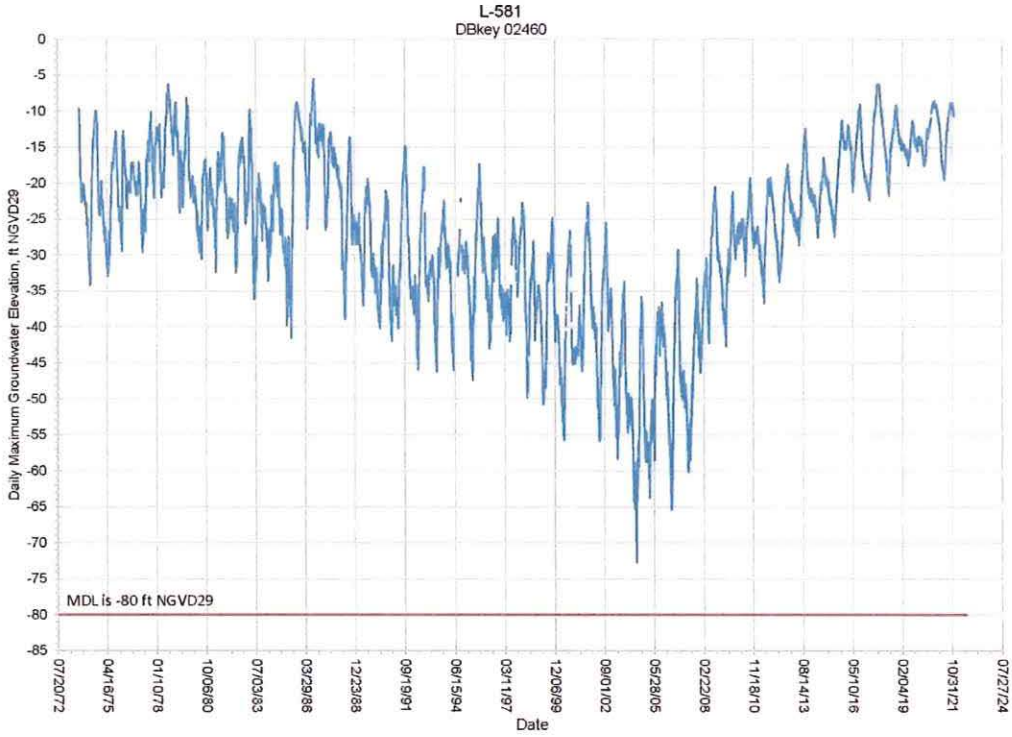


Figure 6-11. Water levels in Mid-Hawthorn aquifer well L-581 in southern Cape Coral.

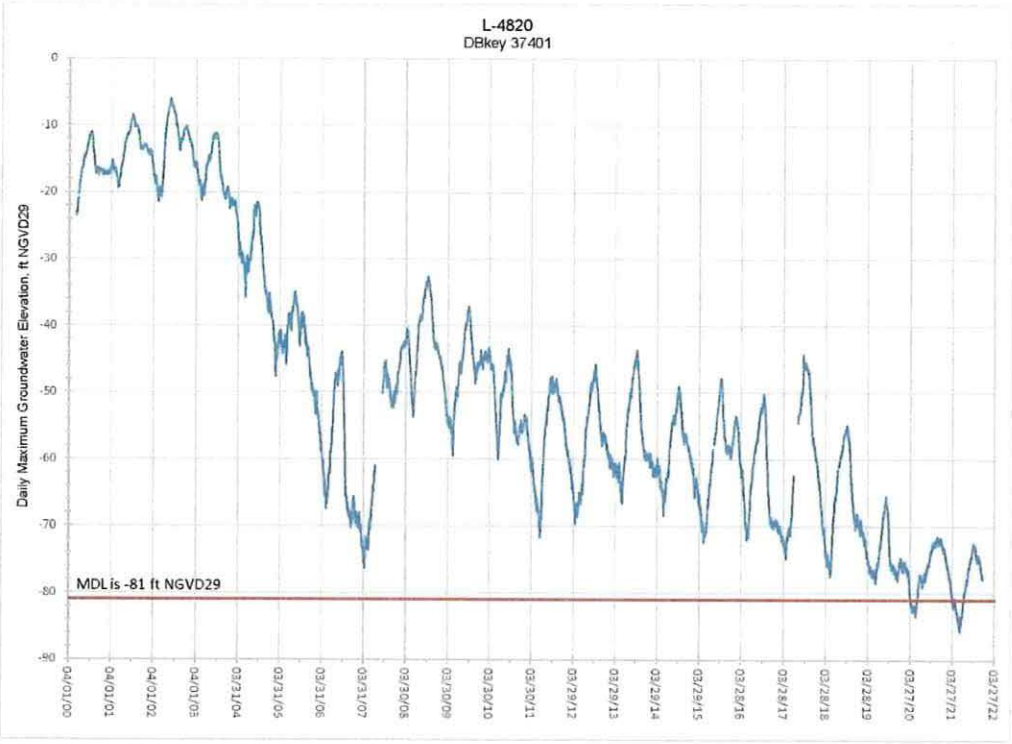


Figure 6-12. Water levels in Mid-Hawthorn aquifer well L-4820 in northern Cape Coral.

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**).

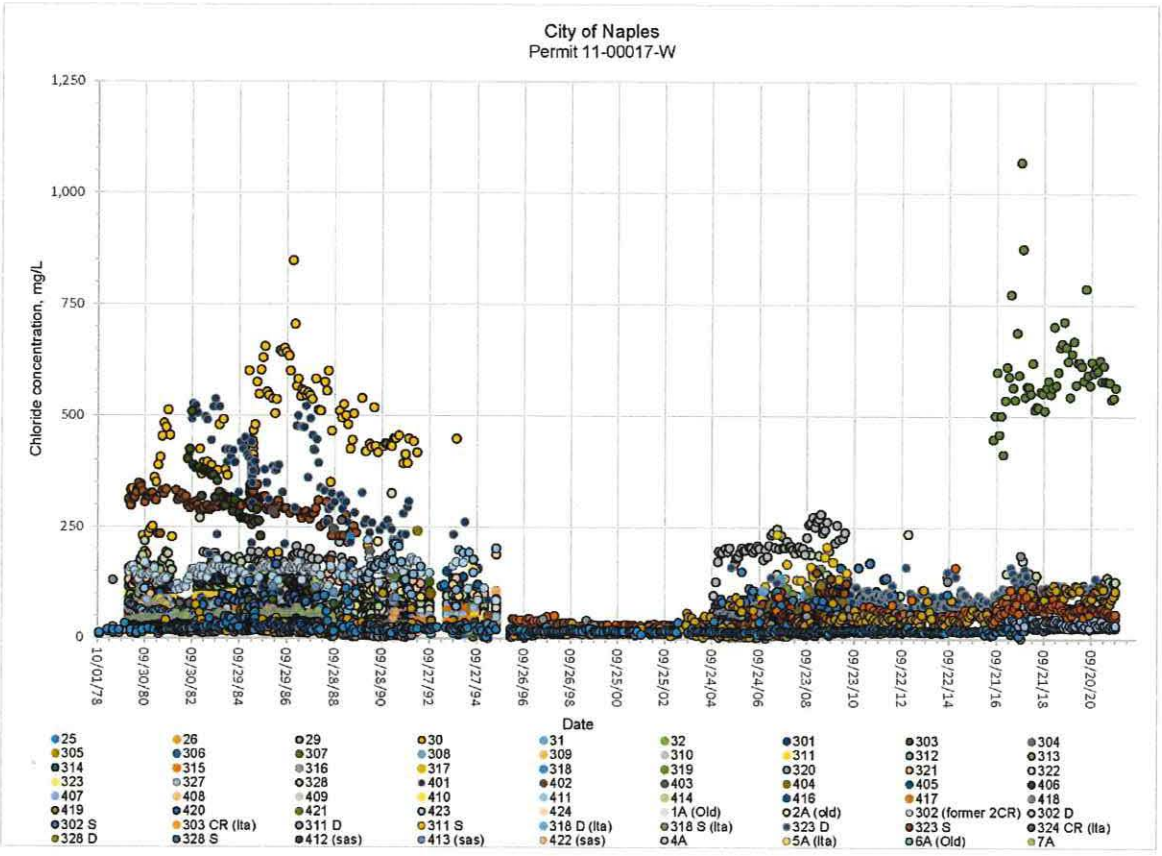


Figure 6-13. Chloride concentrations in the Naples Coastal Ridge wellfield.

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**).

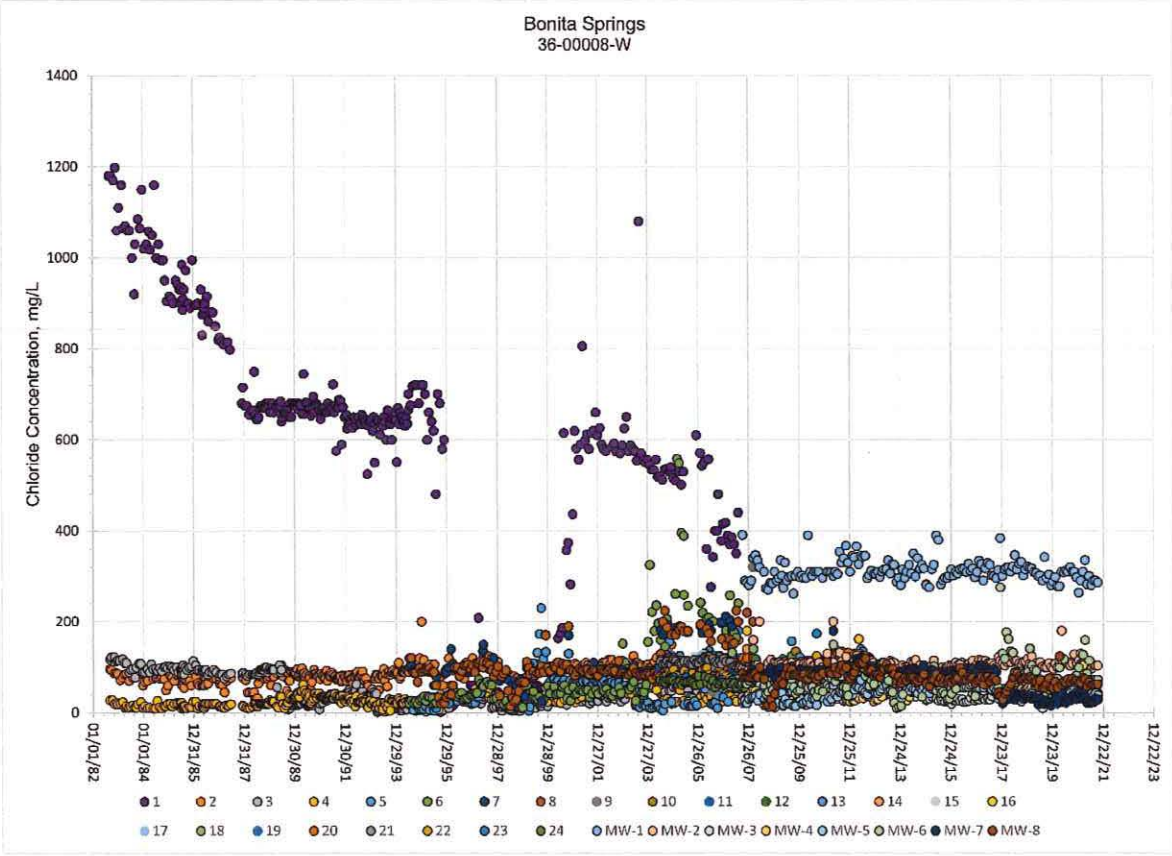


Figure 6-14. Chloride concentrations in the Bonita Springs West wellfield.

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**).

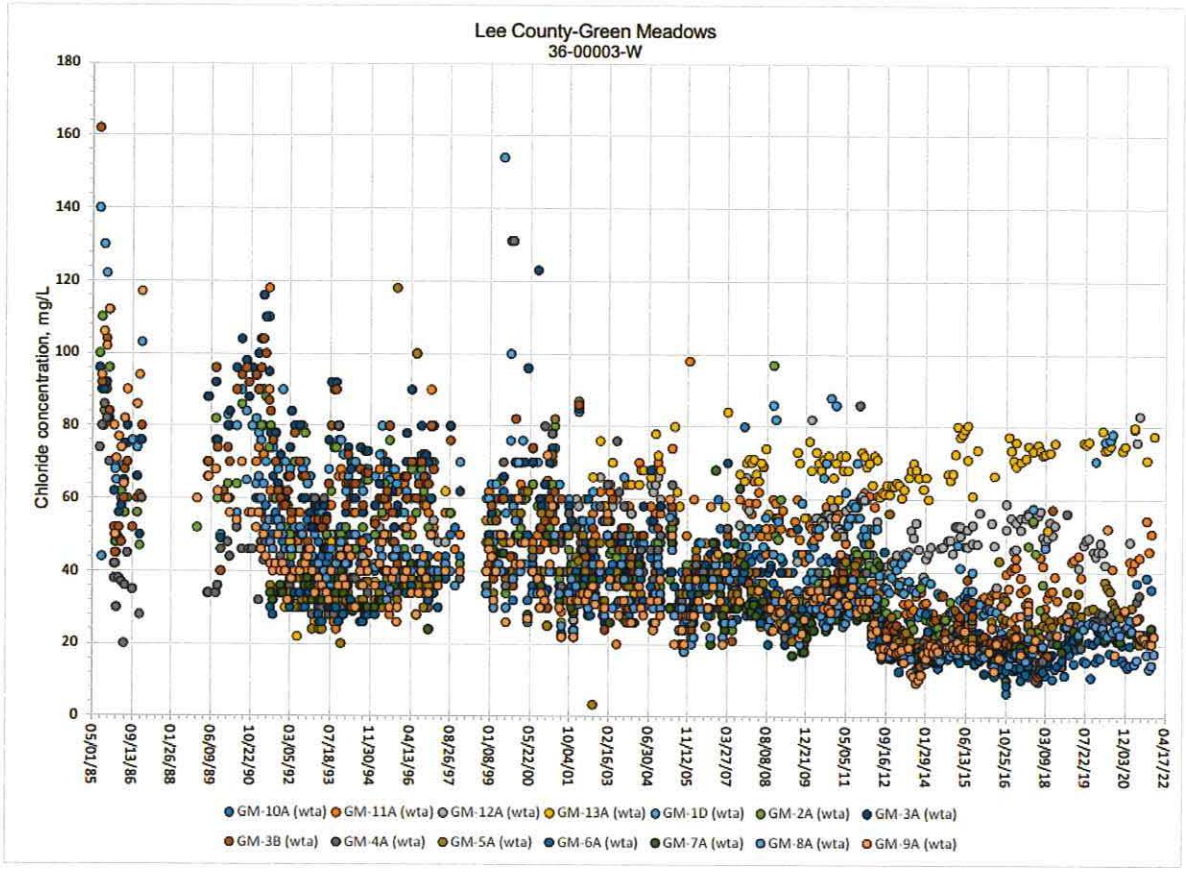


Figure 6-15. Chloride concentrations in the Lee County Green Meadows surficial aquifer system wellfield.

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.

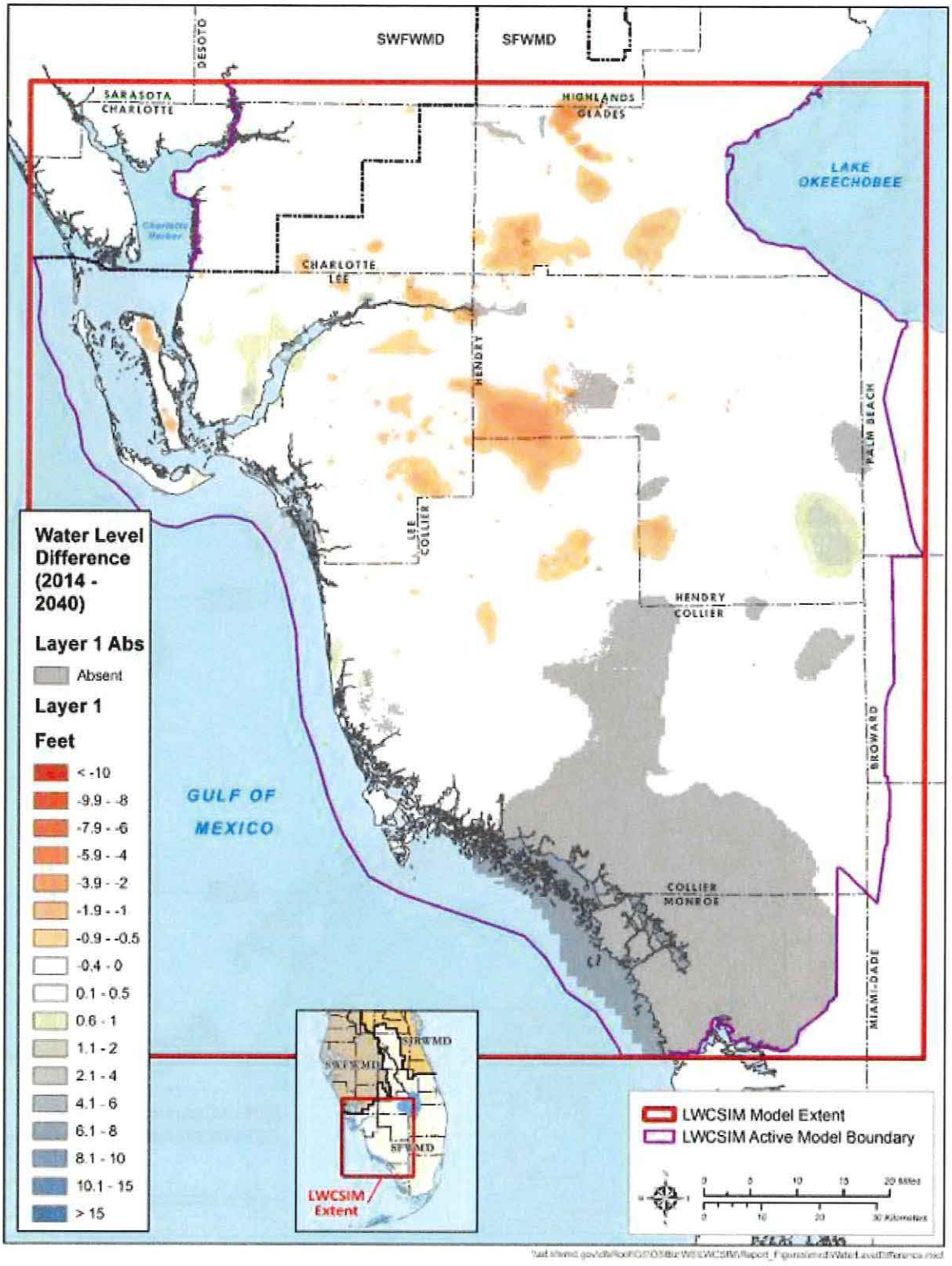


Figure 6-16. 2014 to 2040 water level difference in the Water Table aquifer (SAS).

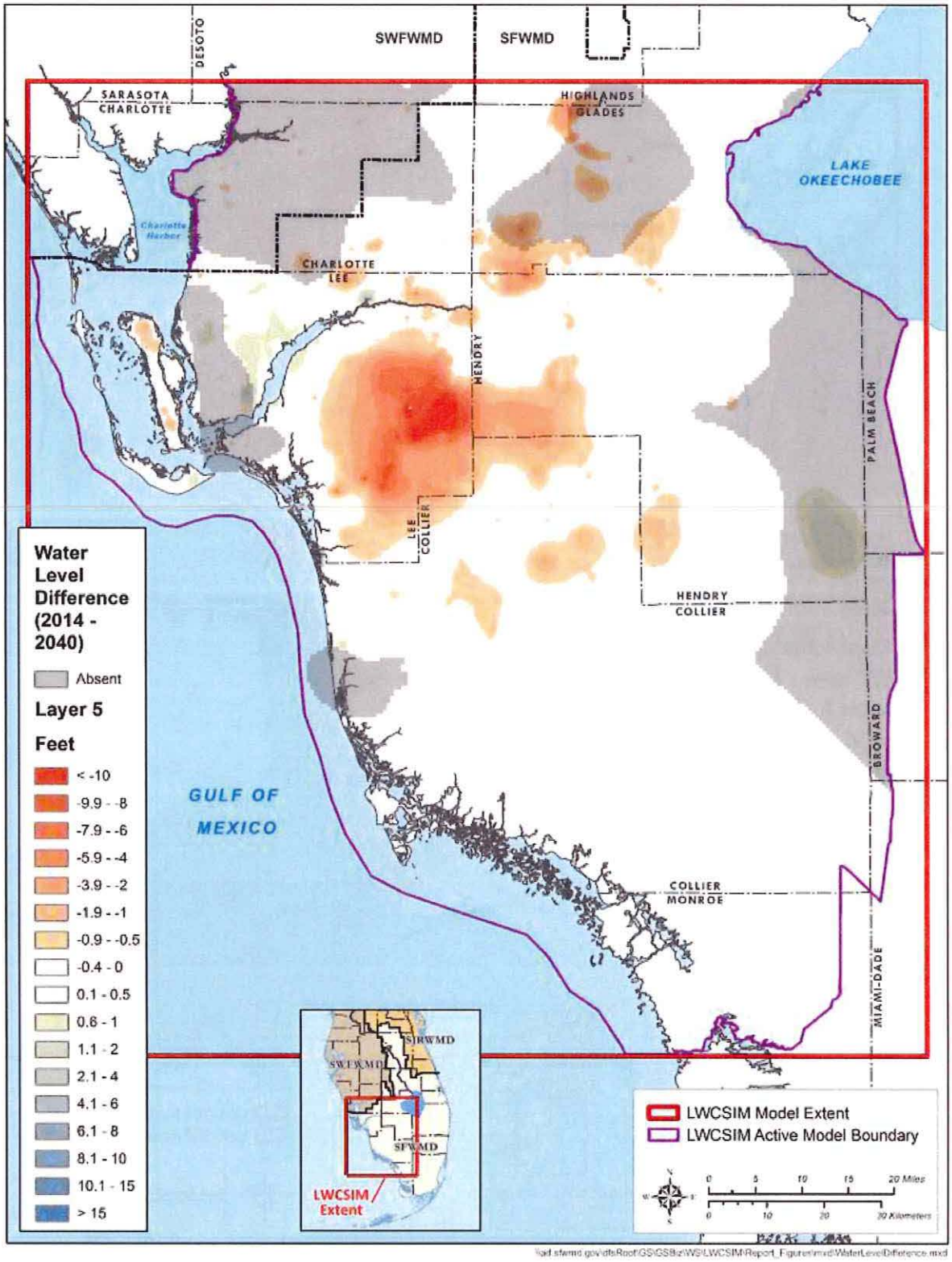


Figure 6-17. 2014 to 2040 water level difference in the Sandstone aquifer (IAS).

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.

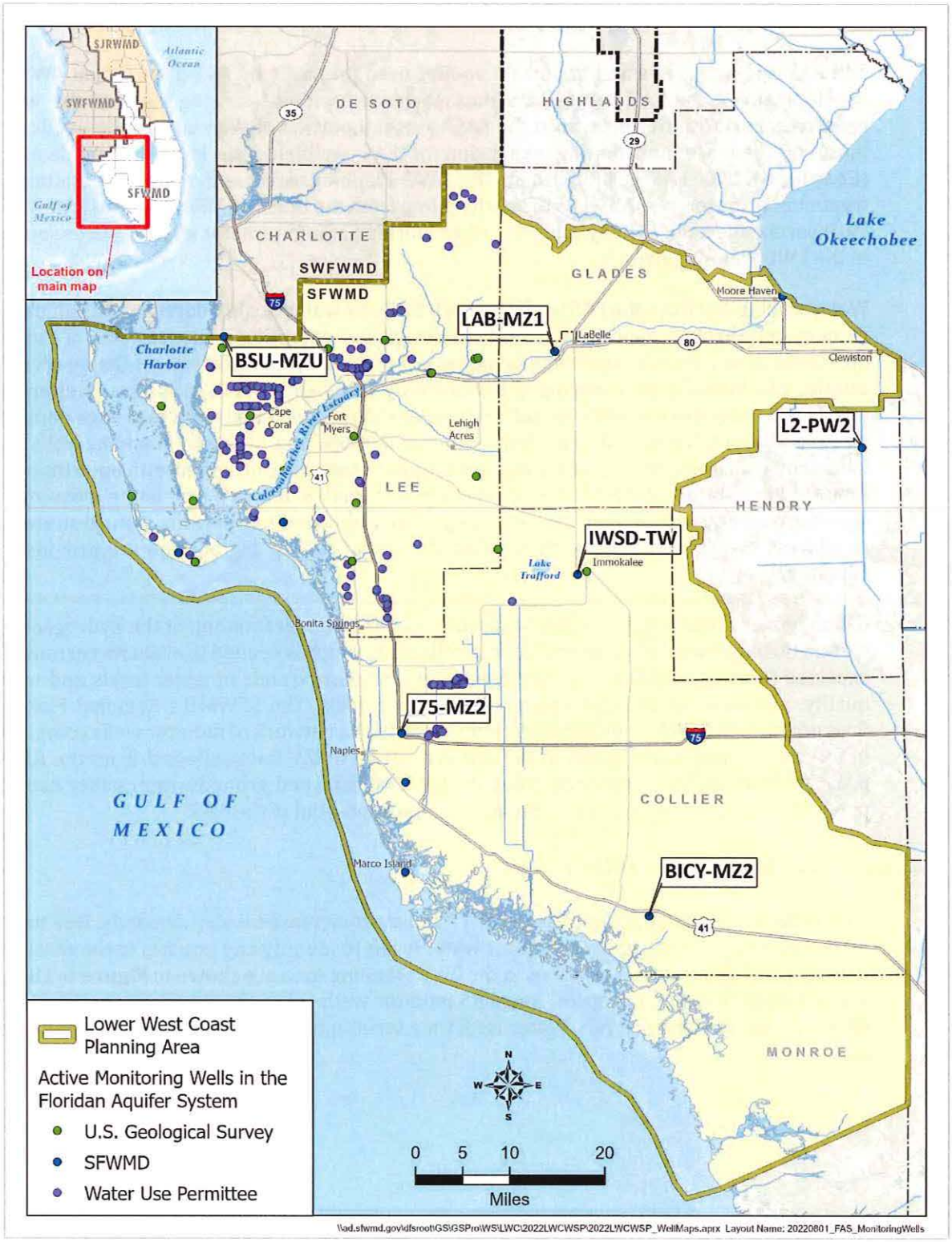


Figure 6-18. Regional Floridan Aquifer Groundwater monitoring wells in the LWC Planning Area.

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.

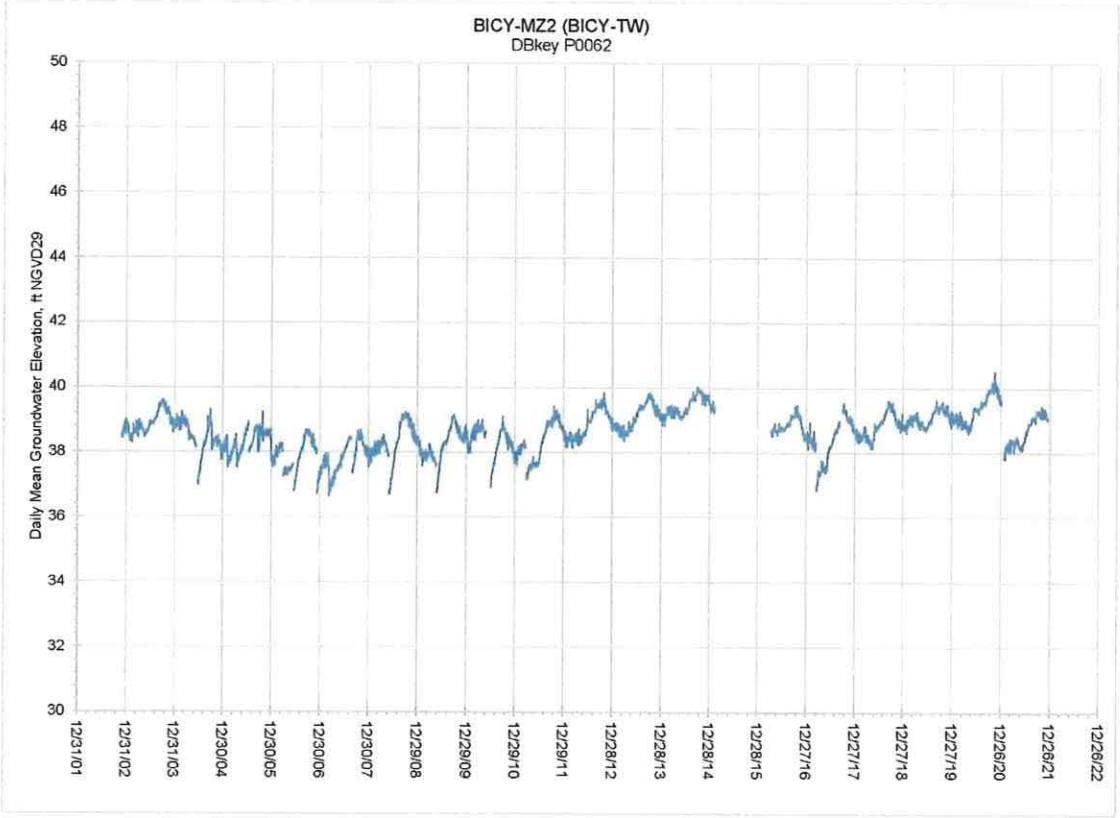


Figure 6-19. Water levels in Floridan aquifer system monitor well BICY-MZ2 (BICY-TW), Big Cypress Swamp, Collier County.

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.

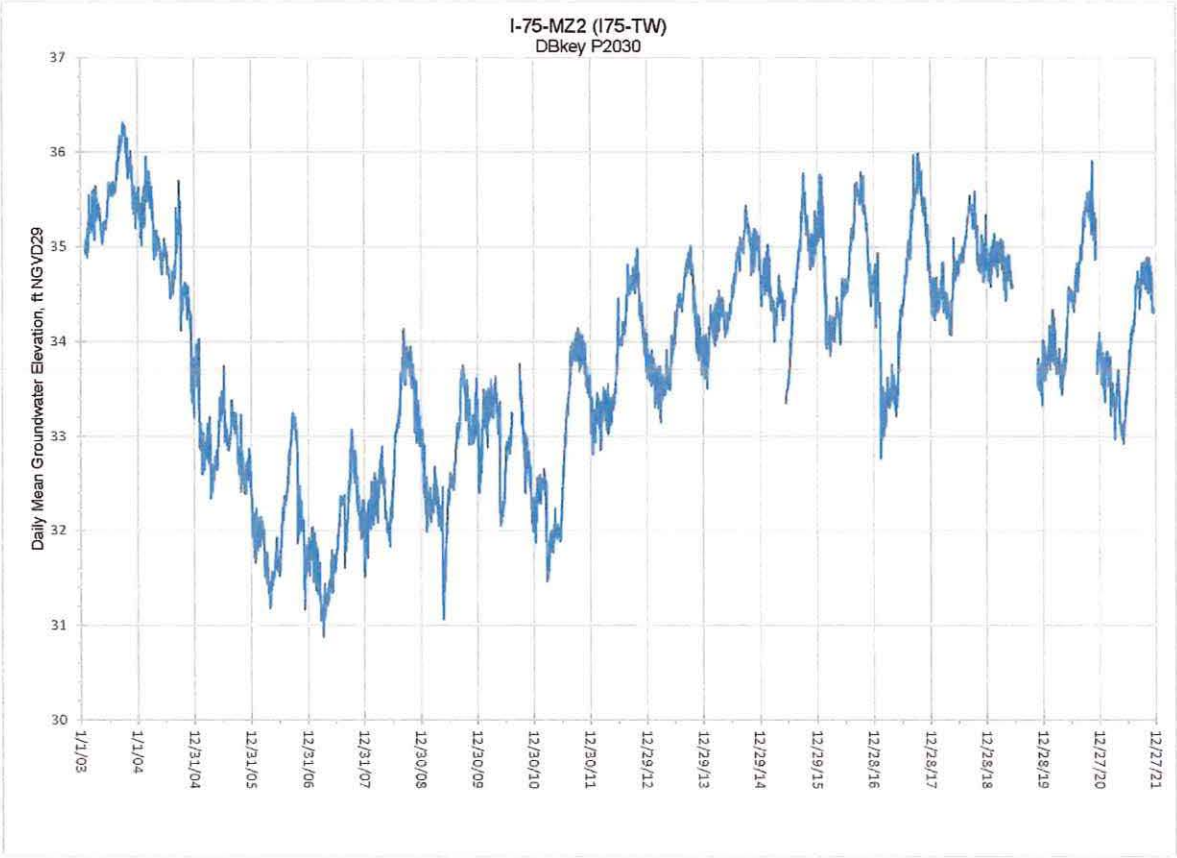


Figure 6-20. Water levels in Floridan aquifer system monitor well I75-MZ2 (I75-TW), Collier County.

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.

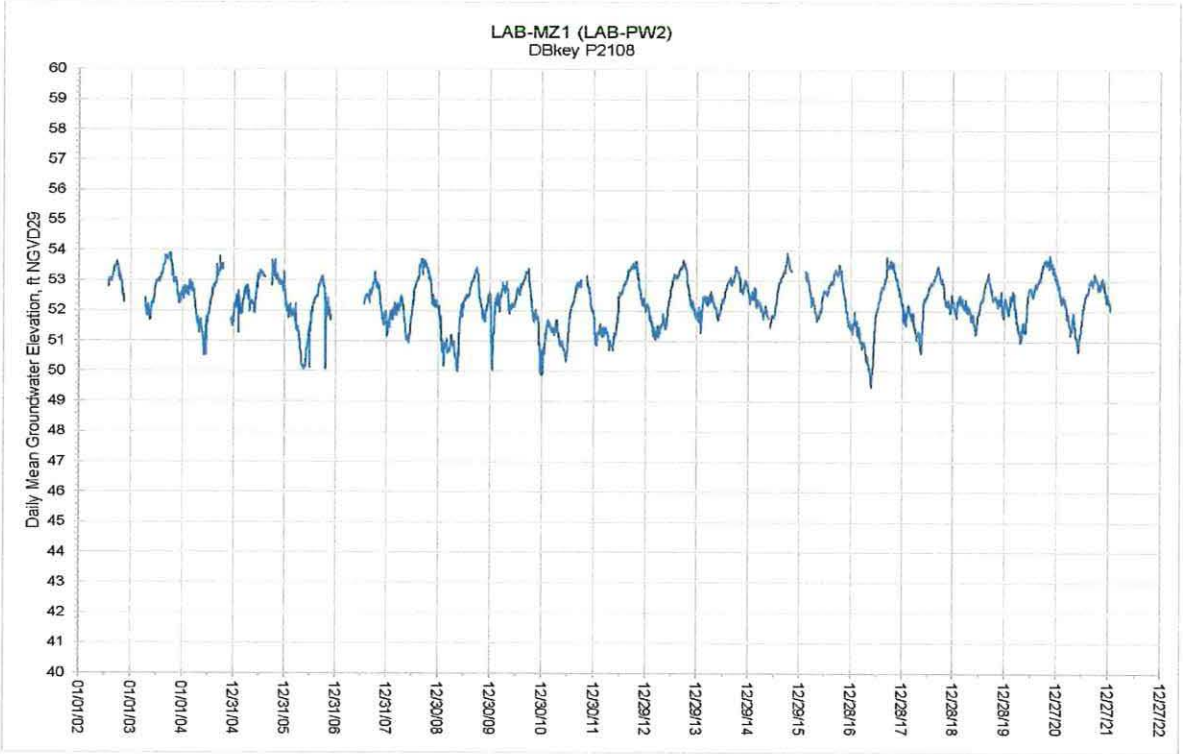


Figure 6-21. Water levels in Upper Floridan aquifer monitor well LAB-MZ1 (LAB-PW2), Glades County.

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.

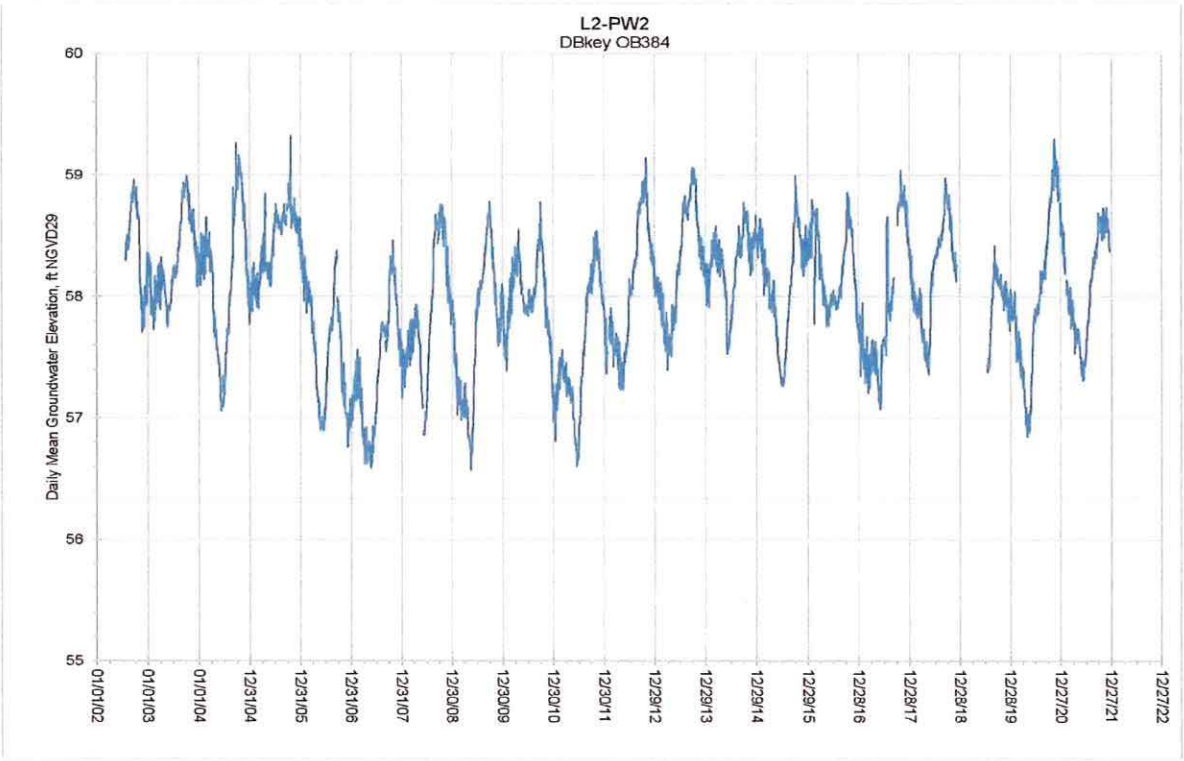


Figure 6-22. Water levels in Upper Floridan aquifer monitor well L2-PW2, western Hendry County.

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.

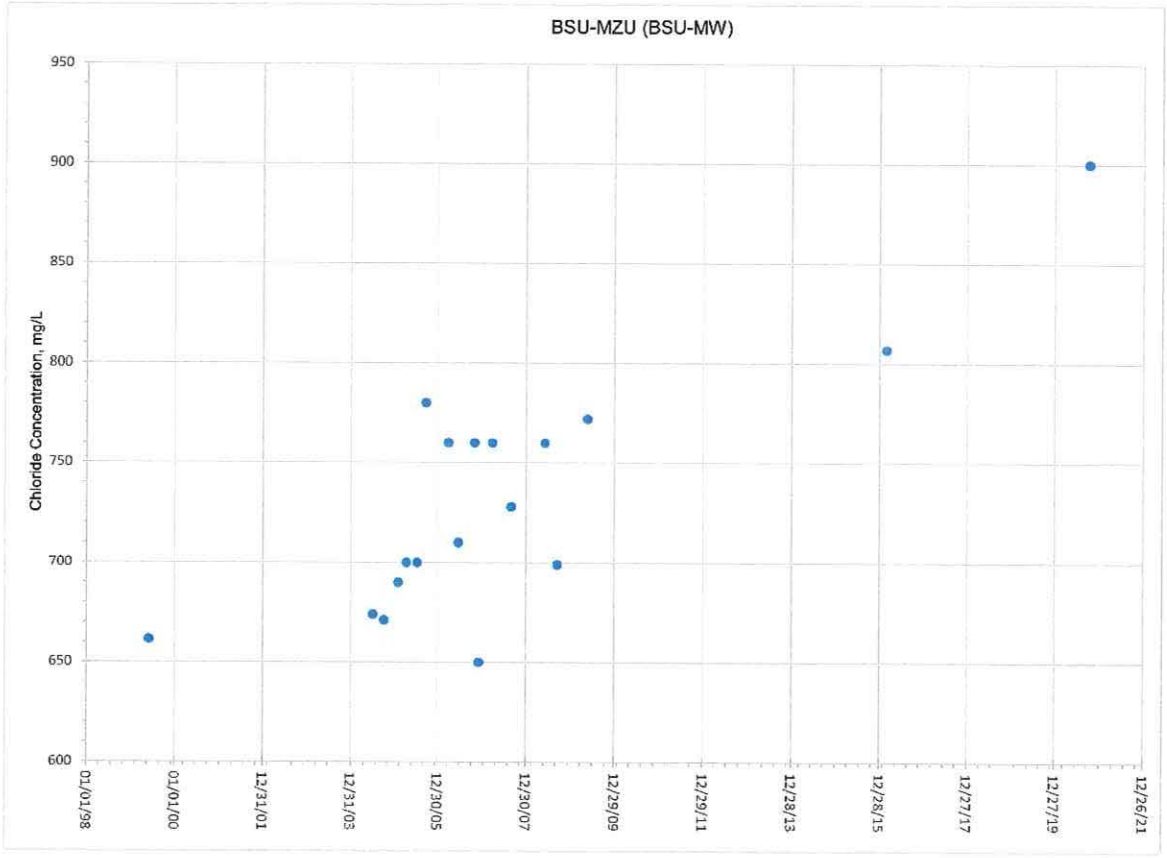


Figure 6-23. Chloride concentrations in Upper Floridan aquifer monitor well BSU-MZU (BSU-MW), southwestern Charlotte County.

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.

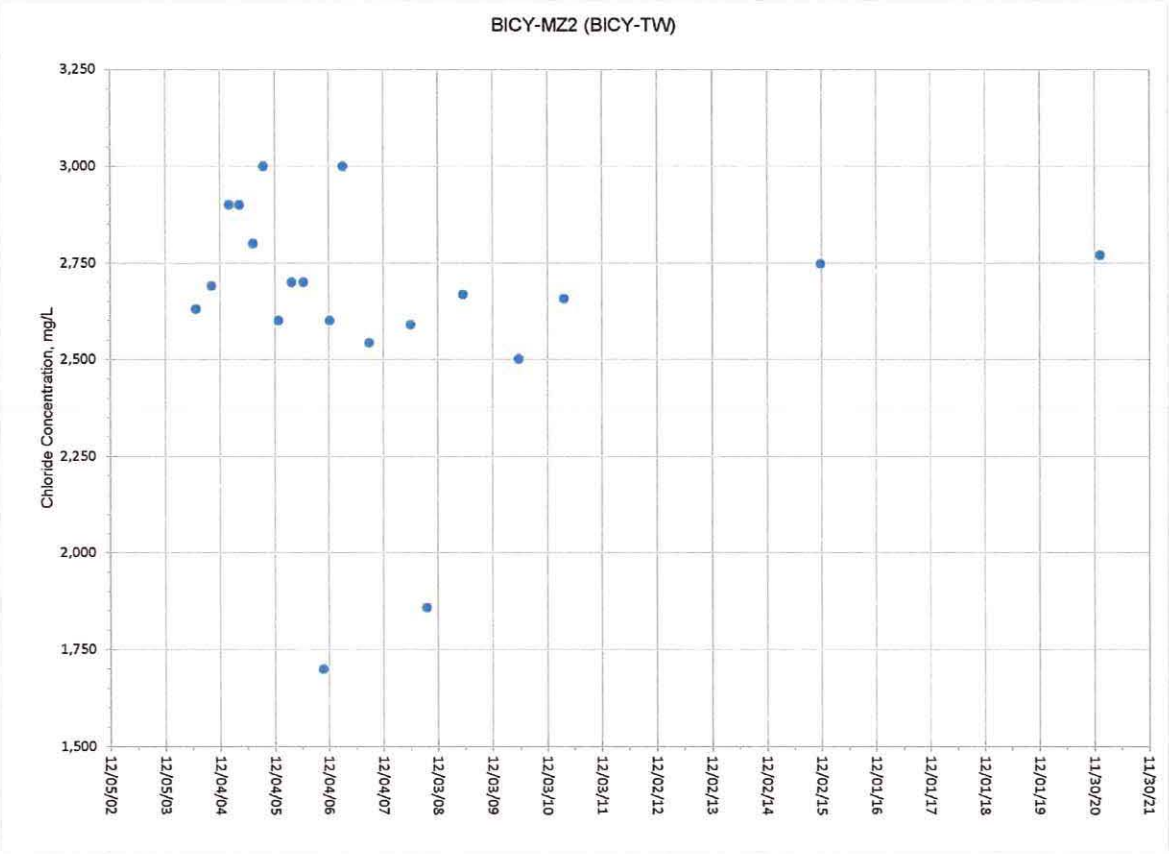


Figure 6-24. Chloride concentrations in Upper Floridan aquifer monitor well BICY-MZ2 (BICY-TW), Big Cypress Swamp.

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.

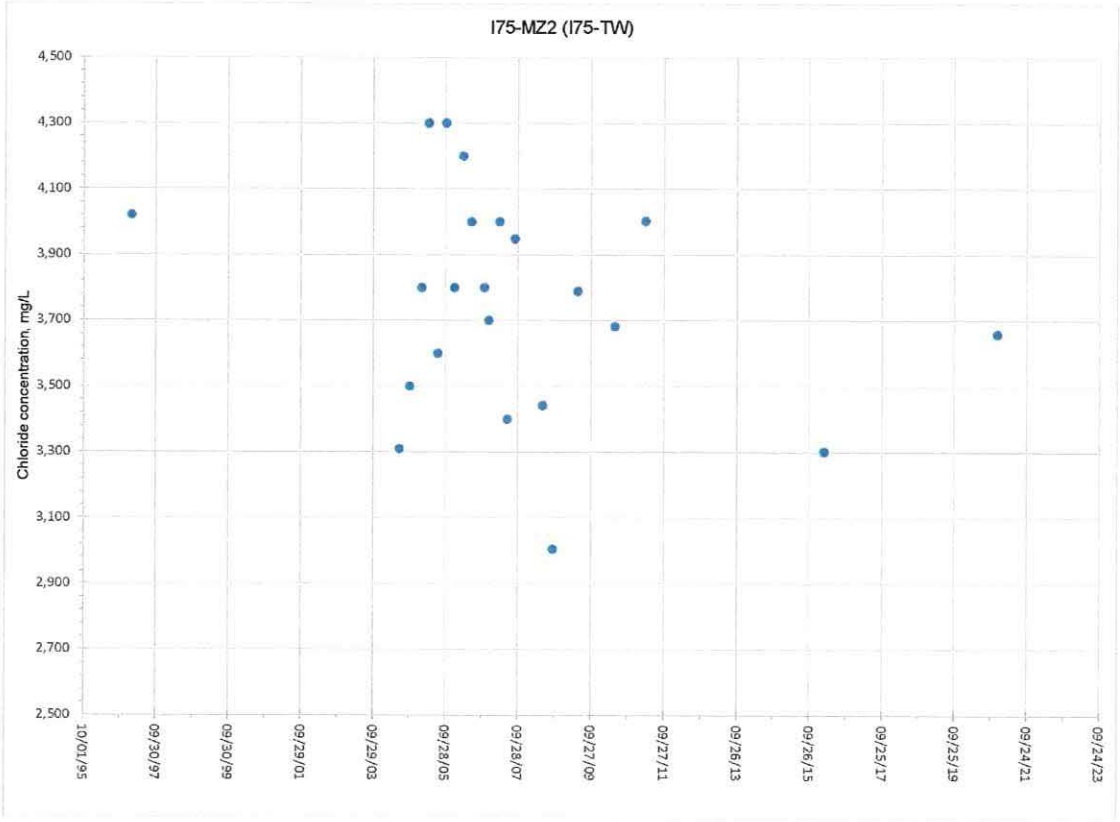


Figure 6-25. Chloride concentrations in Upper Floridan aquifer monitor well I75-MZ2 (I75-TW), Naples.

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.

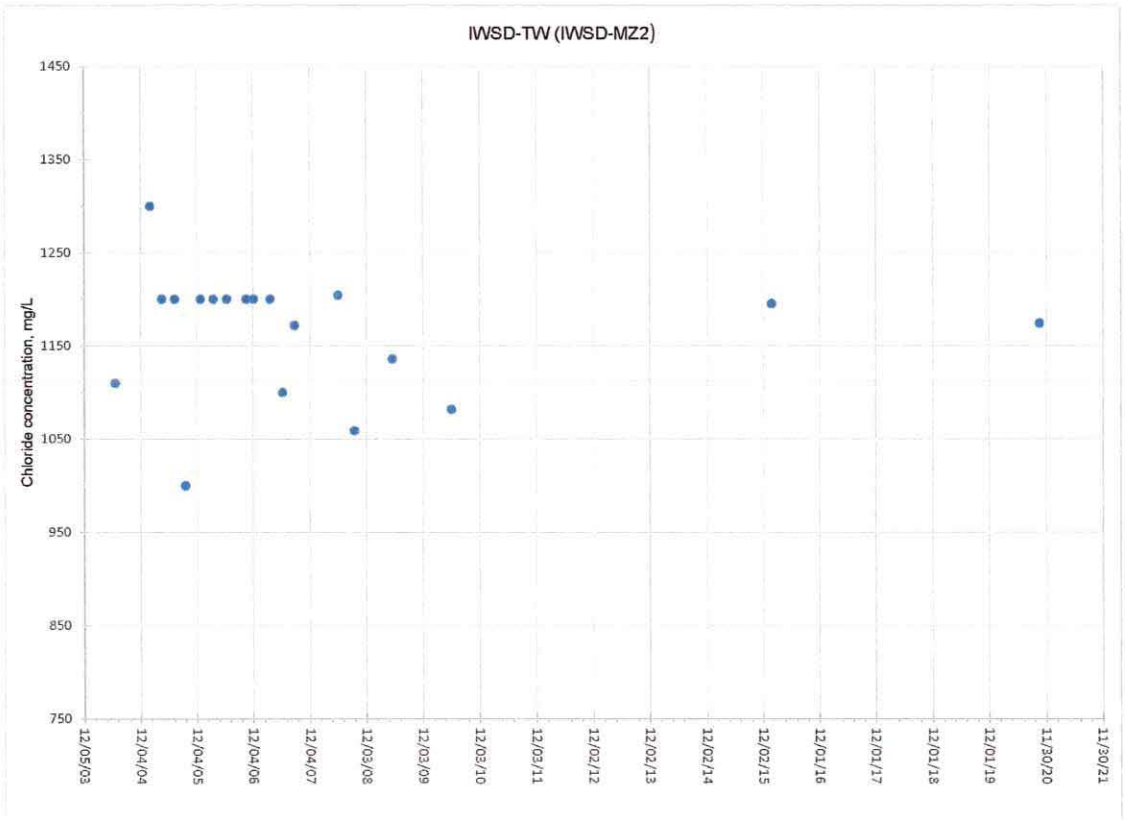


Figure 6-26. Chloride concentrations in Upper Floridan aquifer monitor well IWSD-TW (IWSD-MZ2), Immokalee.

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.

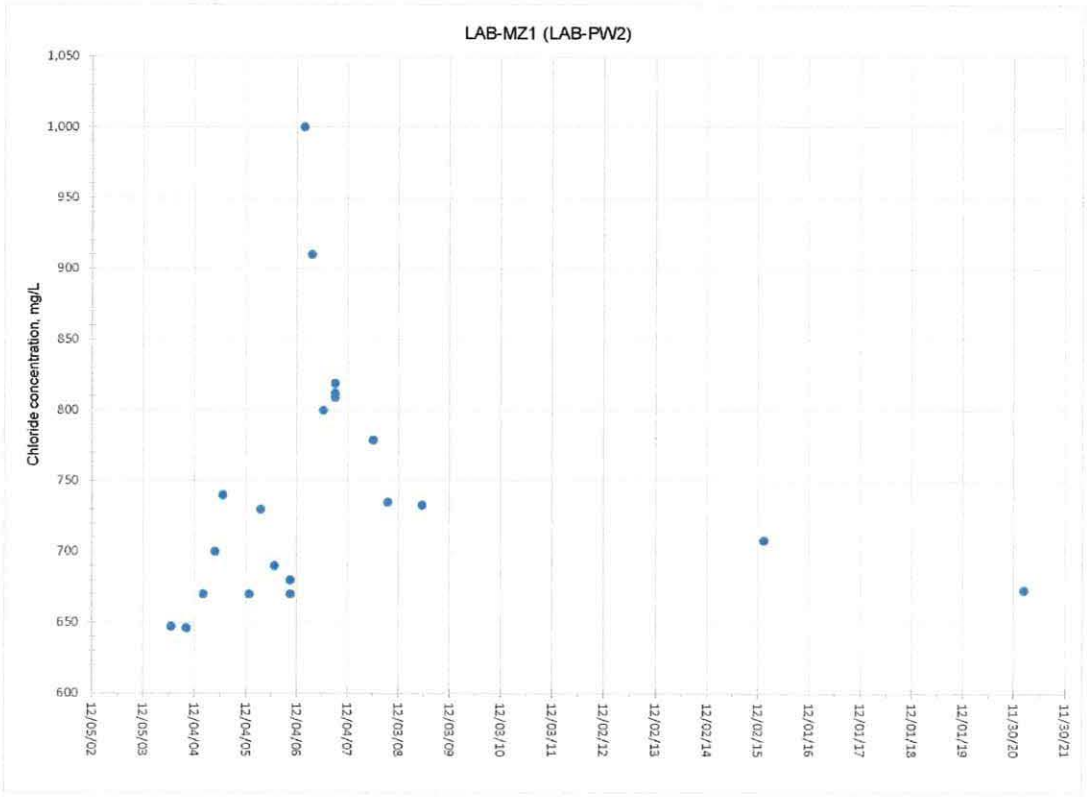


Figure 6-27. Chloride concentrations in Upper Floridan aquifer monitor well LAB-MZ1 (LAB-PW2), LaBelle.

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.

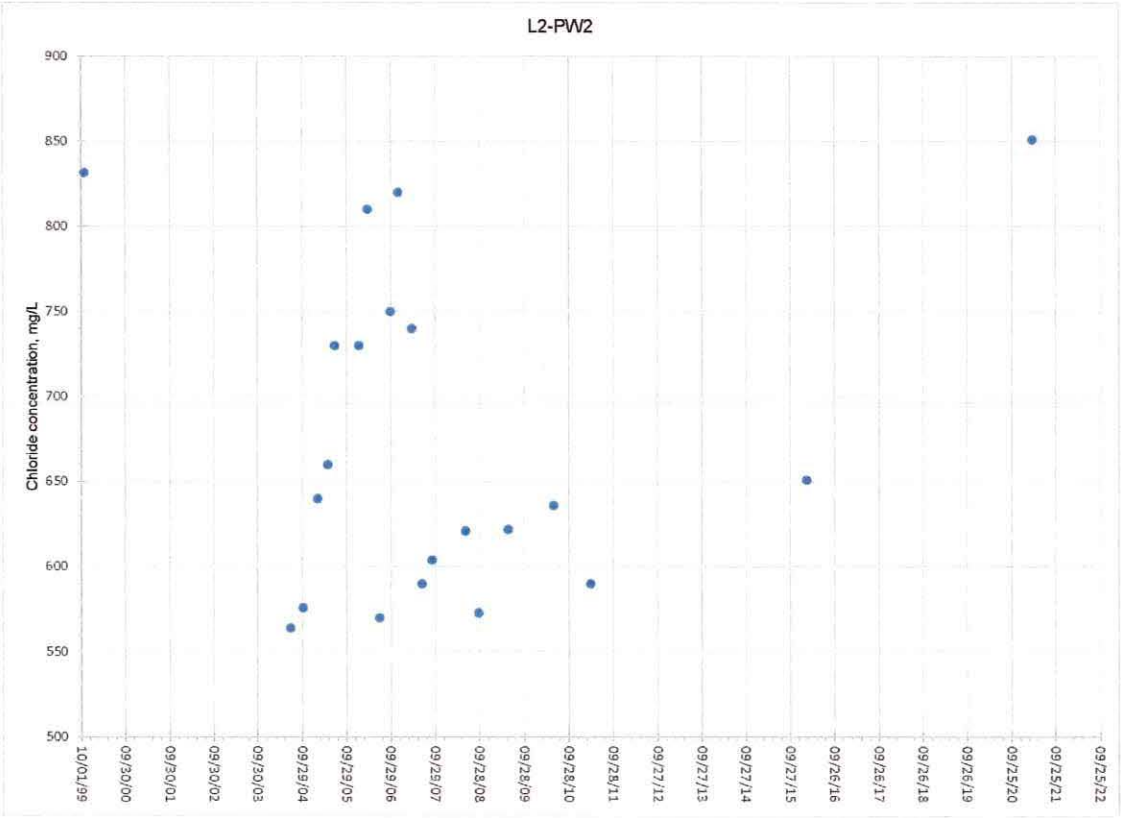


Figure 6-28. Chloride concentrations in Upper Floridan aquifer monitor well L2-PW2, western Hendry County.

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.

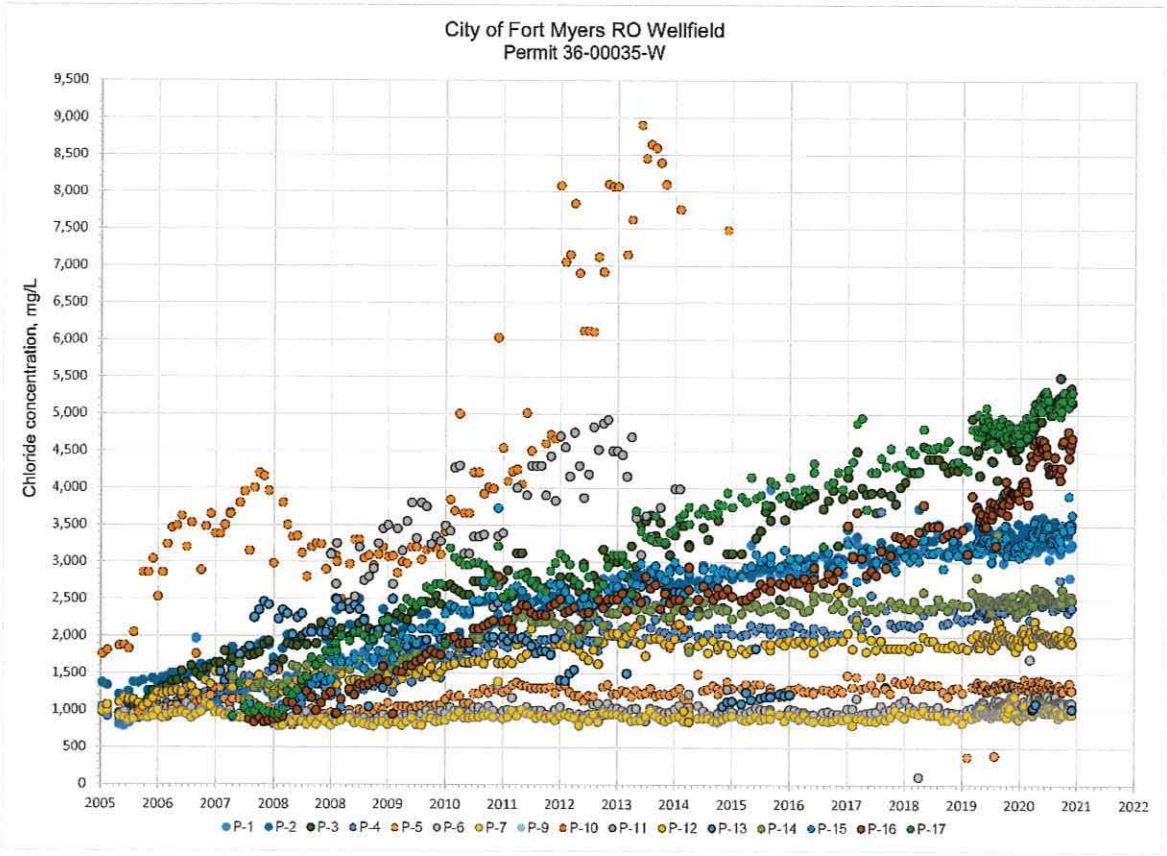


Figure 6-30. Chloride concentration trends at production wells in the Fort Myers wellfield.

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.

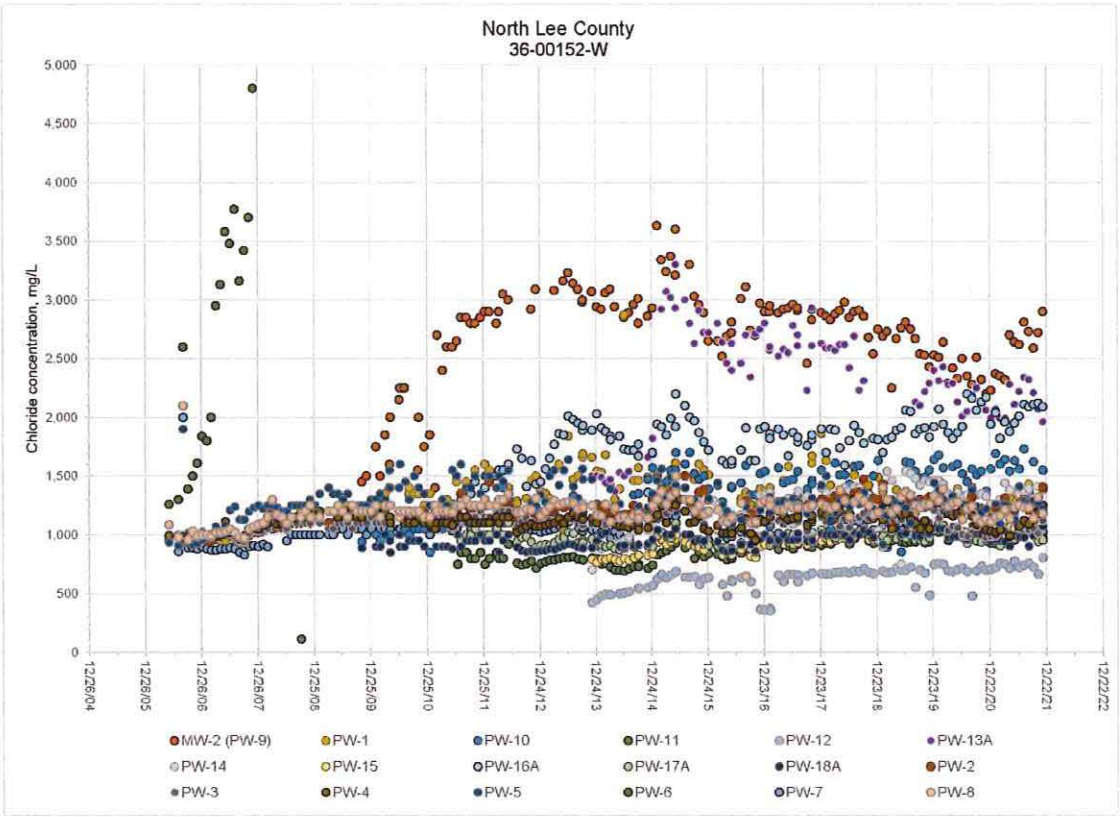


Figure 6-31. Changes in chloride concentrations in operational and nonoperational wells in the Lee County Utilities North wellfield.

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.

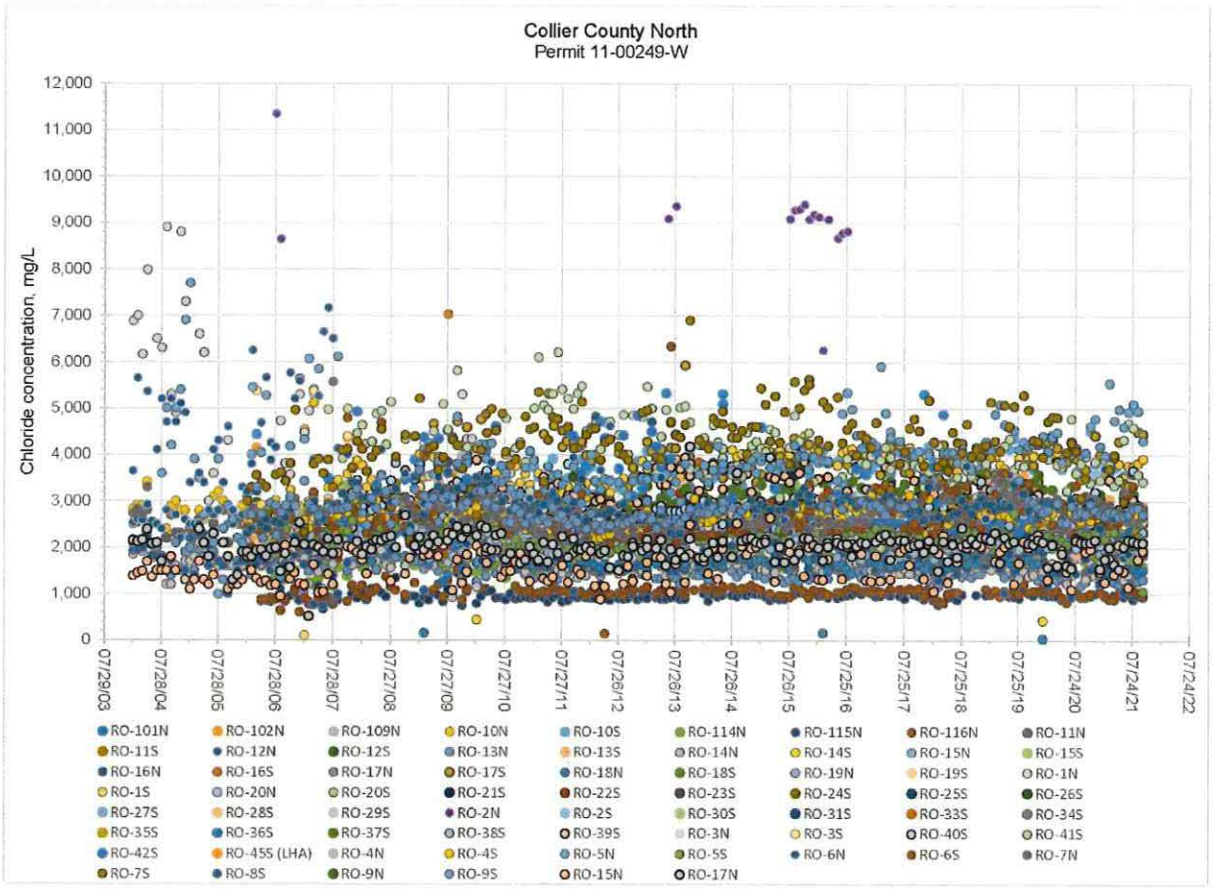


Figure 6-32. Changes in chloride concentrations in production wells at the Collier County Utilities North wellfield.

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.

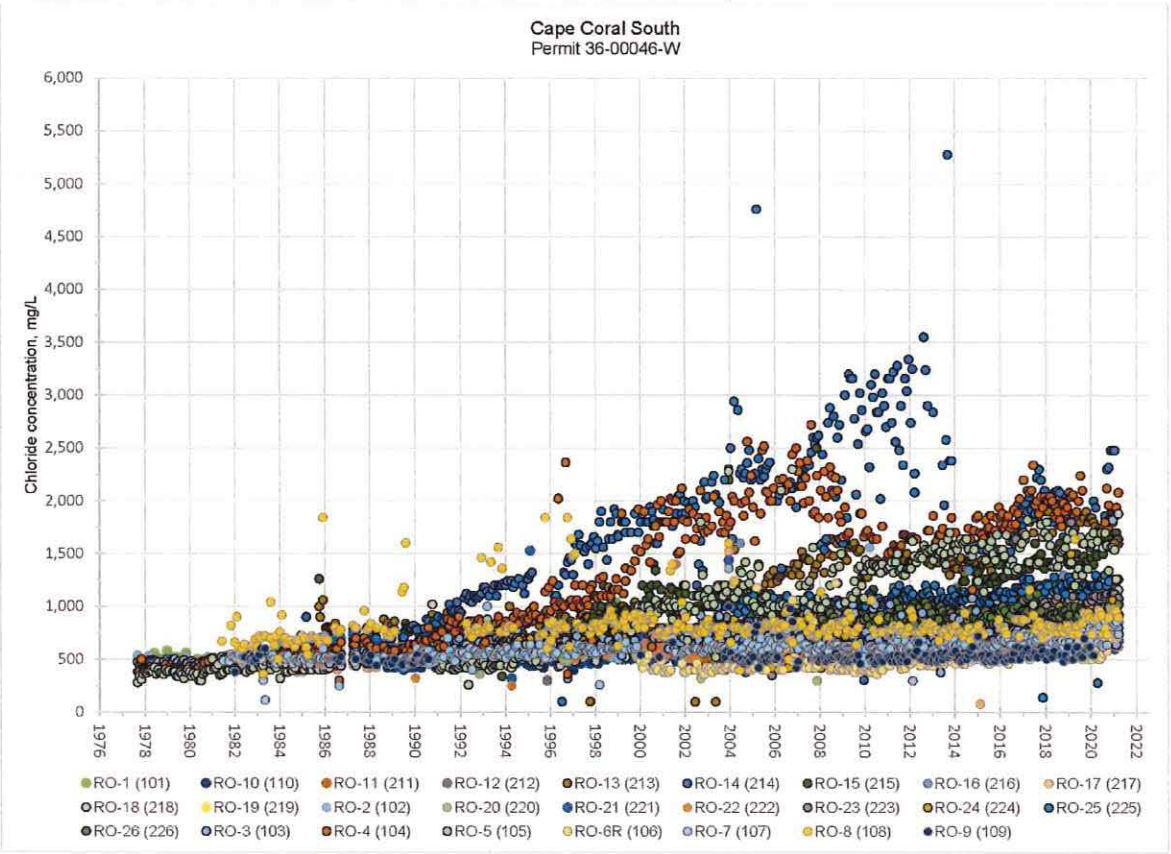


Figure 6-33. Changes in chloride concentrations in production wells at the Cape Coral South wellfield.

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.

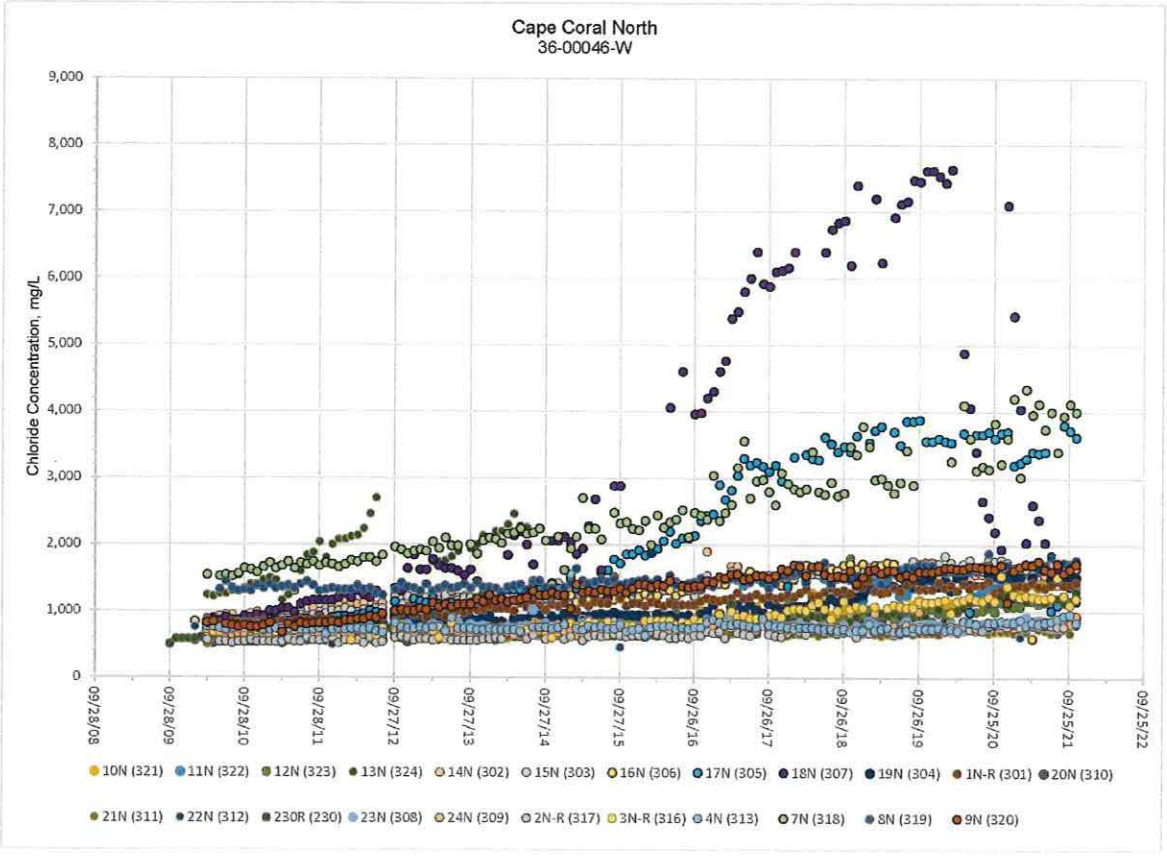


Figure 6-34. Changes in chloride concentrations in production wells in the Cape Coral North wellfield.

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.

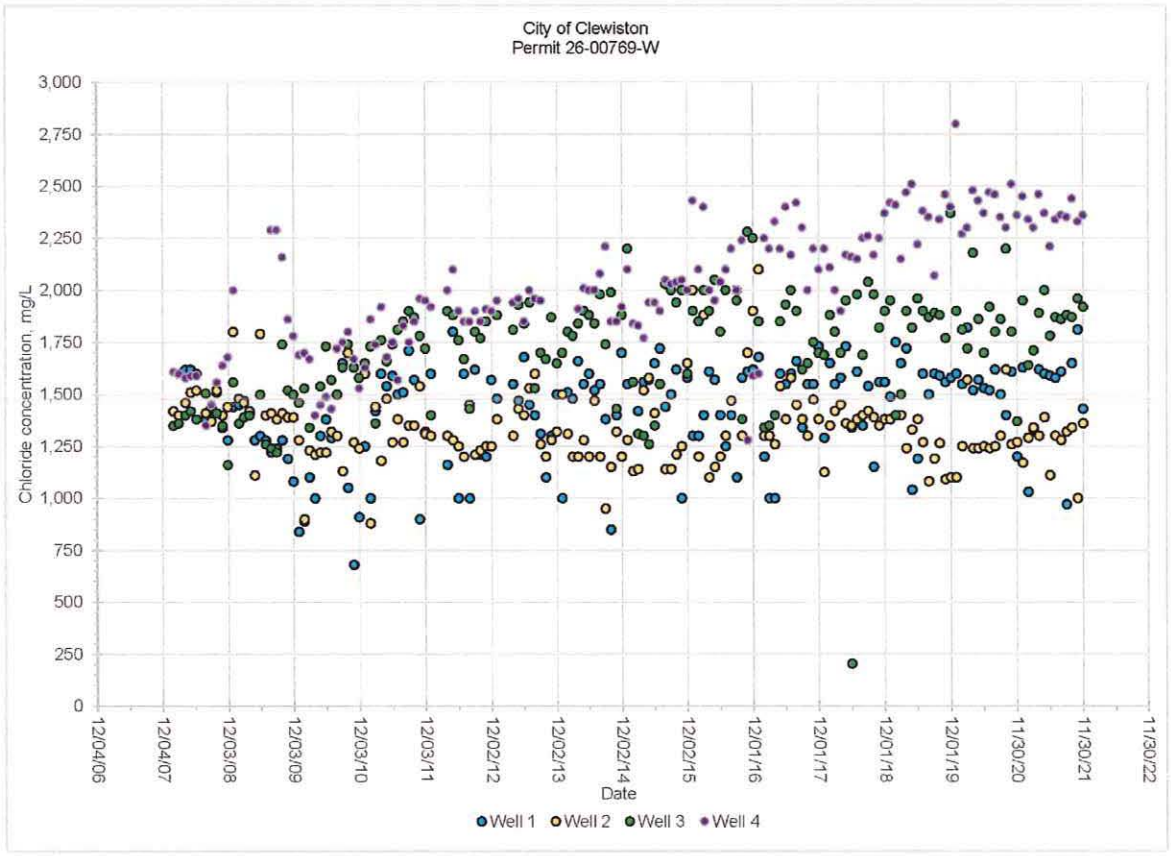


Figure 6-35. Changes in chloride concentrations in production wells in the Clewiston wellfield.

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).

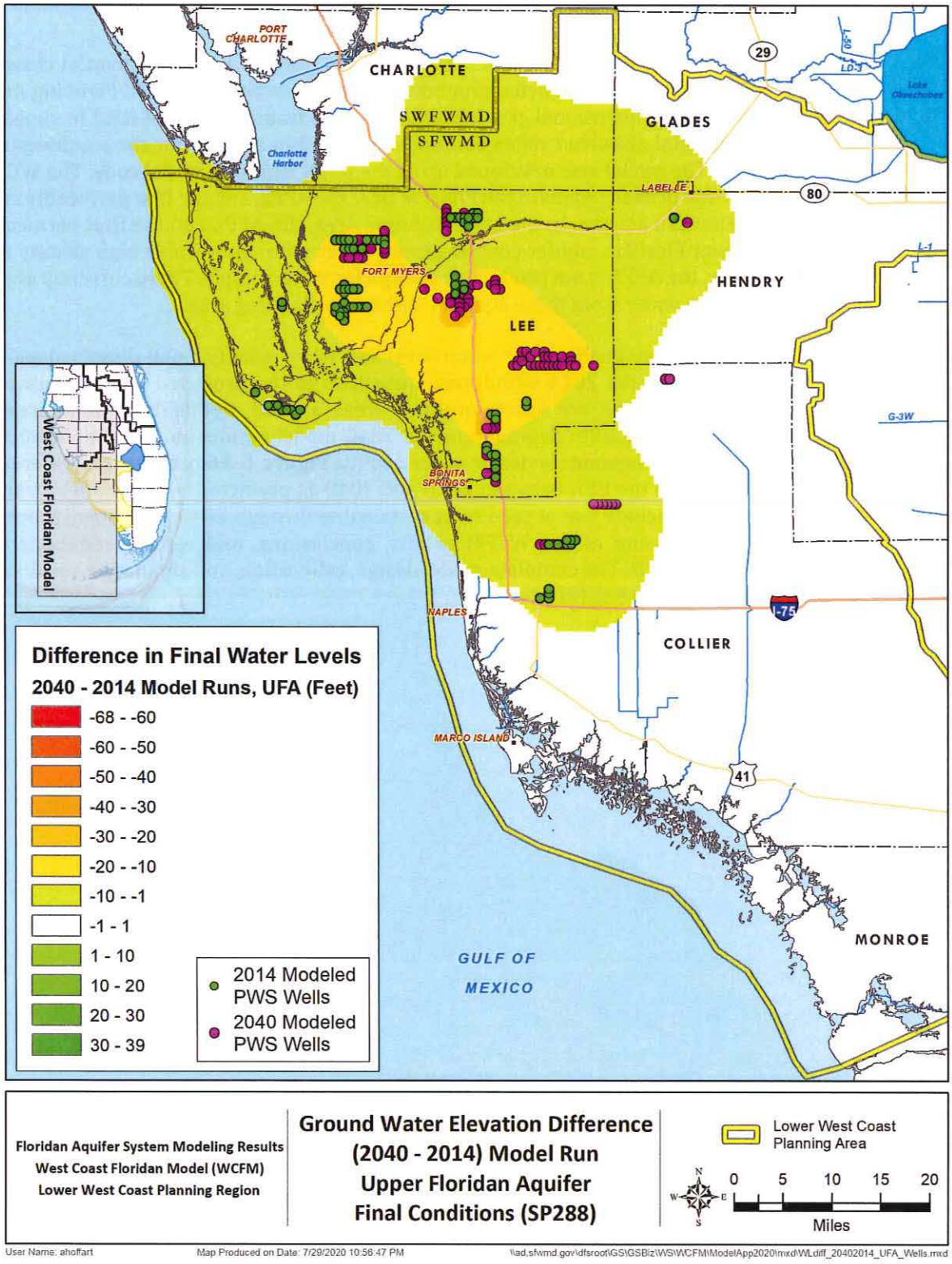


Figure 6-36. Upper Floridan aquifer water level differences between 2014 and 2040.

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.

REFERENCES

Bandara, U.C., R. Earle, D. Butler, Y. Assegid, and D.M. Parrish. 2020. *Model Documentation Report for the Lower West Coast Surficial and Intermediate Aquifer Systems Model (LWCSIM).* South Florida Water Management District, West Palm Beach, FL. November 2020.

Billah M., R. Earle, and U.C. Bandara. 2021. *Re-Calibration and Application of the East Coast Floridan Model*. South Florida Water Management District. West Palm Beach, FL. September 2021.

McMillon, C. and S. Anderson. 2015. *Sandstone Aquifer at Lehigh Acres Maximum Developable Limits.* Technical Publication WS-38. South Florida Water Management District. West Palm Beach, FL. August 2015.

SFWMD. 2022. *Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District.* South Florida Water Management District, West Palm Beach, FL. June 2022.

Shaw, J.E. and M. Zamorano. 2020. *Saltwater Interface Monitoring and Mapping Program*. Technical Publication WS-58. South Florida Water Management District, West Palm Beach, FL. December 2020.

United States Environmental Protection Agency. 2021. *National Primary Drinking Water Regulations.* Available at: https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations.

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.

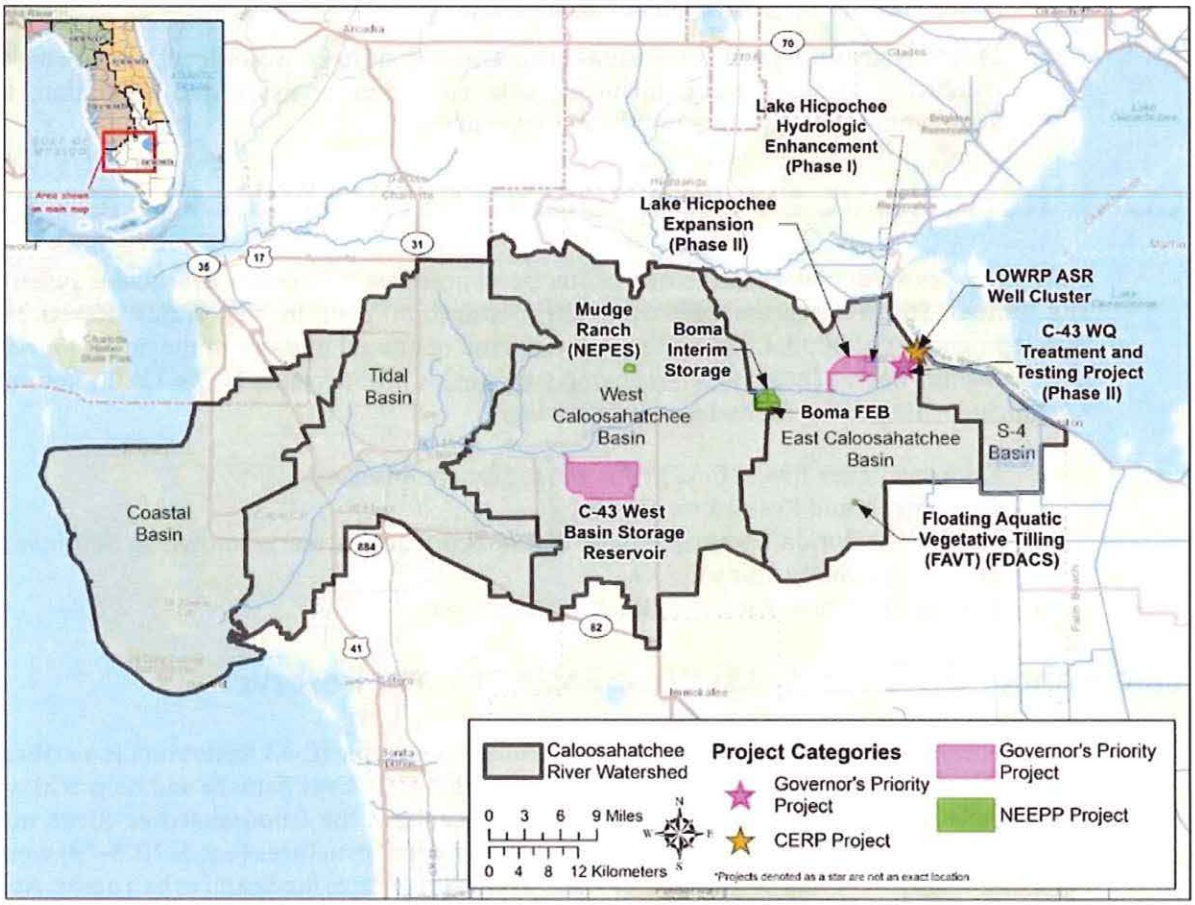


Figure 7-1. Caloosahatchee River Watershed projects.

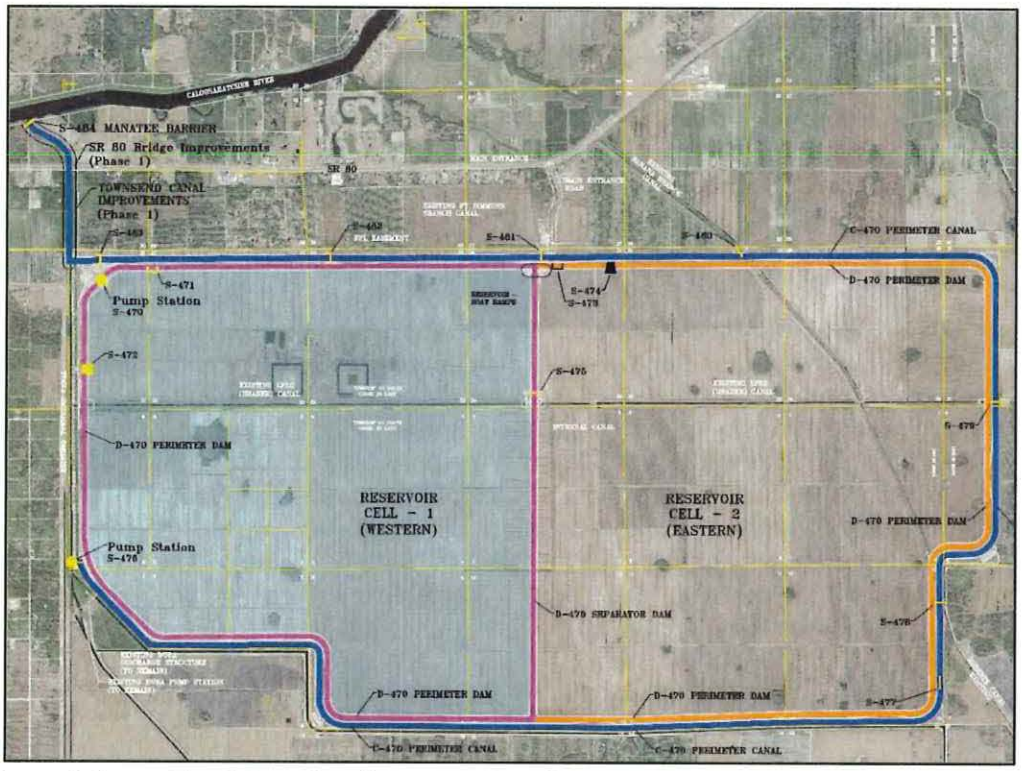


Figure 7-2. The Caloosahatchee River (C-43) West Basin Storage Reservoir site plan.

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.

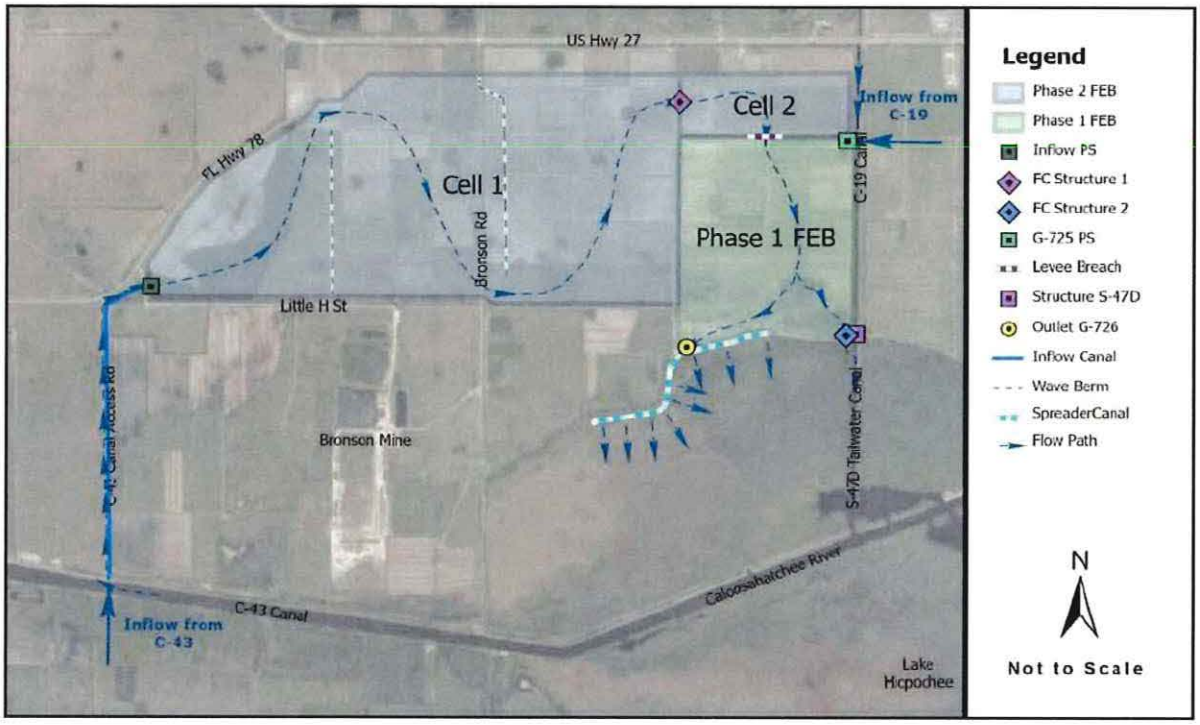


Figure 7-3. Lake Hicpochee Storage and Hydrologic Enhancement Project.

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.

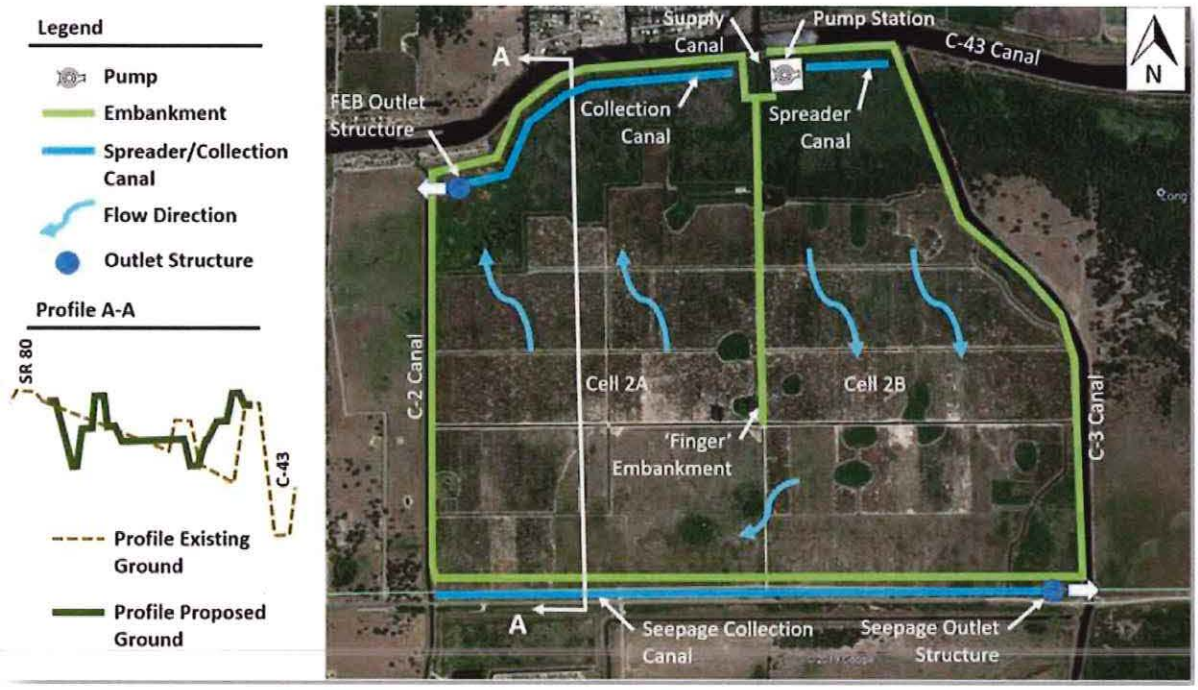


Figure 7-4. C-43 Water Quality Treatment Feature.

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.

REFERENCES

Balci, P. and L. Bertolotti. 2012. Appendix 10-2: Caloosahatchee River Watershed Protection Plan Update. In: *2012 South Florida Environmental Report – Volume I*. South Florida Water Management District, West Palm Beach, FL.

Betts, A., P. Jones, S. Ollis, S. Olson, X. Pernett, S. Sculley, Z. Welch, and J. Zhang. 2020. Appendix 8A-1: Lake Okeechobee Watershed Protection Plan 2020 Update. In: *2020 South Florida Environmental Report – Volume I*, South Florida Water Management District, West Palm Beach, FL.

Buzzelli, C., K. Carter, L. Bertolotti, and P. Doering. 2015. Chapter 10: St. Lucie and Caloosahatchee River Watershed Protection Plan Annual and Three-Year Updates. In: *2015 South Florida Environmental Report – Volume I*. South Florida Water Management District, West Palm Beach, FL.

Geddes, E., S. Coonts, and B. Collins. 2018. *Geochemistry of the Upper Floridan Aquifer and Avon Park Permeable Zone Within the South Florida Water Management District*. Technical Publication WS-47. South Florida Water Management District, West Palm Beach, FL. August 2018.

Kraft, N. and D. Medellin. 2021. Chapter 5A: 2021 Five-Year Water Resource Development Work Program. In: *2021 South Florida Environmental Report – Volume II*. South Florida Water Management District, West Palm Beach, FL.

SFWMD, FDEP, and FDACS. 2004. *Lake Okeechobee Watershed Protection Plan*. South Florida Water Management District, West Palm Beach, FL; Florida Department of Environmental Protection, Tallahassee, FL; and Florida Department of Agriculture and Consumer Services, Tallahassee, FL.

SFWMD, FDEP, and FDACS. 2007. *Lake Okeechobee Watershed Protection Plan Evaluation Report*. South Florida Water Management District, West Palm Beach, FL; Florida Department of Environmental Protection, Tallahassee, FL; and Florida Department of Agriculture and Consumer Services, Tallahassee, FL.

SFWMD, FDEP, and FDACS. 2008. *Lake Okeechobee Watershed Construction Project Phase II Technical Plan*. South Florida Water Management District, West Palm Beach, FL; Florida Department of Environmental Protection, Tallahassee, FL; and Florida Department of Agriculture and Consumer Services, Tallahassee, FL.

SFWMD, FDEP, and FDACS. 2009. *Caloosahatchee River Watershed Protection Plan*. South Florida Water Management District, West Palm Beach, FL; Florida Department of Environmental Protection, Tallahassee, FL; and Florida Department of Agriculture and Consumer Services, Tallahassee, FL.

SFWMD, FDEP, and FDACS. 2011. *Lake Okeechobee Watershed Protection Plan Update*. South Florida Water Management District, West Palm Beach, FL; Florida Department of Environmental Protection, Tallahassee, FL; and Florida Department of Agriculture and Consumer Services, Tallahassee, FL.

SFWMD. 2021. *Support Document for the 2021-2024 Water Supply Plan Updates*. South Florida Water Management District, West Palm Beach, FL. November 2021.

Sharfstein, B., J. Zhang, and L. Bertolotti. 2015. Chapter 8: Lake Okeechobee Watershed Protection Program Annual Update. In: *2015 South Florida Environmental Report – Volume I*. South Florida Water Management District, West Palm Beach, FL.

Shaw, J.E. and M. Zamorano. 2020. *Saltwater Interface Monitoring and Mapping Program*. Technical Publication WS-58. South Florida Water Management District, West Palm Beach, FL. December 2020.

USACE and SFWMD. 2015. *Southwest Florida Comprehensive Watershed Plan*. United States Army Corps of Engineers, Jacksonville, FL and South Florida Water Management District, West Palm Beach, FL.

8

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.

TOPICS

- Projects Identified for This Plan Update
- Cooperative Funding Program
- Summary of Water Supply Development Projects

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.

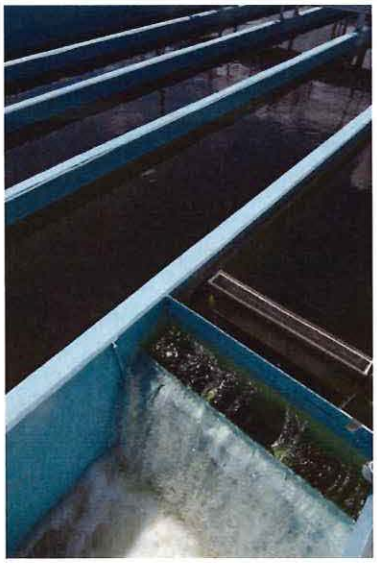
PROJECTS IDENTIFIED FOR THIS PLAN UPDATE

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.
- 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.



Floridan Aquifer System Monitor Well

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

2024 Lee County Water Supply Facilities Work Plan

2024 LEE COUNTY
WATER SUPPLY FACILITIES WORK PLAN

Lee County
Southwest Florida

May 2024

TABLE OF CONTENTS

Page

Table of Contents i
List of Tables iii
List of Figures iii

1.0 INTRODUCTION 1
1.1 Statutory History 2
1.1 Statutory Requirements 2

2.0 BACKGROUND INFORMATION 3
2.1 Overview 3
2.2 Relevant Regional Issues 5

3.0 DATA AND ANALYSIS 7
3.1 Population Information 7
3.2 Maps of Current and Future Areas Served 7
3.3 Potable Water Level of Service Standard 9
3.4 Population and Potable Water Demand Projections by Each Local Government or Utility 10
3.4.1 Comprehensive Plan Amendments Approved Following Projections 10

3.5 Water Supply Provided by Local Government 11
3.5.1 Water Use Permit Information 11
3.5.2 Treatment and Distribution System Losses 12
3.5.3 Treatment Facilities and Planning Schedules 13
3.5.4 Storage Facilities 14
3.5.5 Inter-local Agreements and Bulk Sales 15
3.5.6 Outstanding Compliance Issues 15

3.6 Water Supply Provided by Other Entities 16
3.6.1 Bonita Springs Utilities 16
3.6.2 Island Water Association 19
3.6.3 Gasparilla Island Water Association 21
3.6.4 Greater Pine Island Water Association 22
3.6.5 Florida Governmental Utility Authority (Lehigh Acres) 24
3.6.6 Florida Governmental Utility Authority (Lake Fairways) 26
3.6.7 Small Water Supply Utilities Serving Lee County 28
3.6.8 Domestic Self Supply 28

3.7 Conservation 29
3.7.1 Local Government Specific Actions, Programs, Regulations, or Opportunities 29
3.7.2 Identify any Local Financial Responsibilities as Detailed in the CIE or CIS 30

Page

3.8 Reuse....31
3.8.1 Local Government Specific Actions, Programs, Regulations, or Opportunities...31
3.9 Intergovernmental Coordination ……33

4.0 CAPITAL IMPROVEMENTS....34
4.1 Work Plan Projects 34
4.2 Capital Improvements Element/Schedule....34

5.0 GOALS, OBJECTIVES AND POLICIES 35

6.0 REGIONAL ISSUES IDENTIFIED IN REGIONAL WATER SUPPLY PLANS 38

7.0 SUMMARY ANALYSIS OF LEE COUNTY'S WATER SUPPLY....38

LIST OF TABLES **Page**

Table 2-1 **BEBR 2022 Population Estimates** ……4

Table 3-1 **Lee County Utilities Potable Water Service Area Population Projections**.....7
Table 3-2 **Lee County Utilities Potable Water System Level of Service Analysis 2017-2022** 9
Table 3-3 **Water Supply Utility Service Within Unincorporated Lee County Population and Demand Projection** 10
Table 3-4 **Comprehensive Plan Amendments Approved With Demand Projections** 10
Table 3-5 **Lee County Utilities Water Use Permit Information and Plant Treatment Capacities**.....12
Table 3-6 **Lee County Utilities Water Distribution System Losses & Water Treatment Losses Percentages 2017-2022** 13
Table 3-7 **Lee County Utilities Potable Water Storage Facilities** 14
Table 3-8 **FY22 LCU Reclaimed Water Utilization**.....31

Table 4.1-1 **Work Plan Projects**.....34
Table 4.2-1 **Capital Improvement Projects Approved Lee County CIP FY23/24** 35

LIST OF FIGURES **Page**

Fig. 2-1 **Lee County Location Map**.....4

Fig. 3-1 **Water Suppliers Service Areas in Un-Incorporated Lee County**.....8
Fig. 3-2 **Lee County Utilities Current and Future Service Areas**.....8
Fig. 3.6.1-1 **Bonita Springs Utilities Water Service Area Within Un-Incorporated Lee County**.....16
Fig. 3.6.2-1 **Island Water Association Water Service Area Within Un-Incorporated Lee County**.....19
Fig. 3.6.3-1 **Gasparilla Island Water Association Water Service Area Within Un-Incorporated Lee County**.....21
Fig. 3.6.4-1 **Greater Pine Island Water Association Water Service Area**.....22
Fig. 3.6.5-1 **Florida Governmental Utility Authority (Lehigh Acres) Future Water Service Area**.....24
Fig. 3.6.6-1 **Florida Governmental Utility Authority (Lake Fairways) Service Area** 26
Fig. 3.6.8 **Domestic Self Supply Wells in Un-Incorporated Lee County** 28

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 Paragraphs 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



4. *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.*

This regional issue affects Lee County however, Lee County is not involved in the management of the storage or discharge of flows to the 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.*

Lee County Utilities monitors levels in its production wells and manages withdrawals to maintain an even distribution for long-term sustainability.

6. *Climate change and sea level rise could impact the availability of freshwater resources in the LWC Planning area.*

Sea level rise is being reviewed by the Countywide Vulnerability Assessment underway currently with the Natural Resources Department. Preliminary analysis indicated no impact to Lee County Utilities infrastructure in the next 75 years (assumed two-foot rise).

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

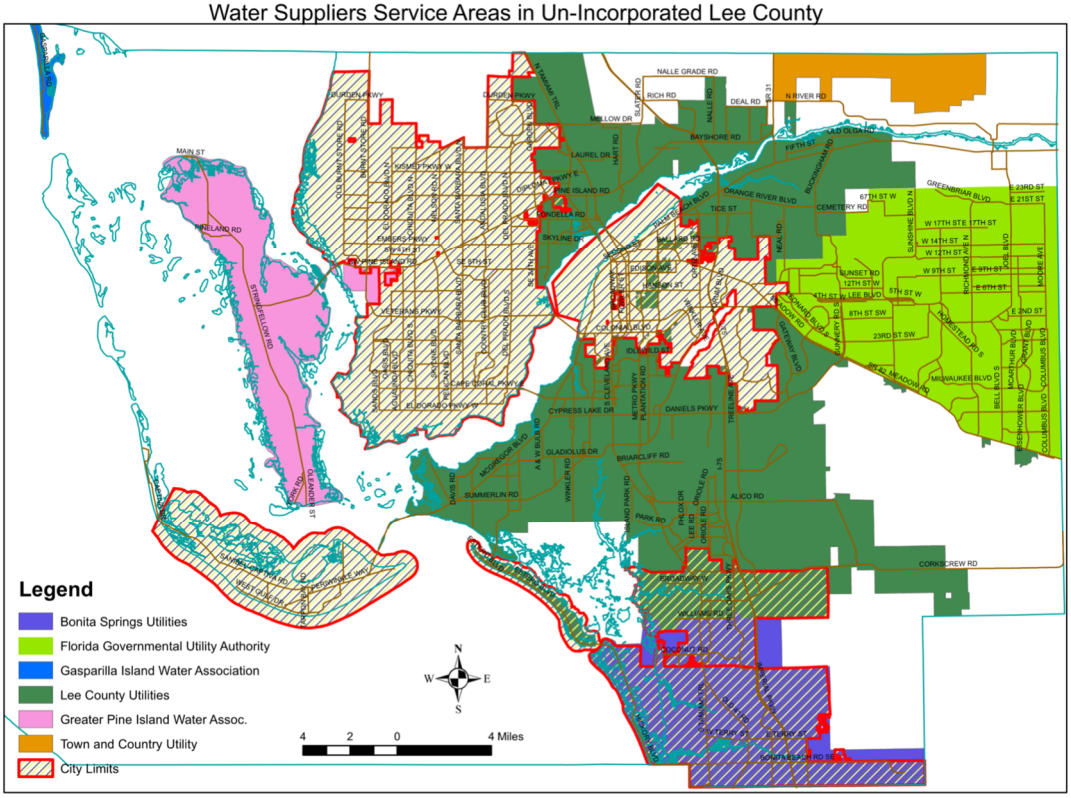
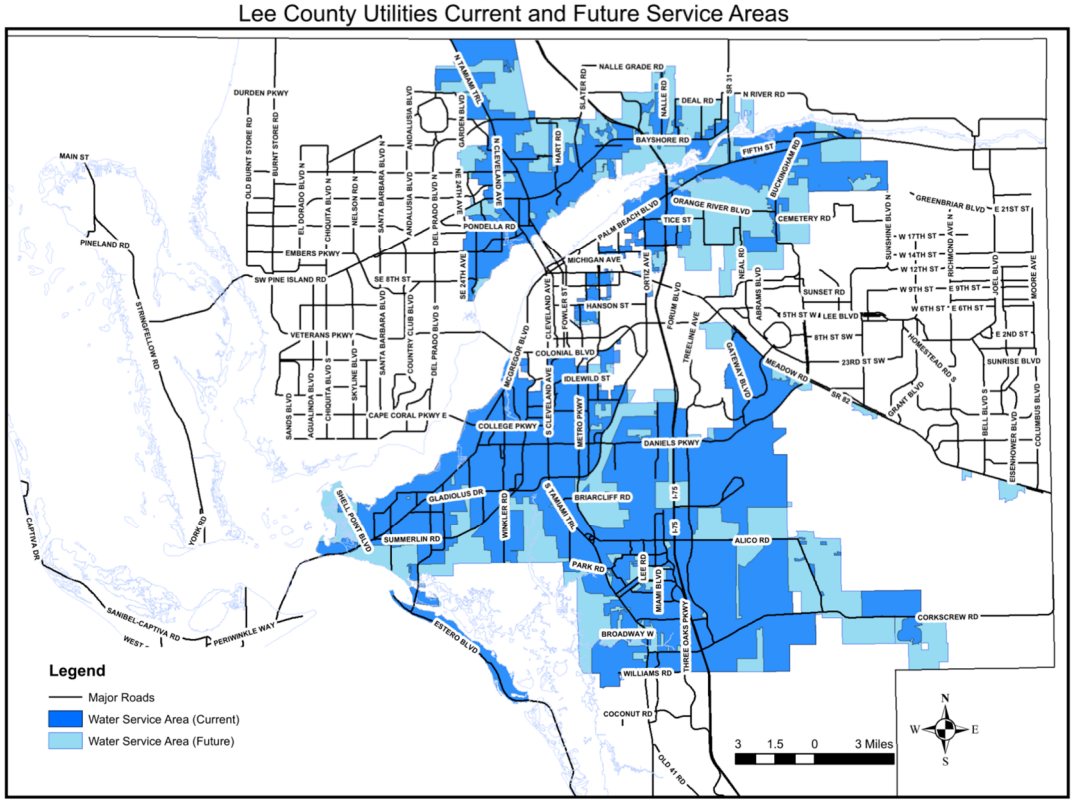


Figure 3-2
Lee County Utilities Current and Future Service Areas



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. Potable 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 average, the maximum month average, 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 performed.

As seen in Table 3-2, the maximum month gallons per day per equivalent residential connection ranged from 154.52 gpd/erc to 180.88 gpd/erc over this period of record. Further, the maximum day gallons per day per equivalent residential connection ranged from 168.35 gpd/erc to 190.49 gpd/erc over this period of record. When you consider a 15% facility reliability factor, the erc range is from 198.06 gpd/erc to 224.11 gpd/erc. The result of this analysis suggests that changing the current level of service from its current 250 gpd/erc is not warranted at this time.

TABLE 3-2

Lee County Utilities

Potable Water System Level of Service Analysis 2017-2022

	2017	2018	2019	2020	2021	2022
Annual Average (MGD)	24.77	24.66	25.68	26.01	26.68	28.18
Max Month Average (MGD)	28.81	29.72	29.65	30.19	31.62	33.04
Max Day (MG)	30.34	31.44	32.49	32.58	36.04	36.48
ERC's	159,277	184,856	191,883	193,526	197,422	199,291
AADF gpd/erc	155.52	133.40	133.83	134.40	135.14	141.40
MMADF gpd/erc	180.88	160.77	154.52	156.00	160.16	165.79
Max Day gpd/erc	190.49	170.08	169.32	168.35	182.55	183.02

LEGEND		
MG = Million Gallons	AADF = Annual Average Daily Flow	ERC = Equivalent Residential Connection
MGD = Million Gallons per Day	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	25.42	27.50	28.81	29.97	31.12	32.36
Bonita Springs Utilities	66,897	74,256	80,197	85,009	89,259	92,829	10.24	11.36	12.27	13.01	13.66	14.20
FGUA Lehigh Acres	27,467	30,488	32,927	34,903	36,648	38,114	2.39	2.65	2.86	3.04	3.19	3.32
Greater Pine Island Water	12,841	13,419	13,848	14,254	14,492	15,072	1.48	1.54	1.59	1.64	1.67	1.73
Island Water Assn.	7,354	7,508	7,627	7,719	7,796	7,862	3.74	3.82	3.88	3.93	3.97	4.00
FGUA Lake Fairways	1,187	1,463	1,580	1,675	1,759	1,829	0.08	0.09	0.10	0.11	0.11	0.12

*Gasparilla Island Water was deleted from Table 3-3 due to 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	8/26/2040	5,667.5	15.53	587.3	Lower Hawthorn Aquifer	17	168	32
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			20,861.26	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

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 in italics with Lee County's efforts related to each in underline.
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.*

Lee County has implemented South Florida Water Management's required restrictions in a six-square-mile area in Lehigh Acres to in-house use only for SAS DSS wells due to the identified area's aquifer levels. Additionally, the Water Conservation Ordinance was amended and implemented in January 2024 to limit irrigation to one day a week from February 1st to May 31st and two days a week the remainder of the year.

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.*

Lee County Utilities continues to maintain the same surface water allocations from the Caloosahatchee River without requests for an increase while experiencing growth in the service area.

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.*

This regional issue affects Lee County however, Lee County is not involved in the management of the storage or discharge of flows to the Caloosahatchee River Estuary.

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

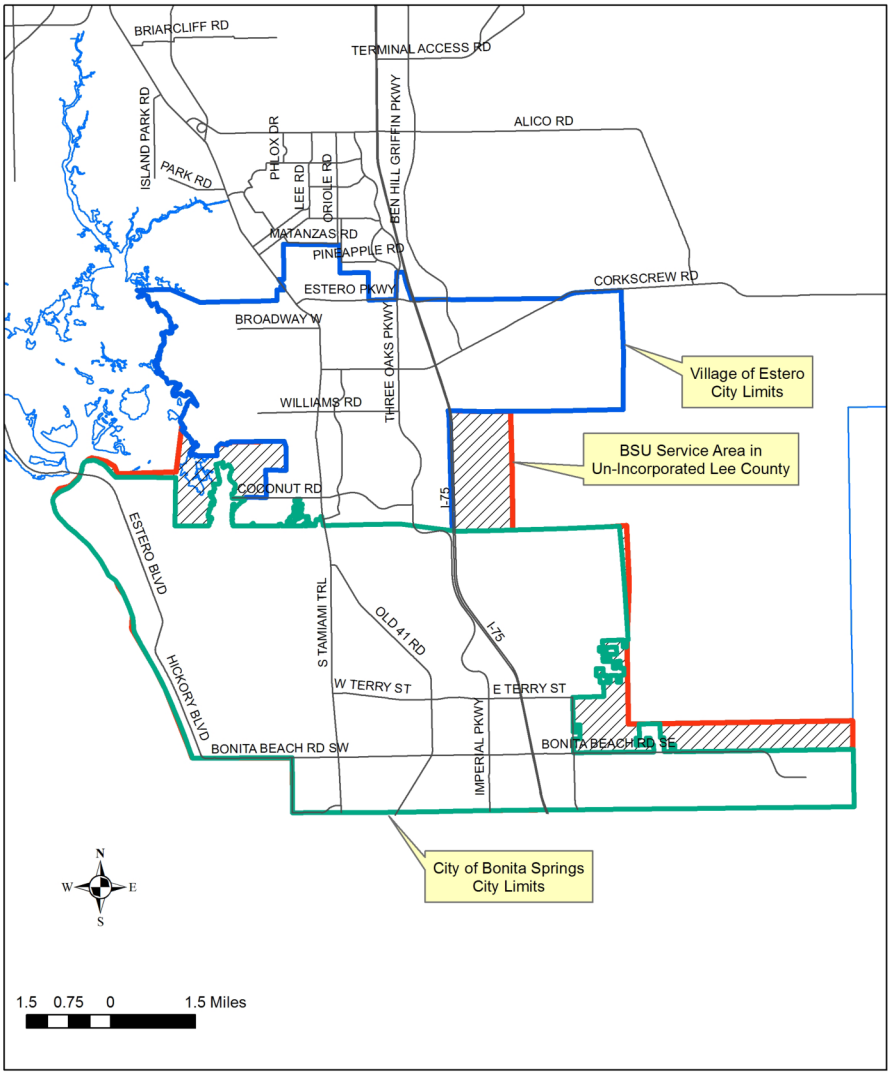
The following section presents information about water utilities other than Lee County Utilities that provide water within unincorporated Lee County.

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 one Consumptive Use Permit 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 12 mgd on a single site located at 11860 East Terry Street, providing a combined treatment capacity of 21 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

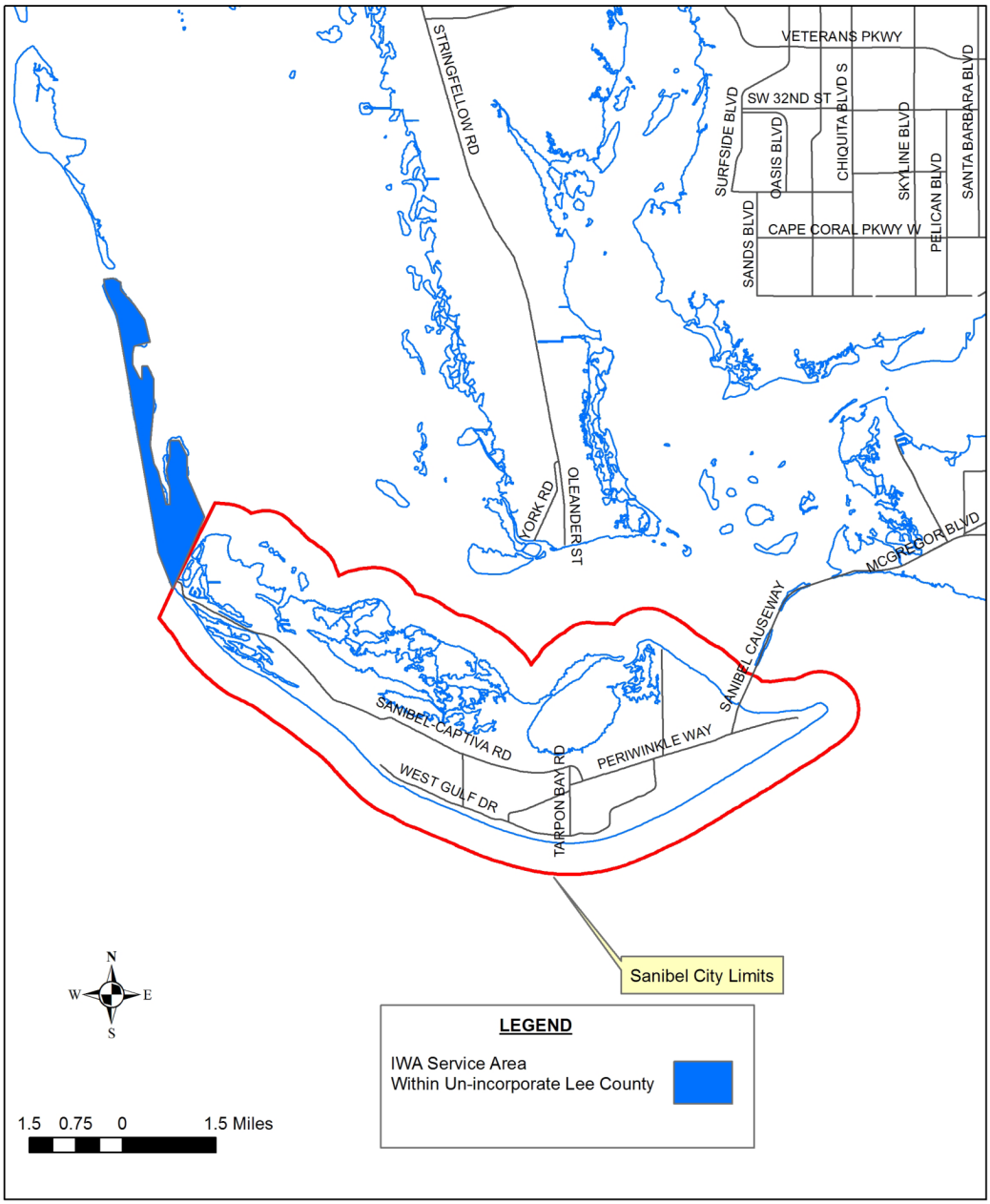
BSU's two wastewater treatment plants have produced reclaim water since their construction, and they are therefore called water reclamation facilities. A long term contract (30-year rolling contract) between BSU and Resource Conservation System (RCS) has been in place since the completion of BSU's first 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

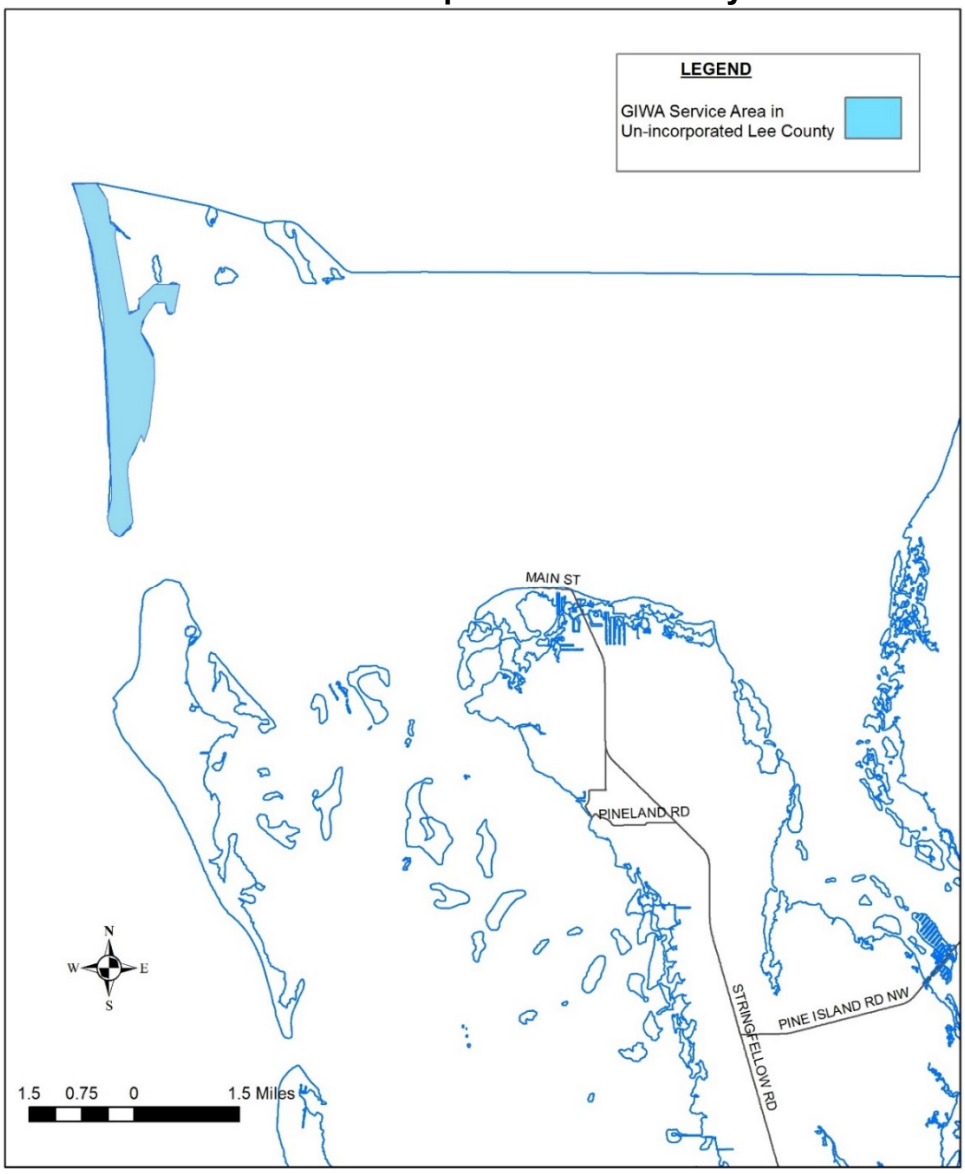
Island Water Association doesn't operate any water reclamation facilities. The sewer is collected by the City of Sanibel Sewer and distributes reclaimed through a public access irrigation system.

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

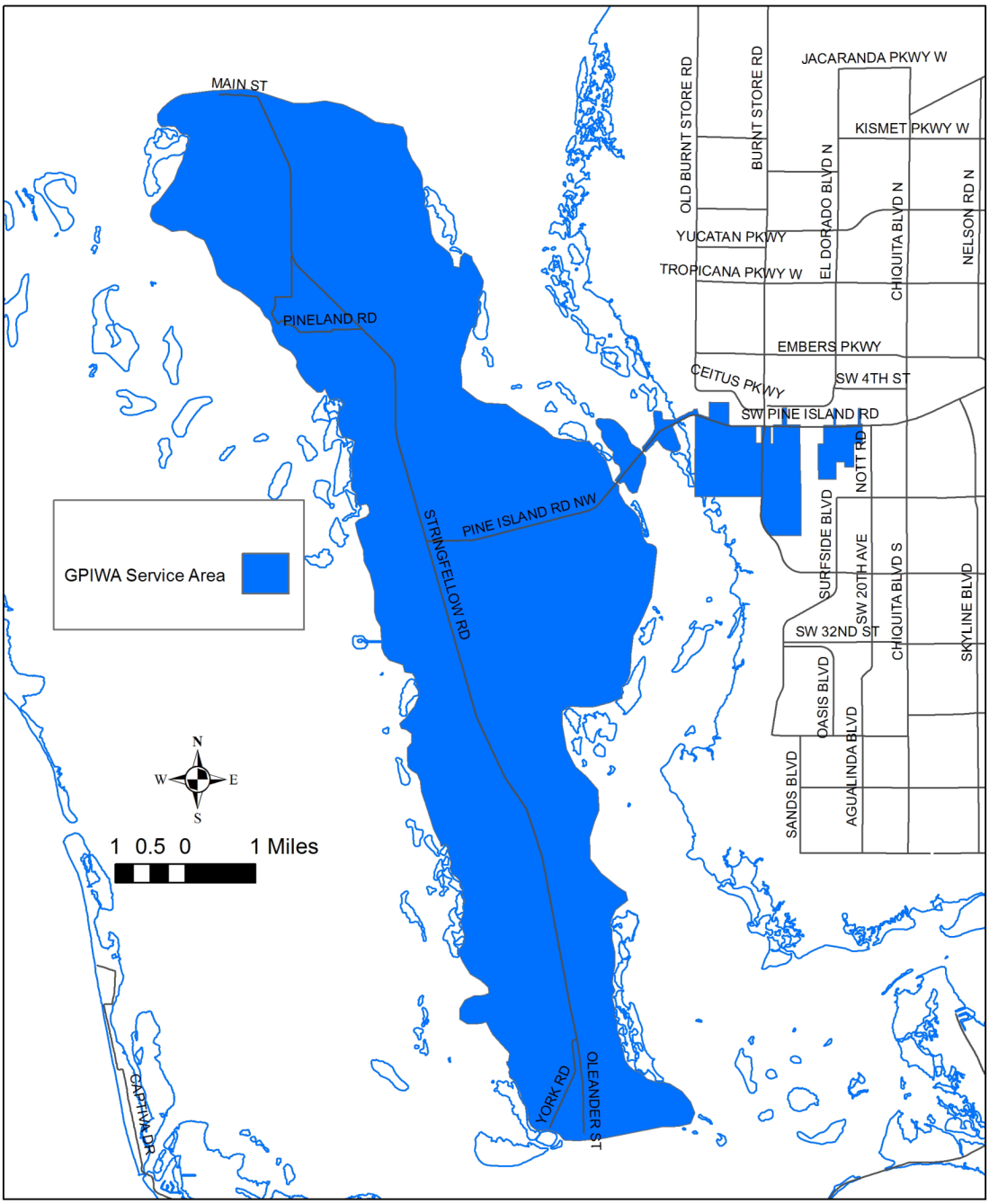


3.6.4 Greater Pine Island Water Association

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

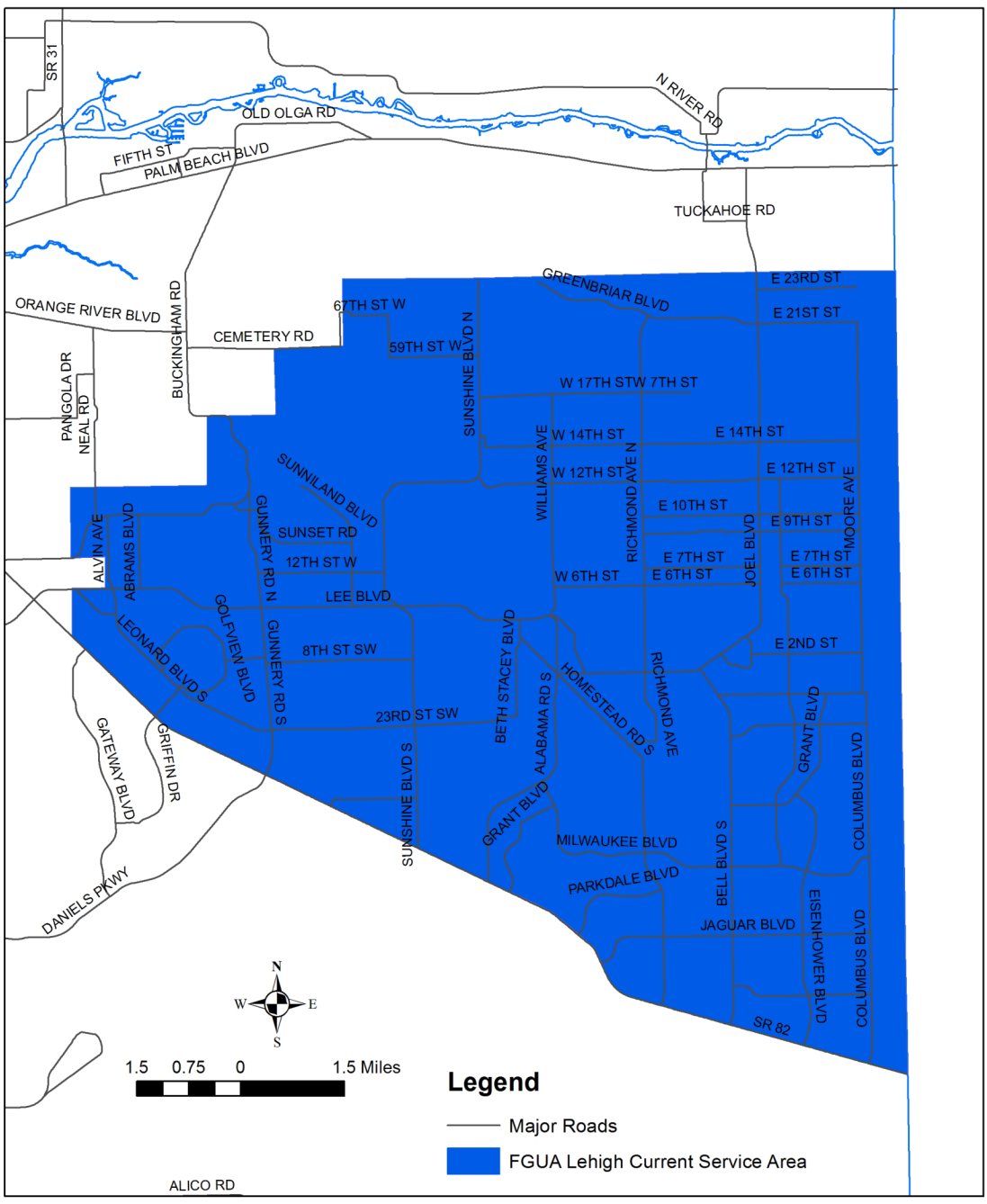
GPIWA does not provide wastewater service and, therefore, does not produce reclaimed water. Lee County's Pine Island Water Reclamation Facility provides wastewater treatment service for Pine Island and Matlacha area.

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

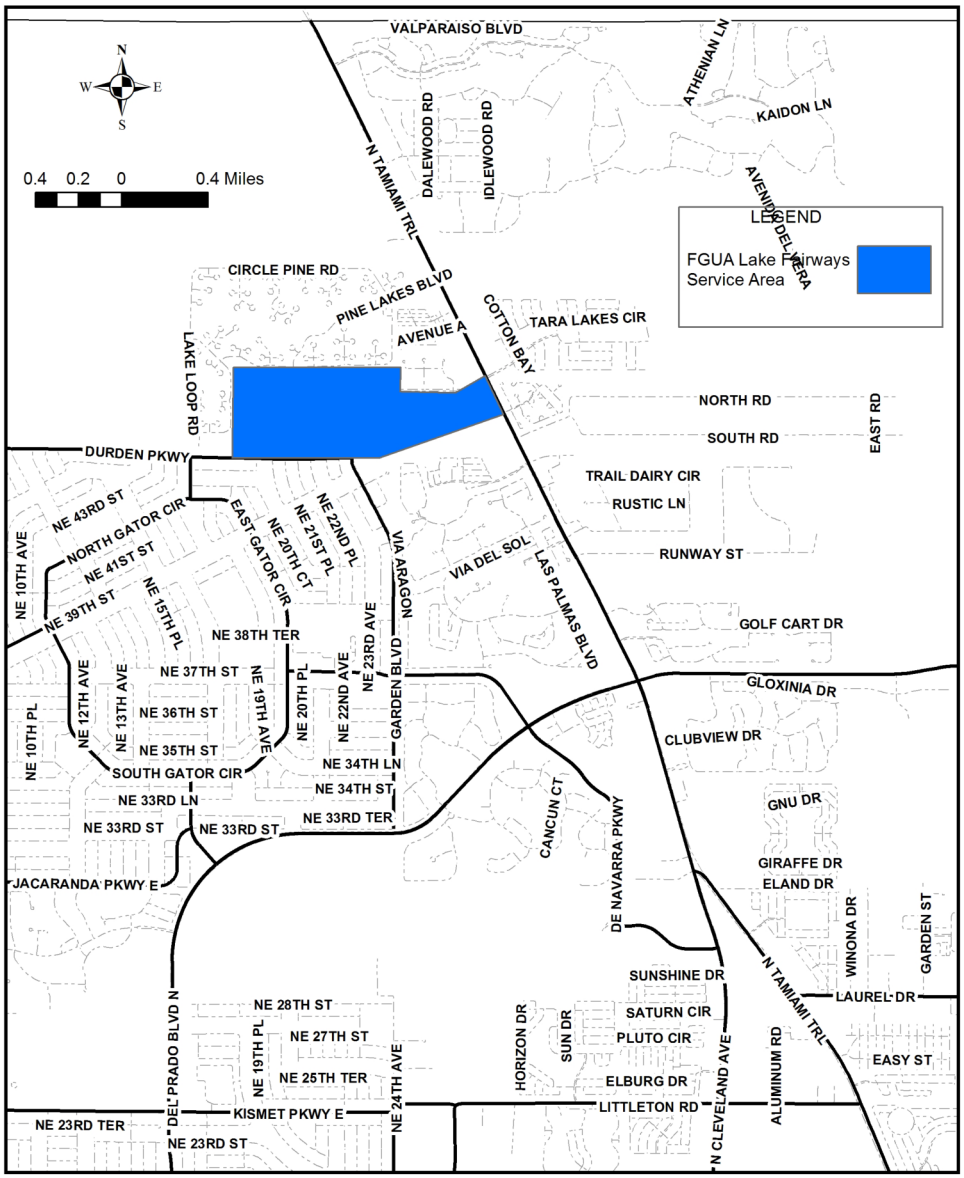
FGUA Lehigh Acres reuses its wastewater that is reclaimed through a public access reclaimed water irrigation system.

3.6.6 Florida Governmental Utility Authority (Lake Fairways)

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 Monthly 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

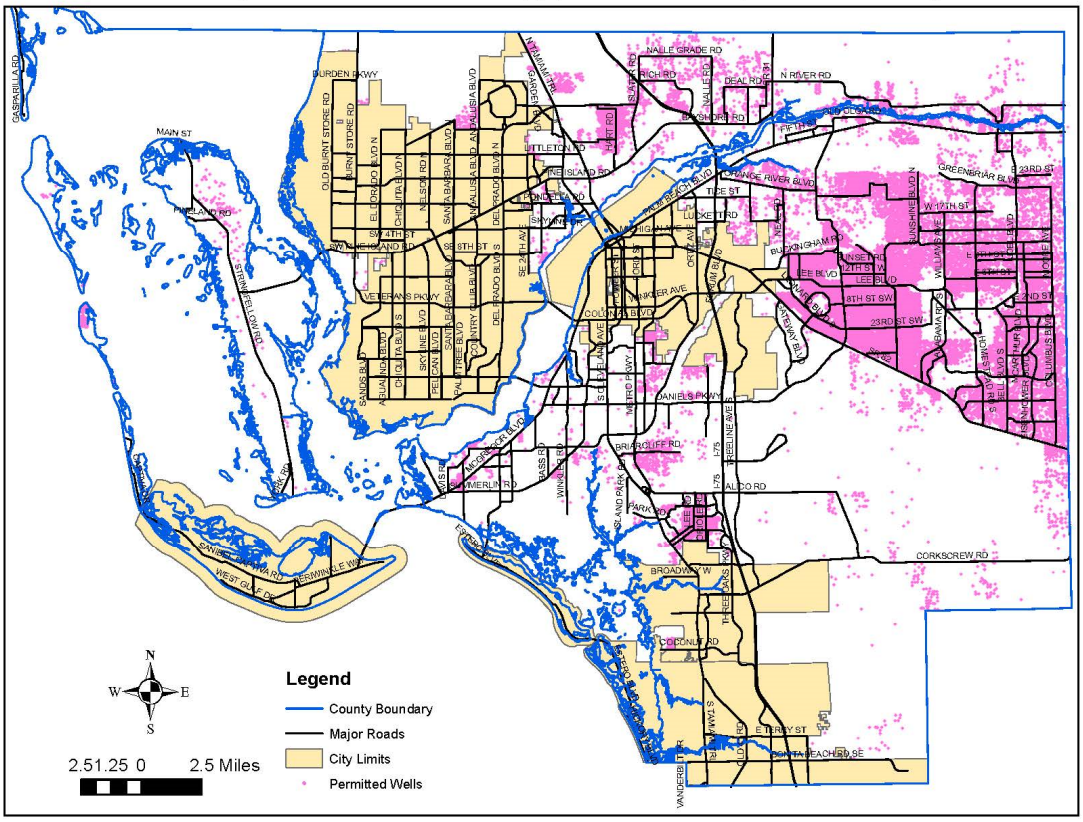
There are several small water supply utilities providing water service to small areas within unincorporated Lee County. These water supply utilities are classified as Multiple User/Single Development Water Treatment Plants in the Lee County Annual Concurrency Report. These systems include:

- 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 24-01, 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. In January 2024, Ordinance 24-01 amended the watering restrictions to limit irrigation days to one day per week from February 1st to May 31st each year. 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 126.2 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 addresses 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.

3.9 Intergovernmental Coordination

- *Coordination activities with all water suppliers, relevant agencies, and partners:*
    - Lee Plan Policy 151.5.2 requires these coordination activities.

- *Needs for additional coordination activities:*
    - Lee County consistently coordinates with all area utilities and agencies, no additional coordination is needed.

- *Information on Memoranda of Understanding, bulk service agreements, contracts, etc.*
    - See Section 3.5.5 above for reference.

- *Coordination with the LWCWSP:*
    - Lee Plan Policy 151.5.1 requires this coordination.

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	$50	4.00
East 2.0 mgd WWTF Expansion	Brackish	$38	2.00

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

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 15.0 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 54.1.16: Encourage the use of a low volume irrigation system, as defined by SFWMD, and water efficiency plans that includes drought-tolerant species, real-time pumping technology, advanced/Smart irrigation controllers, micro-irrigation, or other water use efficiency devices.

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~~May 2024, 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 Improvements 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 SUMMARY ANALYSIS OF LEE COUNTY 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 average day demand will be 32.36 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.

CPA2022-00017
&
CPA2022-00018

Caloosa 80

SUMMARY SHEET
CPA2022-000017 & CPA2022-00018 – CALOOSA 80
TRANSMITTAL HEARING

PROPOSED AMENDMENTS:

- Amend the Future Land Use Map designation on ±92.7 acres of the ±192.3-acre site from Rural to Sub-Outlying Suburban.
- Amend Lee County Future Utilities Future Water Service Area Map 4A and Future Sanitary Sewer Service Area Map 4B to include the entire ±192.3-acre site.
- Amend Table 1(b) to increase residential acreage for the Sub-Outlying Suburban future land use category in District 1, Northeast Lee County.

The requested amendments could allow for the development of the property as a recreational vehicle park with a maximum of 650 recreation vehicle lots (maximum of 350 transient limited to the Urban Community future land use category), up to 30,000 square feet of commercial retail, accessory uses, and associated infrastructure.

LPA PUBLIC HEARING:
The LPA discussed the proposed amendments and various merits of the case, including density, community character, buffer requirements, open space, EMS transport, differences between RV and mobile home parks, water and sewer extensions, and the previously approved zoning action.

LPA PUBLIC INPUT:
Five members of the public addressed the Local Planning Agency concerning the proposed amendments. The public expressed concern that the proposed amendments would impact rural character in Alva, impact wildlife, allow commercial development along Palm Beach Boulevard - outside of the "Rural Village," allow for increased number of RV lots, and impact EMS response time. All members of the public that spoke were opposed to the requested amendments.

LPA MOTION:
A motion was made to recommend that the Board of County Commissioners ***transmit*** CPA2023-00017 and CPA2023-00018 as recommended by staff. The motion passed 6 to 0.

RAYMOND BLACKSMITH	**AYE**
JENNIFER SAPEN	**ABSENT**
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 CALOOSA 80: CPA2022-00017 & CPA2022-00018

Map and Text Amendments to the Lee Plan

Recommendation:
Transmit

Applicant:
Caloosa 80, LLP

Representative:
Alexis V. Crespo, AICP

Property Location:
18910 Palm Beach Blvd.
19190 Palm Beach Blvd.
Fort Myers, FL 33920

Property Size:
± 192.3 acres

Planning District:
Northeast Lee County

Commissioner District:
District #5

Hearing Dates:
LPA: 04/22/2024
BoCC #1: TBD
BoCC #2: TBD

Attachments:
1: Proposed Amendments
2: Applicant Materials

REQUEST

- Amend the Future Land Use Map designation on ±92.7 acres of the ±192.3-acre site from Rural to Sub-Outlying Suburban.
- Amend Lee County Future Utilities Future Water Service Area Map 4A and Future Sanitary Sewer Service Area Map 4B to include the entire ±192.3-acre site.
- Amend Table 1(b) to increase residential acreage for the Sub-Outlying Suburban future land use category in District 1, Northeast Lee County.

SUMMARY

The requested amendments could allow for the development of the property as a recreational vehicle park with a maximum 756 recreational vehicle lots. However, as required by Policy 28.2.2 the applicant has submitted a concurrent rezoning to Mixed-Use Planned Development (DCI2022-00062) for the development of 650 recreation vehicle lots (maximum of 350 transient units, limited to the Urban Community future land use category), up to 30,000 square feet of commercial retail, accessory uses, and associated infrastructure.

PROJECT LOCATION

The subject property is located on south side of Palm Beach Boulevard (SR 80) east of Bateman Road and approximately 0.75 miles west of Goggin Road.

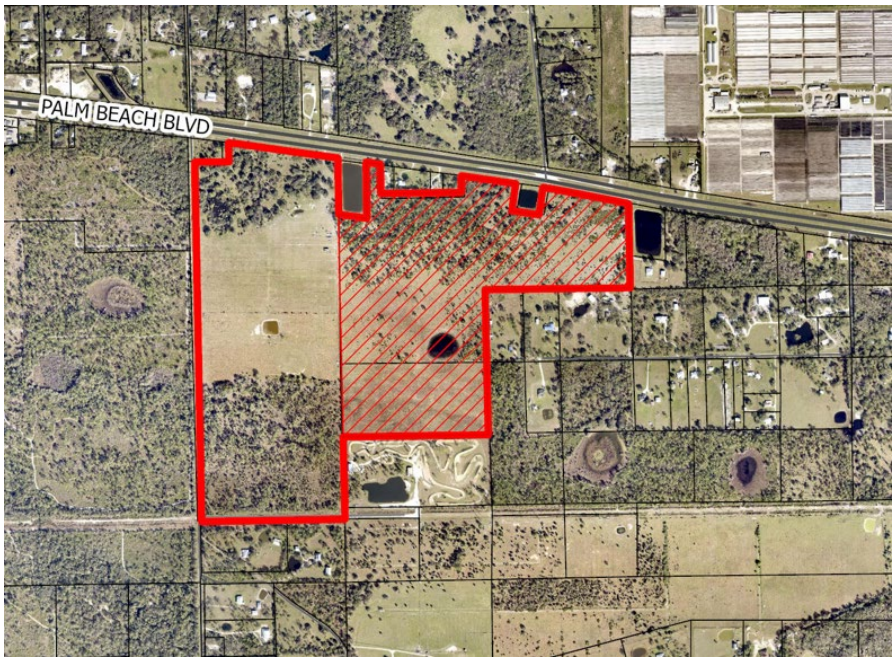


Figure 1: Subject Property with FLUM Amendment area identified by cross hatch.

RECOMMENDATION

Staff recommends that the Board of County Commissioners (BoCC) **transmit** the requested amendments based on the analysis and findings provided in this staff report.

PART 1
STAFF DISCUSSION AND ANALYSIS

CONCURRENT REZONING APPLICATION

Florida Statute Chapter 163.3184(12), F.S. provides: "At the request of an applicant, a local government shall consider an application for zoning changes that would be required to properly enact any proposed plan amendment transmitted pursuant to this subsection." Even with the recommended transmittal of the proposed amendments, the applicant must demonstrate consistency with the Lee Plan, including the proposed amendments, in order for the companion rezoning to receive a favorable recommendation.

SUBJECT PROPERTY

The subject property is located on south side of SR 80 immediately east of Bateman Road and approximately 0.75 miles west of Goggin Road. The property is located in the Northeast Lee County and Alva Community Plan Areas on Map 2-A and the Rural and Urban Community future land use category on the Future Land Use Map.

The subject property consists of three parcels, totaling 192.3 acres. A single parcel, approximately 99.6 acres is in the Urban Community future land use category at the intersection of SR 80 and Bateman Road. There are also two adjoining parcels directly to the east in the Rural future land use category totaling approximately 92.7 acres. The maximum allowable density that could be permitted consistent with the current Future Land Use Map is 664 dwelling units.

The subject property was rezoned to RVPD in 2009 by Resolution Number Z-09-042. This rezoning allowed the development of up to 417 recreational vehicle sites (121 transient and 296 non-transient), an on-site sewage treatment plant, and limited commercial uses. The property has not been developed and is currently used as pasture.

SURROUNDING PROPERTIES

North

Directly to the north of the subject property is SR 80, a state-maintained multi-laned arterial roadway. Parcels to the north of SR 80 are zoned Agricultural (AG-2) and are in the Rural future land use category. Development consists of large lot single-family residences, vacant lands, and a small Commercial Planned Development (CPD), operating as a restaurant. Syngenta Plants, a large commercial plant nursery, is across SR 80 to the northeast of the subject property.

South

Parcels to the south are in the Urban Community and Rural future land use categories and are zoned Agricultural (AG-2). Development consists of single-family residences on varying parcel sizes concentrated near the southeastern portion of the subject property. Further to the south are larger vacant parcels and the Oaks of Alva, an unrecorded plat within the Rural and Outlying Suburban future land use categories.

West

West of the subject property is Bateman Road, a County-maintained local roadway. West of Bateman Road is Hickey's Creek Mitigation Park which is zoned Environmentally Critical (EC) and is in the Conservation Land future land use category. Hickey's Creek Mitigation Park consists of 862 acres around Hickey's Creek and supports a variety of plant and wildlife. The Mitigation Park was established by the

Florida Fish and Wildlife Conservation Commission and Lee County to mitigate for gopher tortoise habitat. Also to the west, along SR 80 are single-family residential and minor commercial developments such as the Alva Village Market, and Southwest Florida RV Service.

East

Lands to the east of the subject property are in the Rural future land use category and are zoned Agricultural (AG-2). A retention pond to support SR 80 and single-family residential uses abut the eastern property line. Development to the east is predominantly single-family residential near the subject property and transitions to large vacant parcels along SR 80 further away from the subject property. The Calvary International Church is 0.33 miles to the east.

DISCUSSION AND ANALYSIS – MAP 1-A: FUTURE LAND USE MAP

Future Land Use Categories

The applicant is requesting to amend the future land use category on the eastern ±92.7 acres of the ±192.3-acre site from Rural to Sub-Outlying Suburban as shown in Attachment 1. The policies describing the existing and proposed future land use categories are provided below:

> **POLICY 1.4.1:** The Rural future land use category are areas that are to remain predominantly rural – that is, low density residential, agricultural uses, and minimal non-residential land uses that are needed to serve the rural community. Natural resource extraction may be permitted in accordance with Policy 10.1.4. These areas are not to be programmed to receive urban-type capital improvements, and they can anticipate a continued level of public services below that of the urban areas. Maximum density in the Rural future land use category is one dwelling unit per acre (1 du/acre). See Policy 123.2.17 for a potential density incentive resulting from preservation and/or restoration of Rare and Unique Upland Habitat.

> **POLICY 1.1.11:** The Sub-Outlying Suburban future land use category is characterized by low density residential areas. Generally the infrastructure needed for higher density development is not planned or in place. This future land use category will be placed in areas where higher densities would be incompatible or where there is a desire to retain a low-density community character. Industrial land uses are not permitted. The standard density range is from one dwelling unit per acre (1 du/acre) to two dwelling units per acre (2 du/acre). Bonus densities are not allowed.

The primary differences between the existing and proposed future land use categories are the allowable density and the requirement that commercial uses within the Rural future land use category are to serve the rural community they are located within.

Policy 1.4.1 of the Lee Plan describes the Rural future land use designation as "low density residential, agricultural uses, and minimal non-residential land uses that are need to serve the rural community." It also states that these lands "are not to be programmed to receive urban-type capital improvements." The subject property contains significant frontage on SR 80, a state-maintained arterial roadway that links US41 in Fort Myers to State Road A1A in Palm Beach County with an annual average daily traffic volume of 27,000 vehicles according to the Florida Department of Transportation (FDOT). It is also important to note that the western 99.6 acres of the site, as well as adjacent areas to the west are designated Urban Community on the Future Land Use Map (1-A). The Rural future land use category adjacent to the Urban

Community future land use category represents an abrupt change from a future urban area to a future rural area. The proposed amendment provides a transition between low density Rural future land use category and the higher density Urban Community future land use category.

Policy 1.1.11 states the Sub-Outlying Suburban future land uses category is intended for "areas where higher densities would be incompatible or where there is a desire to retain a low-density community character." In addition, industrial uses are prohibited in the Sub-Outlying Suburban future land use category. The Sub-Outlying Suburban future land use category is well suited as a transitional category in locations where the community vision includes retaining low-density community character such as the Alva Community Plan Area.

Agriculture Overlay

The subject property is within the Agricultural Overlay, as identified on Map 1-G. **Policy 1.6.7** describes the Agricultural Overlay special treatment area. **Policy 1.6.7** provides that agricultural uses "should be protected from the impacts of new developments, and the county should not attempt to alter or curtail agricultural operations on them merely to satisfy the life-style expectations of non-urban residents." This policy is meant to protect existing agricultural uses in non-urban areas from compatibility concerns of nearby residents. **Policy 1.6.7** does not prohibit the conversion of agricultural uses to other uses. Although Florida Statute 163.3177(6)(a) requires the Lee Plan's future land use element include the general distribution and location of land for agriculture, Florida Statute 187.201(22)(b)(1) ensures the goals and policies in state and regional plans are not interpreted to restrict the conversion of agriculture lands to other uses. Similar language was deleted from the Lee Plan in Ordinance 21-09 to "remove redundancy with Florida Statute."

Growth Management

Objective 2.1 promotes contiguous growth patterns to contain urban sprawl and conserve land. This objective prevents development patterns where large tracts of land are by-passed in favor of more distant lands further from services. Over half of the subject property (99.6 acres of 192.3 acres) is currently in the Urban Community future land use category which is a future urban area as defined by the Lee Plan. The applicant is requesting to amend the Future Land Use Map to change the remaining 92.7 acres to Sub-Outlying Suburban which is considered a future suburban area. This will provide a transition to the rural areas further to the east of the subject property. The request is consistent with **Objective 2.1**.

Objective 2.2 directs new growth to future urban areas where adequate public facilities exist or are assured and where compact and contiguous development can be created. The parcels subject to the land use designation change are adjacent to lands in the Urban Community future land use and have been previously rezoned to RVPD. The western 99.6 acres is currently in the Florida Gulf Utility Authority's (FGUA) future sewer service area, although no utility infrastructure currently exist on site. In addition to the proposed future land use amendment the applicant is requesting to amend Lee Plan Maps 4A and 4B to include the subject parcels in the Lee County Utilities (LCU) water and sewer future services areas. Lee County Utilities has verified there is available capacity for both potable water and sanitary sewer service for the subject property. The proposed amendment is consistent with **Objective 2.2**.

Community Plan Area Requirements

All lands identified within a Community Plan Area on Map 2-A are subject to **Goal 17** of the Lee Plan. **Policy 17.3.2** requires one public information meeting for any privately initiated text and map amendment within a community plan area. **Policy 17.3.3** requires public meetings to be held within the established community plan area boundary. Applications within the Northeast Lee County community plan area boundary are to have separate public information meetings within the Alva and North Olga Community Plan Areas. The required information meeting in the Alva Community Plan Area was held at the Alva Community Center located at 21474 North River Road on December 13, 2022. A public information meeting was held within the North Olga Community Plan Area at the corner of North River Road and North Olga Drive on February 19, 2024. The public that attended those meetings had questions about the increased number of recreational vehicles, class of recreational vehicles that would be there, traffic generation, extension of utilities, and rural character of the community. These public information meetings were publicly advertised and satisfy the requirements of **Policy 17.3.2 and Policy 17.3.3**.

In addition to Goal 17, the subject property is also subject to **Goal 27: Northeast Lee County Community Plan**, and **Goal 28: Alva Community Plan**. The Northeast Lee County Community Plan and Alva Community Plan seeks to maintain, enhance, and support the heritage and rural character, natural resources, and agricultural lands within the community boundaries.

Objective 27.1, Policy 27.1.1, and **Policy 27.1.2** of the Northeast Lee County Community Plan Goal describes characteristics of rural character as those that convey a rural lifestyle such as large lots or clustered development, views of wooded areas, open spaces, and protection of environmentally sensitive lands. The proposed map amendment will redesignate ±92.7 acres from the Rural future land use category to the Sub-Outlying Suburban future land use category. Although the change from Rural to Sub-Outlying Suburban will increase the allowable density from 1 dwelling unit an acre to 2 dwelling units per acre, the increase is consistent with and supported by several goals of the Lee Plan. The subject property has frontage along a state-maintained arterial roadway where utility capacity is available[1] and is adjacent to 99.6 acres in the Urban Community future land use category[2]. As previously stated, the proposed amendments are consistent with Objectives 2.1 and 2.2, which encourage development within future urban areas where infrastructure exists or is planned. The Sub-Outlying Suburban future land use is designed to be placed in areas where higher densities would be incompatible or where there is a desire to retain a low-density community character. The Sub-Outlying Suburban future land use will provide a suitable transition from the adjacent Urban Community future land use to the surrounding Rural future land uses.

Lee Plan **Policy 28.2.2** requires applicants of Future Land Use Map amendments in the Alva Community Plan Area that would increase allowable total density to demonstrate consistency with the objectives and policies of the Alva Community Plan through concurrent planned development rezoning. The proposed land use amendment would increase the allowable density because the Rural future land use category allows a maximum of 1 dwelling unit an acre, and the Sub-Outlying Suburban future land use category allows a maximum of 2 dwelling units an acre.

[1] Goal 2

[2] Objective 2.2, Policies 2.1.1

The applicant has filed a companion planned development rezoning application (DCI2022-00062) which is being reviewed concurrently with this amendment request. Below is a high-level analysis of the concurrent rezoning required by Policy 28.2.2. This analysis is not a complete analysis of all elements of the proposed rezoning and is limited to consistency with the objectives and policies of **Goal 28: Alva Community Plan**. This should not be construed as a recommendation for or against DCI2022-00062.

Through the concurrent rezoning, the applicant is seeking to rezone the property from Recreational Vehicle Planned Development (RVPD) to Mixed-Use Planned Development (MPD) to allow for development of 650 RV sites (maximum 350 transient clustered within the Urban Community future land use category) and 30,000 square feet of commercial uses.

The applicant provided density calculations as part of the concurrent rezoning application. If approved, the proposed land use change from Rural to Sub-Outlying Suburban and the preservation of onsite wetlands on the 192.3-acre subject property would yield a maximum of 756 dwelling units. Without the Future Land Use Map amendment the same subject property would yield a maximum of 664 dwelling units, with 571 dwelling units in the Urban Community future land use category and 93 dwelling units in the Rural future land use category. The applicant is proposing a total of 650 transient and non-transient recreational vehicle sites. This is less than the number of dwelling units that could be approved with the current Future Land Use Map with proper zoning approval. As previously stated, one of the primary differences between the Rural and Sub-Outlying Suburban future land use categories is allowable density. The applicant has demonstrated through the concurrent rezoning that the maximum allowable density that could be permitted with the Rural Future land use category will not be exceeded.

The Master Concept Plan submitted with the concurrent rezoning limits all commercial uses, including transient recreational vehicle sites and the 4.5-acre commercial tract along SR 80, to lands within the Urban Community future land use category. Commercial uses in the Rural future land use category are limited to those uses that "are needed to serve the rural community," whereas the Sub-Outlying Suburban future land use category does not have that same limitation. As previously noted, this distinction is one of the primary differences between the Rural and Sub-Outlying Suburban future land use categories. The applicant has demonstrated that the concurrent rezoning request will not allow the spread of commercial uses across the portion of the subject property proposed to be amended to the Sub-Outlying Suburban future land use category. The types of uses allowed within this portion of the subject property will remain consistent with the Rural future land use category.

The proposed amendment is necessary to allow the sum of the allowable densities for each land use category to be allocated across the entire property in accordance with **Policy 5.1.10**. Based on the requirements of Policy 5.1.10, amending the Rural future land use category to the Sub-Outlying Suburban future land use category allows for more flexibility in site design. This additional flexibility, along with the provision of public water and sewer services, allows for increased open space and preservation of wetlands near the northwest corner of the site in the Urban Community future land use category. The proposed Master Concept Plans also identifies a more environmentally beneficial surface water management system when compared to the existing zoning approval, through the use of multiple control

elevations to simulate the existing groundwater elevations. These changes support the rural character and natural systems, consistent with **Policies 28.2.3 and 28.5.1**.

The Master Concept Plan identifies a majority of preserve and open space areas along SR 80 and Bateman Road. This is consistent with requirements of the Alva Community Plan Area goal. These include protection of existing wetlands and natural systems[3] in the northwest corner of the subject property and protection of rural character[4] by clustering development areas away from public rights of way, minimizing visual impacts to the surrounding community. The Master Concept Plan also identifies enhanced buffers along the eastern and southern property lines. The proposed changes show a net increase of approximately 25 acres of developable land while protecting natural resources and the environment.

The concurrent rezoning will extend central water and sewer services approximately 2.5 miles along SR 80, negating the need for the previously approved onsite wastewater treatment plant and spray field in an area subject to a Basin Management Action Plan (BMAP). The subject site is located in the Caloosahatchee River and Estuary BMAP. This plan sets total nitrogen (TN) and total phosphorus (TP) effluent limits within the plan area and requires local governments to develop a master wastewater treatment feasibility analysis to address loads from existing and new septic systems (e.g., sewering, advanced septic system retrofits, prohibiting the installation of new conventional septic systems)[5]. The extension of central sewer service will provide an alternative system to the approved spray field and new septic systems as detailed in the BMAP. Overall, the concurrent rezoning request will protect and enhance native species, habitats, water systems, ecosystems, and conserve natural resources as required in **Policy 28.2.3** and **Objective 28.1**.

The application materials included a letter from the Florida Division of Historical Resources which verified that no cultural resources are recorded in the Florida Mater Site File for the subject site. A portion of the site along the north and northeast boundary is within Archaeological Sensitivity Zone 2. The Lee County Land Development Code requires a Certificate to Dig prior to or in conjunction with the issuance of a development order in areas designated sensitivity level 1 or 2. A Certificate to Dig is issued by County staff or the Historic Preservation Board, authorizing certain clearing, digging, archaeological investigation or archaeological development projects in sensitivity zones under certain conditions. These conditions can include an immediate cessation of all onsite activity if objects, sites, artifacts, or human remains are uncovered. The verification from the Florida Division of Historical Resources and the Land Development Code requirements for a Certificate to Dig prior to issuance of a development order will ensure that any historical or archaeological sites that are uncovered will be protected and ensure that the historic character of the Alva community is protected further supporting **Objective 28.1**.

Based on the concurrent planned development rezoning the proposed amendment to the Lee Plan is consistent with **Policy 28.2.2**. The planned development zoning process may be further refined and conditioned to ensure compatibility, mitigate impacts, and safeguard public interest. Ultimately, the

[3] Objective 28.1#4, Objective 28.2, Policy 28.2.3#4, Policy 28.5.1#1,2,3
[4] Objective 28.1#1, Policy 28.2.1, Policy 28.2.3#1
[5] Florida Department of Environmental Protection, *Caloosahatchee River and Estuary Basin Management Plan*, (Jan 2020), 43

concurrent rezoning case and adoption hearing for the proposed amendment to the Future Land Use Map will be heard by the Board of County Commissioners on the same date to ensure consistency.

Environmental Review

The applicant provided a surface water management narrative as part of the concurrent rezoning that described the proposed drainage plan for future development. The plan will include four lakes, approximately 31-acres in total, to allow four separate lake control elevations which will mimic the historical wet season water table in the area and treat site runoff prior to discharging into the wetland preserve in the northwest corner of the site. The proposed plan will mimic historic groundwater elevations, provide water quality treatment, rehydrate existing wetlands, and limit peak discharge. A South Florida Water Management District (SFWMD) Permit will be required prior to development. This is consistent with **Goal 61** protection of water resources thought the use of sound methods of surface water management and **Policy 125.1.2** as the new development will not degrade water quality. The design will also mimic the functions of natural systems as required by **Objective 61.2**.

The subject site contains approximately 10.3 acres of wetlands that will be preserved as part of the concurrent rezoning and does not propose any impacts to wetlands. This is consistent with **Policy 124.1.1** which limits development in wetlands to very low-density residential uses or recreational uses, open space, or conservation that is compatible with wetland functions.

Based on the analysis above, redesignating the subject property from Rural to Sub-Outlying Suburban is found to be consistent with the Lee Plan.

DISCUSSION AND ANALYSIS – MAPS 4-A & 4-B: LCU FUTURE WATER & SEWER SERVICE AREAS

The applicant is requesting to amend Maps 4-A and 4-B to include the entire 192.3-acre site in the future water and sewer service areas. The western ±99.6 acres, currently in the Urban Community future land use category, is in the FGUA wastewater franchise area. As provided for in Lee Plan **Standard 4.1.2#4** and **Policy 56.1.5**, FGUA has agreed in writing to release the service area to Lee County. This release will allow Lee County Utilities to provide water and sewer service to the entire 192.3-acre site. Lee County Utilities has verified that sufficient capacity is available to provide water and sewer service to the proposed development. There are existing sanitary sewer mains approximately 3.5 miles and existing water mains approximately 2.25 miles west of the subject property. As part of the concurrent rezoning the applicant is proposing developer funded extensions of central water and sewer along SR 80 to serve the subject property.

More than half of the subject property is with the Urban Community future land use category, a future urban area. Objective 53.1 states "the County will ensure the provision of acceptable levels of potable water service throughout the future urban areas of the unincorporated County. Similarly, Objective 56.1 provides that Lee County will ensure the provision of acceptable levels of sanitary sewer service throughout the future urban areas of the unincorporated County. The proposed amendments will allow for the provision of Lee County Utilities within future urban areas within unincorporated Lee County that are not currently served. The proposed amendments are consistent with **Objectives 53.1 and 56.1.** Lee County should recognize expansion of sewer and water to the subject property is appropriate given the

environmental concerns regarding water quality of the Caloosahatchee River. Recent changes to Florida Statutes that indicate the State's desire to move toward sanitary sewer in areas within a BMAP.

Policy 126.1.4 of the Lee Plan requires development designs to maintain groundwater levels at or above existing levels. Connecting to LCUs potable water system, will reduce stress on the shallow aquifer system and help to maintain or improve groundwater levels near the subject property. Therefore, amending the Lee Plan to allow for connection to LCU's potable water is consistent with **Policy 126.1.4**. Based on the analysis above, the proposed amendments to Maps 4-A and 4-B is found to be **consistent** with the Lee Plan.

DISCUSSION AND ANALYSIS TABLE AMENDMENT – 1(B) YEAR 2045 ALLOCATIONS

Currently the Northeast Lee County Planning District does not have any residential acreage allocated to the Sub-Outlying Suburban future land use category. **Policy 1.6.5** requires acreage to be available in each future land use category prior to the approval or issuance of any development order for residential, commercial, or industrial uses. The concurrent rezoning is proposing residential uses in the area proposed to be amended to Sub-Outlying Suburban and therefore an amendment to Table 1(b) is required prior to issuance of a development order on the property. The amendment to Table 1(b), as identified in Attachment 1, ensure internal consistency of the Lee Plan and that the anticipated development will be consistent with the Lee Plan.

SERVICE AVAILABILITY

The requested amendments to change the future land use category to Sub-Outlying Suburban, add the subject site to Maps 4-A and 4-B and amend Table 1(b) to increase residential acreage in the Sub-Outlying Suburban future land use category of District 1, Northeast Lee County. The extension of central water and sewer service will provide adequate potable water and sanitary sewer service. Solid waste, police, and fire service is adequate to accommodate the anticipated development. EMS service availability is not adequate currently.

Transportation: The subject property is located on south side of SR 80 east of Bateman Road and approximately 0.75 miles west of Goggin Road.

Short Range Impacts: The 5-year analysis indicates that no road segments are projected to be impacted with and without the project in the Year 2027.

Long Range Impacts: Indicate that Broadway Ave (N. of SR 80) is projected to be impacted (LOS F) with and without the project in the Year 2045.

Transportation concurrency is non-regulatory per Florida Statutes Section 163.3180 and Lee Plan Policy 95.1.3, which provides "Compliance with non-regulatory LOS standards will not be a requirement for continued development permitting but will be used for facility planning purposes."

Mass Transit: The subject property is not within ¼ mile of a fixed route corridor and is further than ¼ mile of the nearest bus stop. The 2020 Transit Development Plan does not identify the need for enhanced or additional transit services in the area.

Utilities: Lee County Utilities has indicated that there is sufficient capacity to serve the subject site with both potable water and sanitary sewer services. Sanitary sewer mains are approximately 3.5 miles west of the subject property on SR 80 and water mains are approximately 2.25 miles west on SR 80. Developer funded extensions will be required in order to provide service to the subject property.

Solid Waste: The subject property has access to solid waste services. Solid waste collection services will be provided by using Lee County contract haulers, the Lee County Resource Recovery Facility, and the Lee-Hendry Regional Landfill.

Fire: The Alva Fire & Rescue District have indicated that they can provide fire protection and EMS non-transport services to the subject property.

EMS: A Letter of Service Availability dated September 12, 2022, states that "service availability for the proposed development of this property is not adequate at this time." Medic 11 is located 8.4 miles west and not able to meet existing service standards for the proposed development. There is a paramedic stationed at the Alva Fire Department, however, the LOS standard measurement is the arrival time of an ambulance.

Lee Plan Policy 95.1.3 identifies Emergency Medical Services LOS as non-regulatory, and further provides "Compliance with non-regulatory LOS standards will not be a requirement for continued development permitting but will be used for facility planning purposes." However, staff recommends a condition in the concurrent planned development requiring that the service deficiency is addressed prior to development.

Police: The Lee County Sheriff's Office will provide law enforcement services primarily from the East District offices in Lehigh Acres. The Sheriff indicated in a letter that development of the subject property will not affect the ability of the Lee County Sheriff's Office to provide core services at this time. The Sheriff's Office requests a Crime Prevention through Environmental Design report at the time of Development Order.

Schools: The School District of Lee County provided a letter on May 18, 2022, stating that capacity is an issue within the Concurrency Service Area (CSA) at the elementary school level, however, capacity is available in the adjacent CSA.

CONCLUSIONS

Based on the staff analysis the requested amendment is consistent with the Lee Plan.

- The Sub-Outlying Suburban FLU category is suitable in areas where higher densities would be incompatible or where there is a desire to retain a low-density community character.
- The proposed amendments are consistent with the Objectives and Policies of the Alva and Northeast Lee County Community Goals.
- The proposed amendments, through the concurrent rezoning, demonstrate consistency with the Policy 28.2.2.
- The proposed amendment helps to ensure area groundwater levels will be maintained at or above existing levels, consistent with the Lee Plan.

- The proposed amendments will help to extend water and sewer services to lands currently within the Central Urban future land use category.
- The proposed amendments promote the use of sanitary sewer in BMAP areas.
- The proposed amendments help ensure the preservation of on-site wetland and indigenous areas.

Staff recommends that the Board of County Commissioners ***transmit*** the proposed amendment as shown in Amendment 1.

PART 2
LOCAL PLANNING AGENCY
REVIEW AND RECOMMENDATION
DATE OF PUBLIC HEARING: April 23, 2024

A. LOCAL PLANNING AGENCY REVIEW

The applicant's representatives provided a presentation addressing the requested amendments, subject property, impact analysis, surrounding uses, consistency with the Lee Plan, and concurrent rezoning. During the applicant's presentation members of the LPA asked about the concurrent rezoning request, EMS requirements, the differences between mobile home parks and RV parks, and existing and proposed densities.

Following this, staff made a presentation addressing the requested amendments, subject property, consistency with the Lee Plan, and staff recommendation. Members of the LPA asked staff the impact of the Future Land Use Map change regarding density and how the units would be distributed across the site.

There were five members of the public who commented on the proposed amendment. Public comments primarily expressed concerns over loss of the rural community character, additional commercial uses on Palm Beach Boulevard, the increased number of RV Lots, and forced connections to sewer and water services.

B. LOCAL PLANNING AGENCY RECOMMENDATION

A motion was made to recommend that the Board of County Commissioners ***transmit*** CPA2022-00017 and CPA2023-00018. The motion passed 6-0.

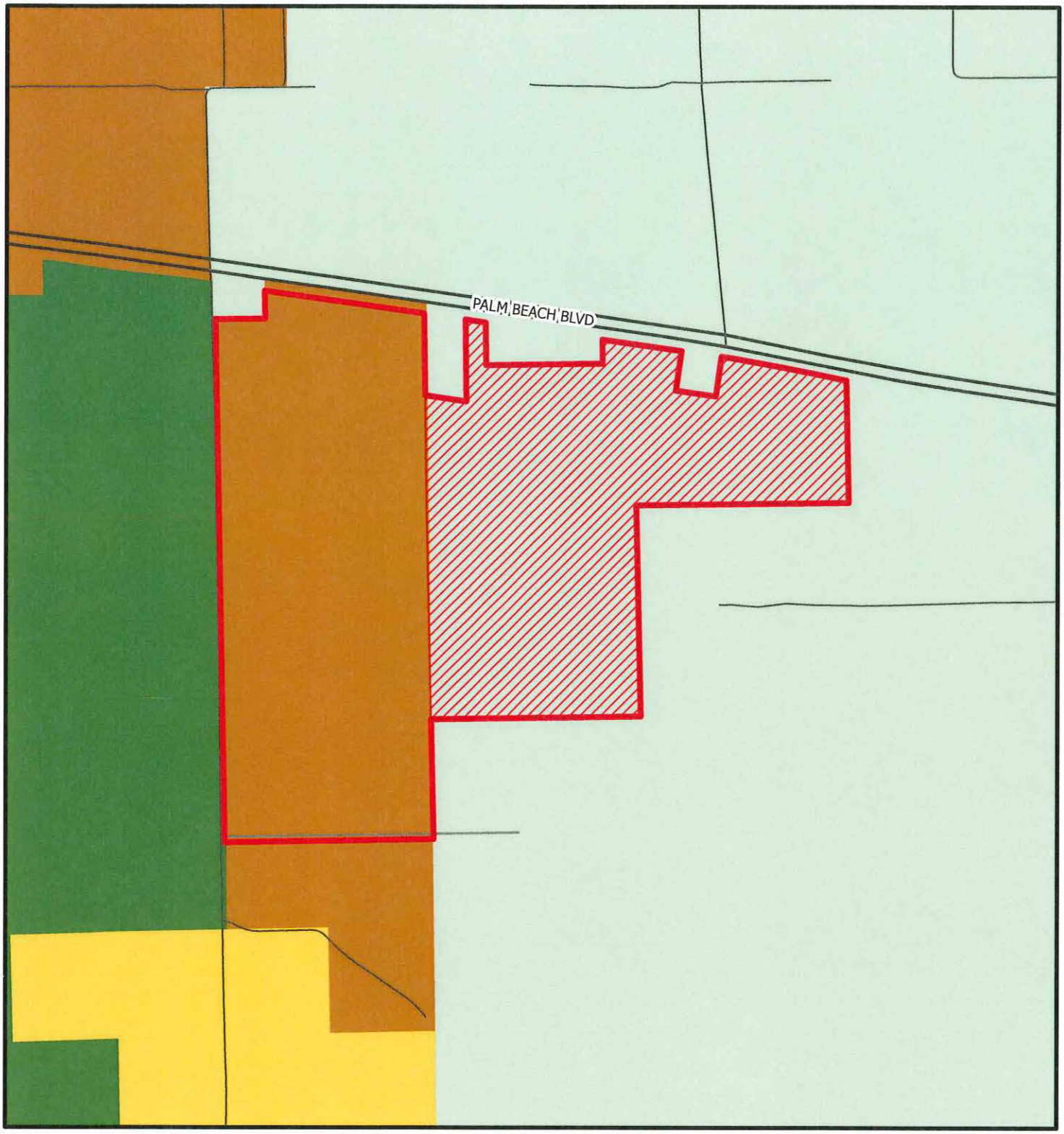
RAYMOND BLACKSMITH	**AYE**
JENNIFER SAPEN	**ABSENT**
DUSTIN GARDNER	**AYE**
DAWN RUSSELL	**AYE**
DON SCHROTENBOER	**AYE**
STAN STOUDER	**AYE**
HENRY ZUBA	**AYE**

C. RECOMMENDATION

Staff and the LPA recommend the Board of County Commissioners ***transmit*** the amendments to the Lee Plan as provided in Attachment 1.

ATTACHMENT 1

- **Existing and Proposed Future Land Use Map**
- **Proposed Future Water Service Areas**
- **Proposed Future Sewer Service Areas**
- **Table 1(b)**



CPA2022-00018

Existing Future Land Use

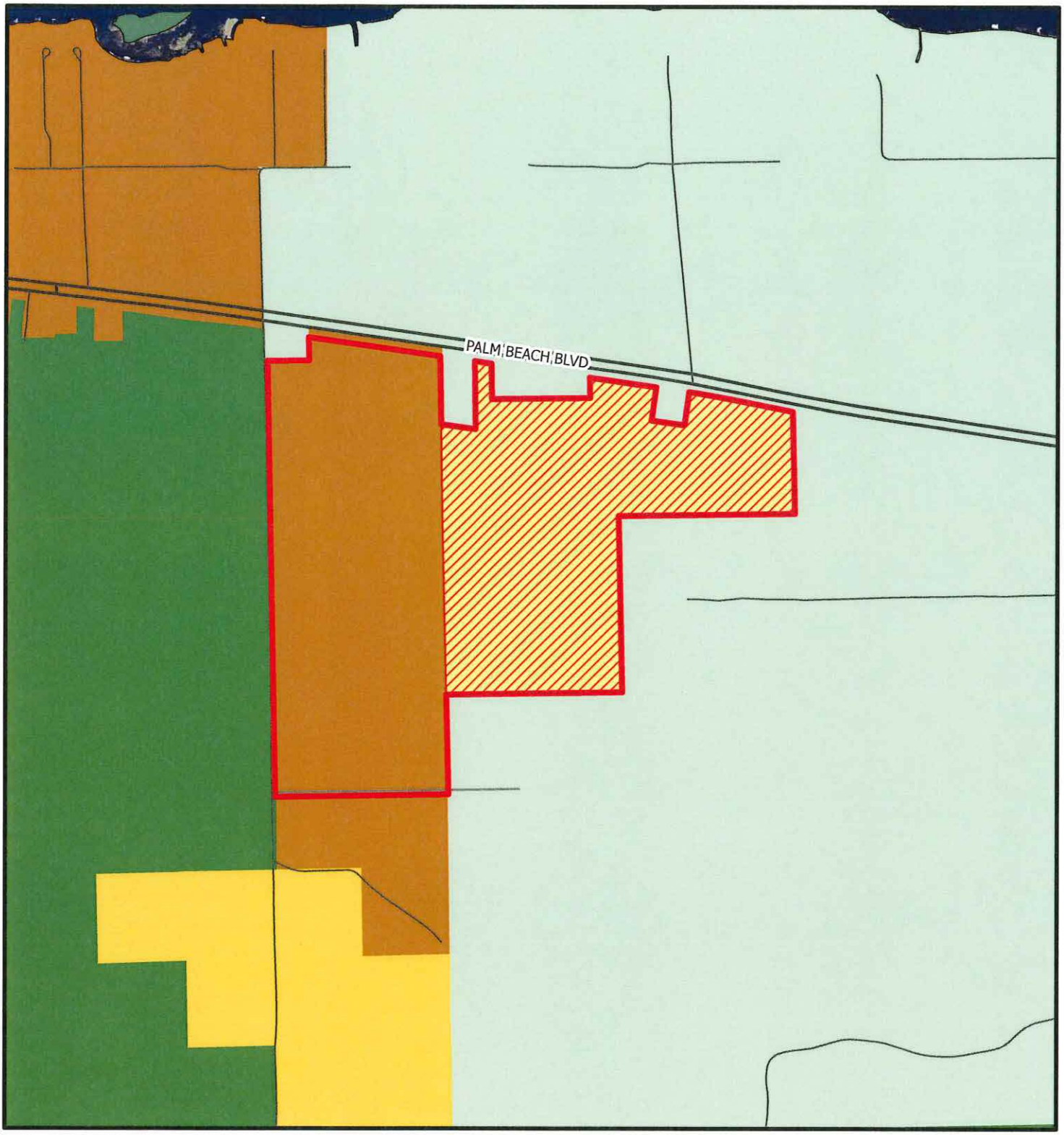
- Urban Community
- Outlying Suburban
- Rural
- Conservation Lands - Upland
- Project Boundary
- Proposed land use change area

N
W E
S

0 1,000
Feet

Lee County
Southwest Florida

Map Generated: February 2024



CPA2022-00018

Proposed Future Land

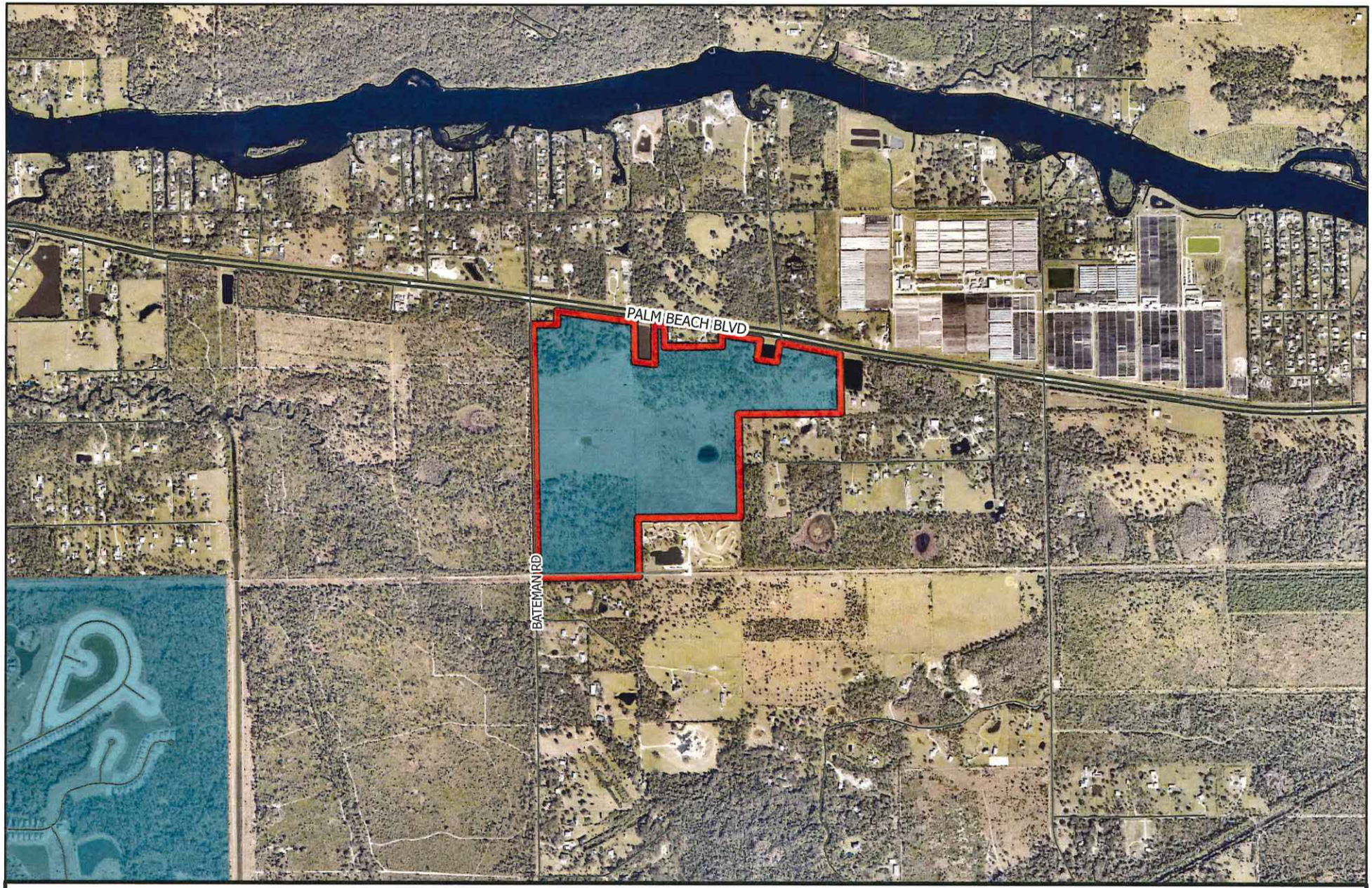
Lee County
Southwest Florida

Map Generated: February 2024

- Sub-Outlying Suburban
- Urban Community
- Outlying Suburban
- Rural
- Conservation Lands - Upland
- Wetlands
- Project Boundary
- Proposed land use change area

N
W E
S

0 1,000 2,000
Feet



CPA2022-00018

Future Water Service Areas

Lee County
Southwest Florida

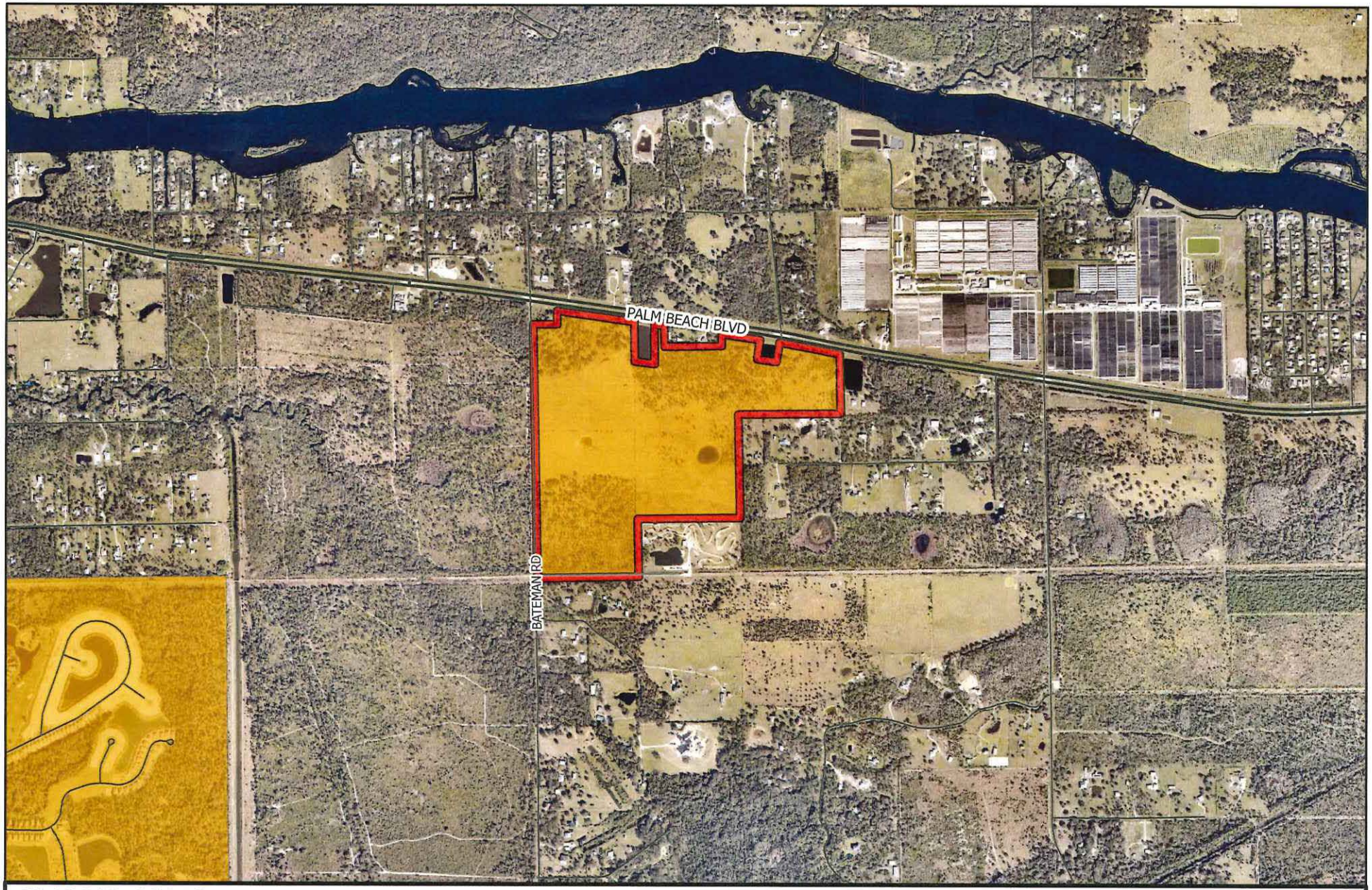
Proposed Future Water Service Areas

Existing Future Water Service Areas

N
W E
S

0 1,000 2,000
Feet

Map Generated: February 2024



CPA2022-00018

Future Sewer Service Areas

Lee County
Southwest Florida

Proposed Future Sewer Service Areas

Future Sewer Service Areas

N
W E
S

0 1,000 2,000
Feet

Map Generated: February 2024

TABLE 1(b)
YEAR 2045 ALLOCATIONS

Future Land Use Category		Unincorporated County		Planning District										
				District 1 Northeast Lee County		District 2 Boca Grande	District 3 Bonita	District 4 Fort Myers Shores	District 5 Burnt Store	District 6 Cape Coral	District 7 Captiva	District 8 Fort Myers	District 9 Fort Myers Beach	District 10 Gateway / Airport
		Existing	Proposed	Existing	Proposed									
Residential By Future Land Use Category	Intensive Development	~~1,483~~	1,483	~~-~~	-	-	-	17	-	21	-	238	-	-
	Central Urban	~~13,760~~	13,760	~~-~~	-	-	-	207	-	-	-	230	-	25
	Urban Community	~~22,642~~	22,622	~~813~~	793	453	-	475	-	-	-	-	-	150
	Suburban	~~14,913~~	14,913	~~-~~	-	-	-	1,950	-	-	-	80	-	-
	Outlying Suburban	~~3,662~~	3,662	~~38~~	38	-	-	490	13	3	429	-	-	-
	Sub-Outlying Suburban	~~1,787~~	1,816	~~-~~	29	-	-	330	-	-	-	-	-	227
	Commercial	~~-~~	-	~~-~~	-	-	-	-	-	-	-	-	-	-
	Industrial	~~15~~	15	~~-~~	-	-	-	-	-	-	-	-	-	6
	Public Facilities	~~-~~	-	~~-~~	-	-	-	-	-	-	-	-	-	-
	University Community	~~503~~	503	~~-~~	-	-	-	-	-	-	-	-	-	-
	Destination Resort Mixed Use Water Dependent	~~8~~	8	~~-~~	-	-	-	-	-	-	-	-	-	-
	Burnt Store Marina Village	~~2~~	2	~~-~~	-	-	-	-	2	-	-	-	-	-
	Industrial Interchange	~~-~~	-	~~-~~	-	-	-	-	-	-	-	-	-	-
	General Interchange	~~135~~	135	~~-~~	-	-	-	-	-	-	-	-	-	35
	General Commercial Interchange	~~-~~	-	~~-~~	-	-	-	-	-	-	-	-	-	-
	Industrial Commercial Interchange	~~-~~	-	~~-~~	-	-	-	-	-	-	-	-	-	-
	University Village Interchange	~~-~~	-	~~-~~	-	-	-	-	-	-	-	-	-	-
	New Community	~~2,075~~	2,075	~~1,115~~	1,115	-	-	-	-	-	-	-	-	960
	Airport	~~-~~	-	~~-~~	-	-	-	-	-	-	-	-	-	-
	Tradeport	~~3~~	3	~~-~~	-	-	-	-	-	-	-	-	-	3
	Rural	~~7,564~~	7,559	~~2,230~~	2,225	-	-	800	730	-	-	-	-	-
	Rural Community Preserve	~~3,517~~	3,517	~~-~~	-	-	-	-	-	-	-	-	-	-
	Coastal Rural	~~1,338~~	1,338	~~-~~	-	-	-	-	-	-	-	-	-	-
	Outer Island	~~233~~	233	~~2~~	2	4	-	1	-	-	169	-	-	-
	Open Lands	~~2,186~~	2,186	~~153~~	153	-	-	-	257	-	-	-	-	-
	Density Reduction/ Groundwater Resource	~~6,974~~	6,974	~~131~~	131	-	-	-	-	-	-	-	-	-
	Conservation Lands Upland	~~-~~	-	~~-~~	-	-	-	-	-	-	-	-	-	-
	Wetlands	~~-~~	-	~~-~~	-	-	-	-	-	-	-	-	-	-
	Conservation Lands Wetland	~~-~~	-	~~-~~	-	-	-	-	-	-	-	-	-	-
Unincorporated County Total Residential		~~82,799~~	82,803	~~4,482~~	4,486	457	-	4,270	1,002	24	598	548	-	1,406
Commercial		~~8,916~~	8,916	~~300~~	300	53	-	450	27	9	125	150	-	1,216
Industrial		~~4,788~~	4,788	~~30~~	30	3	-	300	10	15	70	315	-	2,134
Non Regulatory Allocations														
Public		~~120,268~~	120,268	~~14,219~~	14,219	622	-	4,864	7,323	6	2,340	583	-	9,689
Active AG		~~21,889~~	21,889	~~5,500~~	5,500	-	-	240	90	-	-	-	-	2
Passive AG		~~13,665~~	13,665	~~5,500~~	5,500	-	-	615	100	-	-	-	-	465
Conservation		~~87,756~~	87,757	~~2,468~~	2,468	297	-	1,163	3,186	67	1,595	926	-	2,206
Vacant		~~26,442~~	26,438	~~1,294~~	1,290	28	-	733	766	8	103	17	-	88
Total		~~366,524~~	366,524	~~33,793~~	33,793	1,460	-	12,635	12,504	129	4,831	2,539	-	17,206
Population Distribution (unincorporated Lee County)		584,331	584,331	~~8,235~~	8,235	1,470	-	35,253	2,179	152	725	5,273	-	22,566

TABLE 1(b)
YEAR 2045 ALLOCATIONS

Future Land Use Category		Planning District											
		District 11 Daniels Parkway	District 12 Iona / McGregor	District 13 San Carlos	District 14 Sanibel	District 15 South Fort Myers	District 16 Pine Island	District 17 Lehigh Acres	District 18 Southeast Lee County	District 19 North Fort Myers	District 20 Buckingham	District 21 Estero	District 22 Bashore
Residential By Future Land Use Category	Intensive Development	-	-	-	-	801	1	30	-	376	-	-	-
	Central Urban	-	656	20	-	3,113	-	7,283	-	2,225	-	-	-
	Urban Community	-	978	1,255	-	863	540	17,000	-	-	115	-	-
	Suburban	-	2,566	2,069	-	1,202	659	-	-	6,387	-	-	-
	Outlying Suburban	1,253	438	-	-	-	502	-	-	406	-	90	-
	Sub-Outlying Suburban	-	-	13	-	-	-	-	55	145	66	-	950
	Commercial	-	-	-	-	-	-	-	-	-	-	-	-
	Industrial	-	3	3	-	3	-	-	-	-	-	-	-
	Public Facilities	-	-	-	-	-	-	-	-	-	-	-	-
	University Community	-	-	503	-	-	-	-	-	-	-	-	-
	Destination Resort Mixed Use Water Dependent	-	8	-	-	-	-	-	-	-	-	-	-
	Burnt Store Marina Village	-	-	-	-	-	-	-	-	-	-	-	-
	Industrial Interchange	-	-	-	-	-	-	-	-	-	-	-	-
	General Interchange	58	-	-	-	-	-	-	8	14	-	-	20
	General Commercial Interchange	-	-	-	-	-	-	-	-	-	-	-	-
	Industrial Commercial Interchange	-	-	-	-	-	-	-	-	-	-	-	-
	University Village Interchange	-	-	-	-	-	-	-	-	-	-	-	-
	New Community	-	-	-	-	-	-	-	-	-	-	-	-
	Airport	-	-	-	-	-	-	-	-	-	-	-	-
	Tradeport	-	-	-	-	-	-	-	-	-	-	-	-
	Rural	1,573	-	99	-	-	227	14	-	454	50	-	1,387
	Rural Community Preserve	-	-	-	-	-	-	-	-	-	3,517	-	-
	Coastal Rural	-	-	-	-	-	1,338	-	-	-	-	-	-
	Outer Island	-	2	-	-	-	55	-	-	-	-	-	-
	Open Lands	80	-	-	-	-	-	-	-	30	-	-	1,667
	Density Reduction/ Groundwater Resource	-	-	-	-	-	-	-	4,742	-	-	-	2,101
	Conservation Lands Upland	-	-	-	-	-	-	-	-	-	-	-	-
	Wetlands	-	-	-	-	-	-	-	-	-	-	-	-
	Conservation Lands Wetland	-	-	-	-	-	-	-	-	-	-	-	-
Unincorporated County Total Residential		**2,964**	**4,651**	**3,962**	**-**	**5,982**	**3,322**	**24,327**	**4,805**	**10,037**	**3,748**	**90**	**6,125**
Commercial		**326**	**774**	**938**	**-**	**2,012**	**288**	**900**	**118**	**1,121**	**19**	**18**	**72**
Industrial		**5**	**198**	**387**	**-**	**566**	**67**	**218**	**215**	**244**	**4**	**2**	**4**
Non Regulatory Allocations													
Public		**3,214**	**4,898**	**6,364**	**-**	**5,883**	**4,831**	**20,267**	**17,992**	**10,117**	**3,052**	**653**	**3,351**
Active AG		**5**	**13**	**5**	**-**	**-**	**2,780**	**35**	**11,945**	**90**	**630**	**4**	**550**
Passive AG		**10**	**-**	**5**	**-**	**-**	**70**	**50**	**2,500**	**250**	**2,000**	**-**	**2,100**
Conservation		**1,677**	**9,786**	**2,232**	**-**	**211**	**15,489**	**1,077**	**41,028**	**1,607**	**382**	**1,465**	**895**
Vacant		**20**	**55**	**221**	**-**	**4**	**2,200**	**14,917**	**2,400**	**1,183**	**850**	**130**	**1,425**
Total		**8,221**	**20,375**	**14,114**	**-**	**14,658**	**29,047**	**61,791**	**81,003**	**24,649**	**10,685**	**2,362**	**14,522**
Population Distribution (unincorporated Lee County)		**14,322**	**44,132**	**53,974**	**-**	**76,582**	**13,431**	**161,432**	**18,538**	**110,722**	**5,951**	**741**	**8,653**

CALOOSA 80

COMPREHENSIVE PLAN AMENDMENT

RECEIVED
APR 10 2024
COMMUNITY DEVELOPMENT

SUBMITTED TO:

Lee County Lee Planning Agency
Planning and Zoning
1500 Monroe St.
Fort Myers, FL 33901

Comprehensive Plan Map Amendment

- Completed Application
- Disclosure of Interest
- Surrounding Property Owners List, Mailing Labels, and Map for All Parcels Within 500 Feet of the Subject Property
- Future Land Use Map (Existing & Proposed – Map 1A, 4A and 4B)
- Existing Land Use Map
- Existing Zoning Map
- Legal Description and Sketch of the Description of Proposed FLUC
- Warranty Deeds
- Aerial Map
- Letter of Authorization
- Project Narrative (Lee Plan Analysis, State & Regional Policy Plan Analysis, Justification of Proposed Amendment, Planning Communities Analysis)
- Environmental Impacts Analysis
- Historic Resources Impact Analysis
- Existing & Future Conditions Analysis, Public Facilities Impacts Analysis
- Traffic Circulation Analysis
- Letters of Service Availability
- Proposed Text Changes

Application Forms

APPLICATION FOR A COMPREHENSIVE PLAN AMENDMENT - MAP

Project Name: Caloosa 80

Project Description: Proposal to change the future land use (FLU) category of the 92.71 +/- acre site from Rural to Sub-Outlying Suburban and to add the Property (192.3 +/- acres) to the Lee County Utilities, Future Water and Sanitary Sewer Service Areas. This request requires three map amendments to Lee Plan Map 1A, Map 4A and Map 4B.This map amendment will be accompanied by a text amendment to Table 1(b) to request to increase the residential acreage in the Northeast Lee County District. Through a companion MPD rezone request, development on the Property will be restricted to 650 RV units and 30,000 SF of commercial uses.

Map(s) to Be Amended: Lee Plan Map 1A, 4A, 4B

State Review Process: ☐ Small-Scale Review ☐ State Coordinated Review ■ Expedited State Review

---

1. **Name of Applicant:** Caloosa 80 LLP
   Address: 631 Turtle Beach Road
   City, State, Zip: North Palm Beach, FL 33408
   Phone Number: 239-405-0836 E-mail: stanw@whitgroup.net

2. **Name of Contact:** RVi Planning + Landscape Architecture c/o Alexis Crespo, AICP
   Address: 28100 Bonita Grande Drive, Suite 305
   City, State, Zip: Bonita Springs, FL 34135
   Phone Number: (239) 850-8525 E-mail: acrespo@rviplanning.com

3. **Owner(s) of Record:** Caloosa 80 LLP
   Address: 631 Turtle Beach Road
   City, State, Zip: North Palm Beach, FL 33408
   Phone Number: 239-405-0836 E-mail: stanw@whitgroup.net

4. **Property Location:**
   1. Site Address: Multiple, see STRAPs below.
   2. STRAP(s): 29-43-27-00-00005.0000; 29-43-27-00-00012.0060; 30-43-27-00-00001.0190

5. **Property Information:**
   Total Acreage of Property: 192.37 +/- Total Acreage Included in Request: 92.71(Map 1A), 192.37(Map 4A & 4B)
   Total Uplands: +/- 182.07 AC Total Wetlands: +/- 10.3 AC Current Zoning: RVPD
   Current Future Land Use Category(ies): Urban Community and Rural
   Area in Each Future Land Use Category: Urban Community (99.64 acres); Rural (92.71 acres)
   Existing Land Use: Pastures

6. **Calculation of maximum allowable development under current Lee Plan:**
   Residential Units/Density: 691 Commercial Intensity: _____ Industrial Intensity: _____

7. **Calculation of maximum allowable development with proposed amendments:**
   Residential Units/Density: 650 Commercial Intensity: _____ Industrial Intensity: _____
   Density limited to 650 RV lots per companion MPD rezone petition.

Public Facilities Impacts

NOTE: The applicant must calculate public facilities impacts based on the maximum development.

1. **Traffic Circulation Analysis**: The analysis is intended to determine the affect of the land use change on the Financially Feasible Highway Plan Map 3A (20-year plus horizon) and on the Capital Improvements Element (5-year horizon). Toward that end, an applicant must submit a Traffic Impact Statement (TIS) consistent with Lee County Administrative Code (AC)13-17.

    a. Proposals affecting less than 10 acres, where development parameters are contained within the Traffic Analysis Zone (TAZ) or zones planned population and employment, or where there is no change in allowable density/ intensity, may be eligible for a TIS requirement waiver as outlined in the Lee County TIS Guidelines and AC-13-17. Identification of allowable density/intensity in order to determine socio-economic data for affected TAZ(s) must be coordinated with Lee County Planning staff. Otherwise a calculation of trip generation is required consistent with AC-13-17 and the Lee County TIS Guidelines to determine required components of analysis for:

        i. Total peak hour trip generation less than 50 total trip ends – tripgeneration.

        ii. Total peak hour trip generation from 50 to 300 total trip ends – trip generation, trip distribution and trip assignment (manual or Florida Standard Urban Transportation Modeling Structure (FSUTMS) analysis consistent with AC-13-17 and TIS Guidelines), short-term (5 year) and long-range (to current Lee Plan horizon year) segment LOS analysis of the nearest or abutting arterial and major collector segment(s) identified in the Transportation Inventory based on the trip generation and roadway segment LOS analysis criteria in AC-13-17. A methodology meeting is recommended prior to submittal of the application to discuss use of FSUTMS, any changes to analysis requirements, or a combined CPA and Zoning TIS short term analysis.

        iii. Total peak hour trip generation is over 300 total trip ends - trip generation, mode split, trip distribution and trip assignment (manual or FSUTMS analysis consistent with AC-13-17 and TIS Guidelines), short-term (five-year) and long-range (to current Lee Plan horizon year) segment LOS analysis of arterial and collector segments listed in the Transportation Inventory. LOS analysis will include any portion of roadway segments within an area three miles offset from the boundary of the application legal description metes and bounds survey. LOS analysis will also include any additional segments in the study area based on the roadway segment LOS analysis criteria in AC-13-17. A methodology meeting is required prior to submittal of the application.

    b. Map amendment - greater than 10 acres -Allowable density/intensity will be determined by Lee County Planning staff.

2. **Provide an existing and future conditions analysis for the following (see Policy 95.1.3):**
    a. Sanitary Sewer
    b. Potable Water
    c. Surface Water/Drainage Basins
    d. Parks, Recreation, and Open Space
    e. Public Schools

Analysis for each of the above should include (but is not limited to) the following (see the Lee County Concurrency Management Report):

a Franchise Area, Basin, or District in which the property is located
b Current LOS, and LOS standard of facilities serving the site
c Projected 2030 LOS under existing designation
d Projected 2030 LOS under proposed designation
e Existing infrastructure, if any, in the immediate area with the potential to serve the subject property
f Improvements/expansions currently programmed in 5 year CIP, 6-10 year CIP, and long rangeimprovements
g Provide a letter of service availability from the appropriate utility for sanitary sewer andpotablewater

In addition to the above analysis, provide the following for potable water:

a. Determine the availability of water supply within the franchise area using the current water use allocation (Consumptive Use Permit) based on the annual average daily withdrawal rate.
b. Include the current demand and the projected demand under the existing designation, and the projected demand under the proposed designation.
c. Include the availability of treatment facilities and transmission lines for reclaimed water forirrigation.
d. Include any other water conservation measures that will be applied to the site (see Goal 54).

3. Provide a letter from the appropriate agency determining the adequacy/provision of existing/proposed support facilities, including:

a. Fire protection with adequate response times
b. Emergency medical service (EMS) provisions
c. Law enforcement
d. Solid Waste
e. Mass Transit
f. Schools

In reference to above, the applicant must supply the responding agency with the information from application items 5, 6, and 7 for their evaluation. This application must include the applicant's correspondence/request to the responding agency.

Environmental Impacts

Provide an overall analysis of the character of the subject property and surrounding properties, and assess the site's suitability for the proposed change based upon the following:

1. A map of the Plant Communities as defined by the Florida Land Use Cover and Classification system (FLUCCS).
2. A map and description of the soils found on the property (identify the source of the information).
3. A topographic map depicting the property boundaries and 100-year flood prone areas indicated (as identified by FEMA).
4. A map delineating the property boundaries on the most recent Flood Insurance Rate Map.
5. A map delineating wetlands, aquifer recharge areas, and rare & unique uplands.
6. A table of plant communities by FLUCCS with the potential to contain species (plant and animal) listed by federal, stateor local agencies as endangered, threatened or species of special concern. The table must include the listed species by FLUCCS and the species status (same as FLUCCS map).

Impacts on Historic Resources

List all historic resources (including structure, districts, and/or archaeologically sensitive areas) and provide an analysis of the proposed change's impact on these resources. The following should be included with the analysis:

1. A map of any historic districts and/or sites listed on the Florida Master Site File which are located on the subject property or adjacent properties.
2. A map showing the subject property location on the archaeological sensitivity map for LeeCounty.

Internal Consistency with the Lee Plan

1. Discuss how the proposal affects established Lee County population projections, Lee Plan Table 1(b) and the total population capacity of the Lee Plan Future Land Use Map.
2. List all goals and objectives of the Lee Plan that are affected by the proposed amendment or that affect the subject property. This analysis should include an evaluation of all relevant policies under each goal andobjective.
3. Describe how the proposal affects adjacent local governments and their comprehensiveplans.

State Policy Plan and Regional Policy Plan

List State Policy Plan and Regional Policy Plan goals, strategies and actions, and policies which are relevant to this plan amendment.

Justify the proposed amendment based upon sound planning principles

Support all conclusions made in this justification with adequate data and analysis.

Planning Communities/Community Plan Area Requirements

If located within a planning community/community plan area, provide a meeting summary document of the required public informational session [Lee Plan Goal 17].

Sketch and Legal Description

The certified legal description(s) and certified sketch of the description for the property subject to the requested change. A metes and bounds legal description must be submitted specifically describing the entire perimeter boundary of the property with accurate bearings and distances for every line. The sketch must be tied to the state plane coordinate system for the Florida West Zone (North America Datum of 1983/1990 Adjustment) with two coordinates, one coordinate being the point of beginning and the other an opposing corner. If the subject property contains wetlands or the proposed amendment includes more than one land use category a metes and bounds legal description, as described above, must be submitted in addition to the perimeter boundary of the property for each wetland or future land use category.

SUBMITTAL REQUIREMENTS

Clearly label all submittal documents with the exhibit name indicated below.

For each map submitted, the applicant will be required to submit a 24"x36" version and 8.5"x11" reduced map for inclusion in public hearing packets.

MINIMUM SUBMITTAL ITEMS (3 Copies)

■	Completed Application (Exhibit – M1)
■	Filing Fee (Exhibit – M2)
■	Disclosure of Interest (Exhibit – M3)
■	Surrounding Property Owners List, Mailing Labels, and Map For All Parcels Within 500 Feet of the Subject Property (Exhibit – M3)
■	Future Land Use Map - Existing and Proposed (Exhibit – M4)
■	Map and Description of Existing Land Uses (Not Designations) of the Subject Property and Surrounding Properties (Exhibit – M5)
■	Map and Description of Existing Zoning of the Subject Property and Surrounding Properties (Exhibit – M6)
■	Signed/Sealed Legal Description and Sketch of the Description for Each FLUC Proposed (Exhibit – M7)
■	Copy of the Deed(s) of the Subject Property (Exhibit – M8)
■	Aerial Map Showing the Subject Property and Surrounding Properties (Exhibit – M9)
■	Authorization Letter From the Property Owner(s) Authorizing the Applicant to Represent the Owner (Exhibit – M10)
■	Lee Plan Analysis (Exhibit – M11)
■	Environmental Impacts Analysis (Exhibit – M12)
■	Historic Resources Impact Analysis (Exhibit – M13)
■	Public Facilities Impacts Analysis (Exhibit – M14)
■	Traffic Circulation Analysis (Exhibit – M15)
■	Existing and Future Conditions Analysis - Sanitary Sewer, Potable Water, Surface Water/Drainage Basins, Parks and Rec, Open Space, Public Schools (Exhibit – M16)
■	Letter of Determination For the Adequacy/Provision of Existing/Proposed Support Facilities - Fire Protection, Emergency Medical Service, Law Enforcement, Solid Waste, Mass Transit, Schools (Exhibit – M17)
■	State Policy Plan and Regional Policy Plan (Exhibit – M18)
■	Justification of Proposed Amendment (Exhibit – M19)
■	Planning Communities/Community Plan Area Requirements (Exhibit – M20)

APPLICANT – PLEASE NOTE:

Once staff has determined the application is sufficient for review, 15 complete copies will be required to be submitted to staff. These copies will be used for Local Planning Agency hearings, Board of County Commissioners hearings, and State Reviewing Agencies. Staff will notify the applicant prior to each hearing or mail out to obtain the required copies.

If you have any questions regarding this application, please contact the Planning Section at (239)533-8585.

AFFIDAVIT

I, Alfred Hoffman Jr., certify that I am the owner or authorized representative of the property described herein, and that all answers to the questions in this application and any sketches, data, or other supplementary matter attached to and made a part of this application, are honest and true to the best of my knowledge and belief. I also authorize the staff of Lee County Community Development to enter uponthe property during normal working hours for the purpose of investigating and evaluating the request made through this application.

Signature of Applicant — Date: 5/26/22

Caloosa 80 LLP
Printed Name of Applicant

STATE OF FLORIDA
COUNTY OF LEE

The foregoing instrument was sworn to (or affirmed) and subscribed before me by means of ☒ physical presence or ☐ onlinenotarization on May 26, 2022 (date) by (name of person providing oath or affirmation), who is personally known to me or who has produced N/A (type of identification) as identification.

Signature of Notary Public

Sheila Penny
(Name typed, printed or stamped)

SHEILA PENNY
Notary Public-State of Florida
Commission # HH 206430
My Commission Expires
December 09, 2025

Lee County Community Development

APPLICATION FOR A COMPREHENSIVE PLAN AMENDMENT - TEXT

Project Name: Caloosa 80

Project Description: Text amendment proposed to Table 1(b) to increase the residential acreage in the Northeast Lee County District. This is accompanied by a Map Amendment Proposal to change the future land use (FLU) category of the 92.71 +/- acre site from Rural to Sub-Outlying Suburban and to add the Property (192.3 +/- acres) to the Lee County Utilities, Future Water and Sanitary Sewer Service Areas. Through a companion MPD rezone request, development on the Property will be restricted to 650 RV units and 30,000 SF of commercial uses.

State Review Process: ☐ State Coordinated Review ☒ Expedited State Review ☐ Small-Scale Text*

***Must be directly related to the implementation of small-scale map amendment as required by Florida Statutes.**

APPLICANT – PLEASE NOTE:
A PRE-APPLICATION MEETING IS REQUIRED PRIOR TO THE SUBMITTAL OF THIS APPLICATION.

Submit 3 copies of the complete application and amendment support documentation, including maps, to the Lee County Department of Community Development.

Once staff has determined that the application is sufficient for review, 15 complete copies will be required to be submitted to staff. These copies will be used for Local Planning Agency, Board of County Commissioners hearings, and State Reviewing Agencies. Staff will notify the applicant prior to each hearing or mail out to obtain the required copies.

If you have any questions regarding this application, please contact the Planning Section at (239)533-8585.

1. **Name of Applicant:** Caloosa 80 LLP
   Address: 631 Turtle Beach Road
   City, State, Zip: North Palm Beach, FL 33408
   Phone Number: 239-405-0836 E-mail: stanw@whitgroup.net

2. **Name of Contact:** RVi Planning + Landscape Architecture c/o Alexis Crespo, AICP
   Address: 28100 Bonita Grande Drive, Suite 305
   City, State, Zip: Bonita Springs, FL 34135
   Phone Number: (239) 850-8525 E-mail: acrespo@rviplanning.com

3. **Property Information:** Provide an analysis of any property within Unincorporated Lee County that may be impacted by the proposed text amendment. The text amendment is limited to addition of acreage to District 1, Northeast Lee County to allow for a FLU amendment from Rural to Sub-Outlying Suburban. The subject property, of which 92.71 +/- acres is proposed to be designated as Sub-Outlying Suburban, will be the only property impacted by this amendment.

4a. Does the proposed change affect any of the following areas?

If located in one of the following areas, provide an analysis of the change to the affected area.

☐ Public Acquisition [Map 1-D]
☐ Agricultural Overlay [Map 1-G]
☐ Airport Mitigation Lands [Map 1-D]
☐ Airport Noise Zones [Map 1-E]
☐ Southeast Lee County Residential Overlay [Map 2-D]
☐ Mixed Use Overlay [Map 1-C]
☐ Community Planning Areas [Map 2-A]
☐ Urban Reserve [Map 1-D]
☐ Water-Dependent Overlay [Map 1-H]
☐ Private Recreational Facilities Overlay [Map 1-F]

4b. Planning Communities/Community Plan Area Requirements

If located in one of the following planning communities/community plan areas, provide a meeting summary document of the required public informational session [Lee Plan Goal 17].

☐ N/A	☐ Bayshore [Goal 18]	☐ Boca Grande [Goal 19]	☐ Buckingham [Goal 20]
☐ Caloosahatchee Shores [Goal 21]	☐ Olga [Goal 22]	☐ Captiva [Goal 23]	☐ Greater Pine Island [Goal 24]
☐ Lehigh Acres [Goal 25]	☐ North Captiva [Goal 26]	■ NE Lee County [Goal 27]	■ Alva [Goal 28]
☐ North Olga [Goal 29]	☐ North Fort Myers [Goal 30]	☐ Page Park [Goal 31]	☐ San Carlos Island [Goal 32]
☐ Southeast Lee County [Goal 33]	☐ Tice [Goal 34]		

Public Facilities Impacts

NOTE: The applicant must calculate public facilities impacts based on a maximum development scenario.

1. **Traffic Circulation Analysis**: Provide an analysis of the effect of the change on the Financially Feasible Transportation Plan/Map 3-A (20-year horizon) and on the Capital Improvements Element (5-year horizon).

2. **Provide an existing and future conditions analysis for the following (see Policy 95.1.3):**
   a. Sanitary Sewer
   b. Potable Water
   c. Surface Water/Drainage Basins
   d. Parks, Recreation, and Open Space
   e. Public Schools

Environmental Impacts

Provide an overall analysis of potential environmental impacts (positive and negative).

Historic Resources Impacts

Provide an overall analysis of potential historic impacts (positive and negative).

Internal Consistency with the Lee Plan

1. Discuss how the proposal affects established Lee County population projections, Lee Plan Table 1(b) and the total population capacity of the Lee Plan Future Land Use Map.
2. List all goals and objectives of the Lee Plan that are affected by the proposed amendment. This analysis should include an evaluation of all relevant policies under each goal and objective.
3. Describe how the proposal affects adjacent local governments and their comprehensive plans.
4. List State Policy Plan goals and policies, and Strategic Regional Policy Plan goals, strategies, actions and policies which are relevant to this plan amendment.

Justify the proposed amendment based upon sound planning principles

Support all conclusions made in this justification with adequate data and analysis.

SUBMITTAL REQUIREMENTS

Clearly label all submittal documents with the exhibit name indicated below.

MINIMUM SUBMITTAL ITEMS

■	Completed application (Exhibit – T1)
■	Filing Fee (Exhibit – T2)
■	Pre-Application Meeting (Exhibit – T3)
■	Proposed text changes (in strike through and underline format) (Exhibit – T4)
■	Analysis of impacts from proposed changes (Exhibit – T5)
■	Lee Plan Analysis (Exhibit – T6)
■	Environmental Impacts Analysis (Exhibit – T7)
■	Historic Resources Impacts Analysis (Exhibit – T8)
■	State Policy Plan Analysis (Exhibit – T9)
■	Strategic Regional Policy Plan Analysis (Exhibit – T10)

AFFIDAVIT

I, Alfred Hoffman Jr., certify that I am the owner or authorized representative of the property described herein, and that all answers to the questions in this application and any sketches, data, or other supplementary matter attached to and made a part of this application, are honest and true to the best of my knowledge and belief. I also authorize the staff of Lee County Community Development to enter uponthe property during normal working hours for the purpose of investigating and evaluating the request made through this application.

[signature] 5/26/22

Signature of Applicant Date

Caloosa 80 LLP

Printed Name of Applicant

STATE OF FLORIDA
COUNTY OF LEE

The foregoing instrument was sworn to (or affirmed) and subscribed before me by means of ☒ physical presence or ☐ onlinenotarization on May 26, 2022 (date) by (name of person providing oath or affirmation), who is personally known to me or who has produced N/A (type of identification) as identification.

[signature]

Signature of Notary Public

Sheila Penny

(Name typed, printed or stamped)

SHEILA PENNY
Notary Public-State of Florida
Commission # HH 206430
My Commission Expires
December 09, 2025

Disclosure of Interest

DISCLOSURE OF INTEREST
AFFIDAVIT

BEFORE ME this day appeared Alfred Hoffman Jr., who, being first duly sworn and deposed says:

1. That I am the record owner, or a legal representative of the record owner, of the property that is located at See attached legal description and is the subject of an Application for zoning action (hereinafter the "Property").

2. That I am familiar with the legal ownership of the Property and have full knowledge of the names of all individuals that have an ownership interest in the Property or a legal entity owning an interest in the Property.

[OPTIONAL PROVISION IF APPLICANT IS CONTRACT PURCHASER: In addition, I am familiar with the individuals that have an ownership interest in the legal entity that is under contract to purchase the Property.]

3. That, unless otherwise specified in paragraph 6 below, no Lee County Employee, County Commissioner, or Hearing Examiner has an Ownership Interest in the Property or any legal entity (Corporation, Company, Partnership, Limited Partnership, Trust, etc.) that has an Ownership Interest in the Property or that has contracted to purchase the Property.

4. That the disclosure identified herein does not include any beneficial Ownership Interest that a Lee County Employee, County Commissioner, or Hearing Examiner may have in any entity registered with the Federal Securities Exchange Commission or registered pursuant to Chapter 517, whose interest is for sale to the general public.

5. That, if the Ownership Interest in the Property changes and results in this affidavit no longer being accurate, the undersigned will file a supplemental Affidavit that identifies the name of any Lee County Employee, County Commissioner, or Hearing Examiner that subsequently acquires an interest in the Property.

6. Disclosure of Interest held by a Lee County Employee, County Commissioner, or Hearing Examiner.

Name and Address	Percentage of Ownership
N/A	N/A

Under penalty of perjury, I declare that I have read the foregoing and the facts alleged are true to the best of my knowledge and belief.

Property Owner

Alfred Hoffman Jr.
Print Name

************NOTE: NOTARY PUBLIC IS NOT REQUIRED FOR ADMINISTRATIVE APPROVALS************
ALL OTHER APPLICATION TYPES MUST BE NOTARIZED

STATE OF FLORIDA
COUNTY OF LEE

The foregoing instrument was sworn to (or affirmed) and subscribed before me by means of ☒ physical presence or ☐ online notarization, on May 26, 2022 (date) by Alfred Hoffman Jr. (name of person providing oath or affirmation), who is personally known to me or who has produced _____ (type of identification) as identification.

STAMP/SEAL

Signature of Notary Public

SHEILA PENNY
Notary Public-State of Florida
Commission # HH 206430
My Commission Expires
December 09, 2025

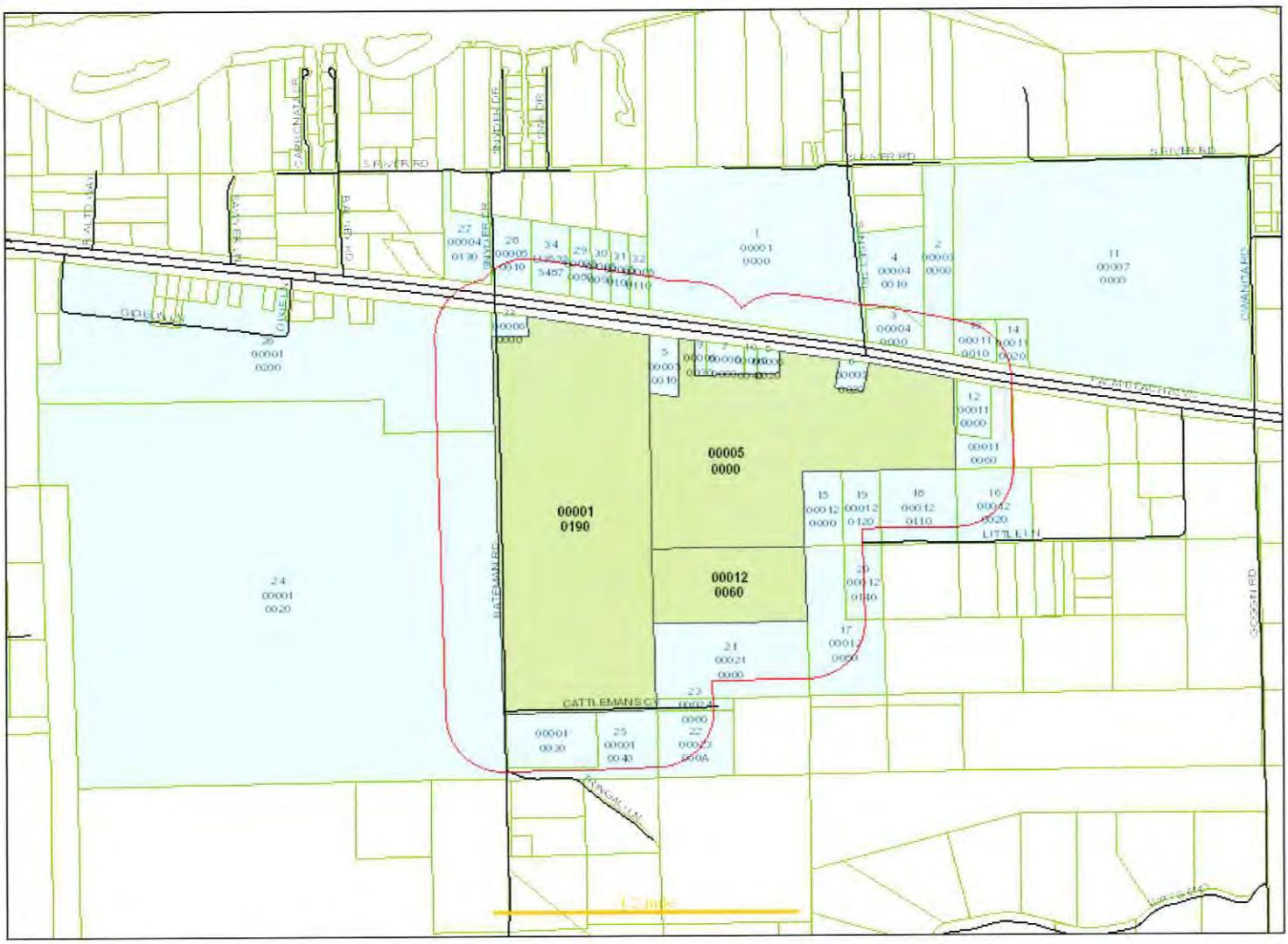
DESCRIPTION:

A PARCEL OF LAND LOCATED IN SECTIONS 29 AND 30, TOWNSHIP 43 SOUTH, RANGE 27 EAST IN LEE COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE SOUTHWEST CORNER OF SAID SECTION 29; THENCE N 01°19'47" W ALONG THE WEST LINE OF SAID SECTION FOR A DISTANCE OF 574.13 FEET TO THE NORTHEAST CORNER OF A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 3170, PAGE 1221 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA AND THE **POINT OF BEGINNING**; THENCE RUN S 89°00'02" W, ALONG THE NORTHERLY LINE OF SAID PARCEL AND A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 2689, PAGE 912, A DISTANCE OF 1304.26 FEET TO THE NORTHWEST CORNER THEREOF AND THE EASTERLY RIGHT-OF-WAY LINE OF BATEMAN ROAD; THENCE RUN N 01°06'11" W, ALONG SAID EASTERLY RIGHT-OF-WAY LINE, A DISTANCE OF 3267.72 FEET TO THE SOUTHWEST CORNER OF A CERTAIN PARCEL OF LAND DESCRIBED BY INSTRUMENT NUMBER 2006000445704 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA; THENCE RUN ALONG THE SOUTHERLY BOUNDARY LINE OF SAID PARCEL, N 89°33'20" E, 311.72 FEET; THENCE RUN N 01°08'20" W, 175.39 FEET ALONG THE EASTERLY BOUNDARY LINE OF SAID PARCEL TO NORTHEAST CORNER THEREOF AND THE SOUTHERLY RIGHT-OF-WAY LINE OF PALM BEACH BOULEVARD (STATE ROAD 80); THENCE RUN S 81°56'44" E, ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 1003.23 FEET TO THE NORTHWEST CORNER OF A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 2879, PAGE 3553; THENCE RUN ALONG THE WESTERLY BOUNDARY LINE OF SAID PARCEL, S 00°50'34" E, 511.38 FEET TO THE SOUTHWEST CORNER THEREOF; THENCE RUN S 81°55'10" E, 259.80 FEET ALONG THE SOUTHERLY BOUNDARY LINE OF SAID PARCEL TO THE SOUTHEAST CORNER THEREOF; THENCE N 00°50'15" W, 509.82 FEET ALONG THE EASTERLY BOUNDARY LINE OF SAID PARCEL TO THE NORTHEAST CORNER THEREOF AND THE AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE; THENCE RUN S 82°03'50" E ALONG SAID RIGHT-OF-WAY LINE, A DISTANCE OF 129.52 FEET TO THE NORTHWEST CORNER OF A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 2655, PAGE 3059; THENCE RUN S 00°54'50" E, ALONG THE WESTERLY BOUNDARY LINE OF SAID PARCEL, A DISTANCE OF 266.04 FEET TO THE SOUTHWEST CORNER THEREOF; THENCE RUN N 89°15'34" E, ALONG THE SOUTHERLY BOUNDARY LINE OF SAID PARCEL AND THE SOUTHERLY BOUNDARY LINES OF THREE PARCELS DESCRIBED IN OFFICIAL RECORDS BOOK 1140, PAGE 1744, OFFICIAL RECORDS BOOK 2983, PAGE 1220 AND OFFICIAL RECORDS BOOK 2246, PAGE 2979 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA, A DISTANCE OF 734.80 FEET TO THE SOUTHEAST CORNER OF SAID PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 2246, PAGE 2979; THENCE RUN N 00°51'50" W, ALONG THE EASTERLY BOUNDARY LINE OF SAID PARCEL, A DISTANCE OF 150.82 FEET TO THE NORTHEAST CORNER THEREOF AND THE AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE; THENCE RUN S 81°52'00" E, ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 500.41 FEET, TO THE NORTHWEST CORNER OF A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 2879, PAGE 3553; THENCE RUN ALONG THE WESTERLY BOUNDARY LINE OF SAID PARCEL, S 08°06'20" W, 250.12 FEET TO THE SOUTHWEST CORNER THEREOF; THENCE RUN S 81°52'20" E, 249.92 FEET ALONG THE SOUTHERLY BOUNDARY LINE OF SAID PARCEL TO THE SOUTHEAST CORNER THEREOF; THENCE RUN N 08°09'20" E, 250.10 FEET ALONG THE EASTERLY BOUNDARY LINE OF SAID PARCEL TO THE NORTHEAST CORNER THEREOF AND THE AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE; THENCE RUN S 81°56'50" E, ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 73.56 FEET, TO A CURVE CONCAVE TO THE SOUTHWEST, HAVING A RADIUS OF 17087.13 FEET, A CENTRAL ANGLE OF 01°40'52", A CHORD BEARING OF S 79°16'26" E FOR 501.31 FEET; THENCE ALONG THE ARC OF SAID CURVE AND THE AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE, RUN 501.33 FEET; THENCE CONTINUE ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, RUN S 78°26'40" E FOR 183.55 FEET TO A CURVE CONCAVE TO THE SOUTHWEST HAVING A RADIUS OF 17159.98 FEET, A CENTRAL ANGLE OF 00°06'34", A CHORD BEARING S 78°15'52" E FOR 32.74 FEET; THENCE ALONG THE ARC OF SAID CURVE AND THE AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE, RUN 32.74 FEET; THENCE DEPARTING SAID AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE, RUN S 01°13'02" E, 764.34 FEET TO THE NORTHEAST CORNER OF A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 3616, PAGE 2890; THENCE RUN S 89°15'48" W, ALONG THE NORTHERLY BOUNDARY LINE OF SAID PARCEL AND THE NORTHERLY BOUNDARY LINE OF THE TWO FOLLOWING PARCELS DESCRIBED IN OFFICIAL RECORDS BOOK 3906, PAGE 52 AND BY INSTRUMENT NUMBER 2007000138101 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA, A DISTANCE OF 1320.51 FEET TO THE NORTHWEST CORNER OF SAID PARCEL DESCRIBED BY INSTRUMENT NUMBER 2007000138101; THENCE RUN S 01°17'38" E, ALONG THE WESTERLY BOUNDARY LINE OF SAID PARCEL AND CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 3039, PAGE 3678, A DISTANCE OF 1319.21 FEET, TO THE NORTHEAST CORNER OF A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 3296, PAGE 4612; THENCE RUN S 89°09'58" W, ALONG THE NORTHERLY BOUNDARY LINE OF SAID PARCEL AND A CERTAIN PARCEL DESCRIBED BY INSTRUMENT NUMBER 2007000251171, A DISTANCE OF 1320.26 FEET TO THE NORTHWEST CORNER OF SAID PARCEL DESCRIBED BY INSTRUMENT NUMBER 2007000251171; THENCE RUN S 01°19'47" E, ALONG THE WESTERLY BOUNDARY LINE OF SAID PARCEL, A DISTANCE OF 747.68 FEET TO THE **POINT OF BEGINNING.**

CONTAINING 192.36 ACRES, MORE OR LESS.

Surrounding Property Owners List, Mailing Labels, and Map for All Parcels Within 500 Feet of the Subject Property



Date of Report: May 26, 2022

Buffer Distance: 500 feet Rerun

Parcels Affected: 36

Subject Parcels: **29-43-27-00-00005.0000, 29-43-27-00-00012.0060, 30-43-27-00-00001.0190**

To change, add or remove subject parcels please change the parcel selection in GeoView

Click here to download the map image, mailing labels (Avery 5161) and CSV formatted information.

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION	MAP INDEX
RIVERGLEN PROPERTIES LLC 1380 GASPARILLA DR FORT MYERS FL 33901	**29-43-27-00-00001.0000** 19171 PALM BEACH BLVD ALVA FL 33920	N1/2OFN12OFSW1/4OFNW1/4N STRD80+NW1/4OFNW1/4+APARL INNW1/4DESC OR797PG765 LES R R/W	1
CUSTER PEGGY M TR JOHN CUSTER 211 HENDRICKS ISLE FORT LAUDERDALE FL 33301	**29-43-27-00-00003.0000** 19431 PALM BEACH BLVD ALVA FL 33920	PARL IN NW 1/4 SEC 29 TWP 43 R 27 DESC IN OR 1017 PG 221 LES R R/W OR 2896/25	2
HOELDERLIN ARTHUR JOSEPH III 2251 SUNSET TRL ALVA FL 33920	**29-43-27-00-00004.0000** 2251 SUNSET TRL ALVA FL 33920	PARL IN NW 1/4 SEC 29 TWP 43 R 27 DESC IN OR 919 PG 455 + LESS OR 3272/2265 LESS R/W OR 2828/1203 + LESS R/W OR 2894/2555	3
MALLETT ROBERT LANE TR 2101 SUNSET TRL ALVA FL 33920	**29-43-27-00-00004.0010** 2101 SUNSET TRL ALVA FL 33920	PARL IN NW 1/4 SEC 29 TWP 43 R 27 DESC IN OR 3272 PG 2265 LESS R/W OR 2828/1203 + LESS R/W OR 2894/2555	4

STATE OF FL DOT PO BOX 1249 BARTOW FL 33831	**29-43-27-00-00005.0010** 19030 PALM BEACH BLVD ALVA FL 33920	PARL LOC IN THE S 1/2 OF NW 1/4 AS DESC IN OR 2879/3553 LESS RD R/W + LESS 5.0020	5
STATE OF FL DOT PO BOX 1249 BARTOW FL 33831	**29-43-27-00-00005.0020** 19200 PALM BEACH BLVD ALVA FL 33920	PARL LOC IN THE S 1/2 OF NW 1/4 AS DESC IN OR 2879/3553 LESS RD R/W + LESS 5.0010	6
SNOW KEITH A 19140 PALM BEACH BLVD ALVA FL 33920	**29-43-27-00-00006.0000** 19140 PALM BEACH BLVD ALVA FL 33920	N 1/2 OF N 1/2 OF SW 1/4 OF NW 1/4 S OF RD LESS RD R/W LESS W 200 FT + LESS	7
BOWDLER DAVID F 14011 CEMETERY RD FORT MYERS FL 33905	**29-43-27-00-00006.0020** 19170 PALM BEACH BLVD ALVA FL 33920	PARL IN SW 1/4 OF NW 1/4 SEC 29 TWP 43 R 27 DESC IN OR 785 PG 90	8
CHILDRESS SHANE & VICTORIA 17629 WOODLAND CT PUNTA GORDA FL 33982	**29-43-27-00-00006.0030** 19080 PALM BEACH BLVD ALVA FL 33920	E 100 FT OF W 485 FT OF N 260.17 FT OF S 1150.17 FT OF NW 1/4 S OF SR 80 R/W	9
LYNCH THOMAS 19160 PALM BEACH BLVD ALVA FL 33920	**29-43-27-00-00006.0040** 19160 PALM BEACH BLVD ALVA FL 33920	FRM SW CRN OF N 1/2 OF N 1/2 OF SW 1/4 OF NW 1/4 E 820 TO POB THN S 100 E 110 N 100 W 110 FT	10
YODER BROTHERS INC ERIN MAZZUCCO 115 THIRD ST SE BARBERTON OH 44203	**29-43-27-00-00007.0000** 2200 OWANITA RD ALVA FL 33920	NE 1/4 N OF SR 80 LESS 11.001 THRU 11.003 + LESS BLDG ONLY PARL AS DESC IN INST#2008000328784	11
STATE OF FL DOT PO BOX 1249 BARTOW FL 33831	**29-43-27-00-00011.0000** 19600 PALM BEACH BLVD ALVA FL 33920	PARL LOC IN THE SW 1/4 OF THE NE 1/4 AS DESC IN OR 2854 PG 4034	12
WILKINSON KATHERINE A TR 19521 PALM BEACH BLVD ALVA FL 33920	**29-43-27-00-00011.0010** 19521 PALM BEACH BLVD ALVA FL 33920	LANDS AS DESC IN OR 1113 PG 294 LES R R/W OR 2870/970	13
PUMPHREY TREVOR JOHN MODERN MOULDS BUSINESS CENTRE 2-3 COMMERCE WAY LANCING BUSINESS PARK LANCING BN15 8TA UNITED KINGDOM	**29-43-27-00-00011.0020** 19581 PALM BEACH BLVD ALVA FL 33920	E 280 FT OF E 1/2 OF NW 1/4 OF SW 1/4 OF NE 1/4 N OF ST RD 80	14
CARDULLO CLARENCE C SR + 19401 LITTLE LN ALVA FL 33920	**29-43-27-00-00012.0000** 19401 LITTLE LN ALVA FL 33920	W 1/2 OF NW 1/4 OF NE 1/4 OF SW 1/4	15
HEATH STANLEY TR 19591 LITTLE LN ALVA FL 33920	**29-43-27-00-00012.0020** 19591 LITTLE LN ALVA FL 33920	NW 1/4 OF NW 1/4 OF SE 1/4 LESS RD R/W	16
CHOW KAI FU 15861 COUNTRY CT FORT MYERS FL 33912	**29-43-27-00-00012.0080** 19400 LITTLE LN ALVA FL 33920	NW 1/4 OF SE 1/4 OF SW 1/4 + W 1/2 OF SW 1/4 OF NE 1/4 OF SW 1/4 OF SEC 29	17
SMITH BRITTANY G 19471 LITTLE LN ALVA FL 33920	**29-43-27-00-00012.0110** 19471 LITTLE LN ALVA FL 33920	NE 1/4 OF NE 1/4 OF SW 1/4 OF SECTION 29	18
QUATTROCCHI STEPHANIE 19431 LITTLE LN ALVA FL 33920	**29-43-27-00-00012.0120** 19431 LITTLE LN ALVA FL 33920	E 1/2 OF NW 1/4 OF NE 1/4 OF SW 1/4	19
REINBOTT MICHAEL + LISA PO BOX 1423 LABELLE FL 33975	**29-43-27-00-00012.0140** 19430 LITTLE LN ALVA FL 33920	E 1/2 OF SW 1/4 OF NE 1/4 OF SW 1/4 DESC IN OR 4032 PG 3737	20
MARRA ESTATES LLC 3001 BATEMAN RD ALVA FL 33920	**29-43-27-00-00021.0000** 19101 CATTLEMANS CV ALVA FL 33920	N 1/2 OF SW 1/4 OF SW 1/4	21

MARRA ESTATES LLC 3001 BATEMAN RD ALVA FL 33920	**29-43-27-00-00023.000A** ACCESS UNDETERMINED ALVA FL 33920	SW 1/4 OF THE SW 1/4 OF THE SW 1/4 OF SEC 29 TWP 43 R 27 LEE COUNTY FLORIDA LESS THE NORTH 100 FEET 8.487 ACRES +/-	22
MARRA JASON A 7800 UNIVERSITY POINT DR FORT MYERS FL 33907	**29-43-27-00-00024.0000** ACCESS UNDETERMINED ALVA FL	PARL IN SW 1/4 OF SW 1/4 SEC 29 TWP 43 R 27 DESC IN OR 75 PG 562	23
LEE COUNTY PO BOX 398 FORT MYERS FL 33902	**30-43-27-00-00001.0020** 2500 BATEMAN RD ALVA FL 33920	THE SOUTH 3279 FT OF SEC W OF LESS BATEMAN RD RD	24
BERNARD BRIAN W & SIMONE 2995 BATEMAN RD ALVA FL 33920	**30-43-27-00-00001.0040** 2995 BATEMAN RD ALVA FL 33920	PARL LOC IN SE 1/4 OF THE SE 1/4 AS DESC IN OR 2811 PG 3151	25
LEE COUNTY CONSERVATION 2020 PO BOX 398 FORT MYERS FL 33902	**30-43-27-00-00001.0200** ACCESS UNDETERMINED ALVA FL 33920	PINE CREEK ACRES UNIT 1 PB 10 PG 13 LTS 5 THRU 17 + 29 + 30 + 33 THRU 36 + 39 + 40 PINE CREEK ACRES UNIT 2 PB 10 PG 74 LTS 2 THRU 23 + 29 THRU 39 + LEGAL CONT IN NOTES	26
HAMILTON MILTON J III & 1901 BALSEY RD ALVA FL 33920	**30-43-27-00-00004.0130** 2076 SNYDER DR ALVA FL 33920	PORT EAST 430 FT OF THE NW 1/4 OF NE 1/4 N OF SR 80 DESC OR 2619/3015 LESS PAR A AS DESC IN INST #2013000259081 + LESS ROW DESC IN OR 2843 PG 1273	27
GROFF NICHOLAS PII TR 2051 SNYDER DR ALVA FL 33920	**30-43-27-00-00005.0010** 2051 SNYDER DR ALVA FL 33920	PARL IN NE 1/4 OF THE NE 1/4 N OF ST RD 80. AS DESC IN OR 2747/0143 LESS R/W OR 2900/2921	28
EXCELLENT PROPERTIES LLC 1829 SAINT IVES CIR LEXINGTON KY 40502	**30-43-27-00-00005.0080** 18881 PALM BEACH BLVD ALVA FL 33920	PARL IN NE 1/4 OF THE N 1/4 N OF ST RD 80 AS DESC IN OR 2747/0143 LESS R/W OR 2900/2921	29
EXCELLENT PROPERTIES LLC 1829 SAINT IVES CIR LEXINGTON KY 40502	**30-43-27-00-00005.0090** 18911 PALM BEACH BLVD ALVA FL 33920	PARL IN NE 1/4 OF THE NE 1/4 N OF ST RD 80 AS DESC IN OR 2747/0143 LESS R/W OR 2900/2921	30
JABLONSKI JEFFREY & MARLO 18931 PALM BEACH BLVD ALVA FL 33920	**30-43-27-00-00005.0100** 18931 PALM BEACH BLVD ALVA FL 33920	PARL IN NE 1/4 OF THE NE 1/4 N OF ST RD 80 AS DESC IN OR 2747/0143 LESS R/W OR 2900/2921	31
ALVAREZ FREDDYS VALDES 112 ORTONA ST LEHIGH ACRES FL 33936	**30-43-27-00-00005.0110** 18951 PALM BEACH BLVD ALVA FL 33920	PARL IN NE 1/4 OF THE NE 1/4 N OF ST RD 80 AS DESC IN OR 2747/0143 LESS R/W OR 2900/2921	32
PUMPHREY TREVOR JOHN MODERN MOULDS BUSINESS CENTRE 2-3 COMMERCE WAY LANCING BUSINESS PARK LANCING BN15 8TA UNITED KINGDOM	**30-43-27-00-00006.0000** 18770 PALM BEACH BLVD ALVA FL 33920	PARL IN SE 1/4 OF NE 1/4 SEC 30 TWP 43 R 27 DESC IN OR 1120 PG 438	33
STULB JOSEPH JR 18070 SAN CARLOS BLVD UT 614 FORT MYERS BEACH FL 33931	**30-43-27-L2-U3532.5487** 18851 PALM BEACH BLVD ALVA FL 33920	PARCEL OF NE 1/4 OF THE NE 1/4 OF SEC 30 TWP 43 RNG 27 DESC IN INSTRUMENT 2020000169009	34

RIVERGLEN PROPERTIES LLC
1380 GASPARILLA DR
FORT MYERS FL 33901

HOELDERLIN ARTHUR JOSEPH III
2251 SUNSET TRL
ALVA FL 33920

STATE OF FL DOT
PO BOX 1249
BARTOW FL 33831

SNOW KEITH A
19140 PALM BEACH BLVD
ALVA FL 33920

CHILDRESS SHANE & VICTORIA
17629 WOODLAND CT
PUNTA GORDA FL 33982

YODER BROTHERS INC
ERIN MAZZUCCO
115 THIRD ST SE
BARBERTON OH 44203

WILKINSON KATHERINE A TR
19521 PALM BEACH BLVD
ALVA FL 33920

CARDULLO CLARENCE C SR +
19401 LITTLE LN
ALVA FL 33920

CHOW KAI FU
15861 COUNTRY CT
FORT MYERS FL 33912

QUATTROCCHI STEPHANIE
19431 LITTLE LN
ALVA FL 33920

CUSTER PEGGY M TR
JOHN CUSTER
211 HENDRICKS ISLE
FORT LAUDERDALE FL 33301

MALLETT ROBERT LANE TR
2101 SUNSET TRL
ALVA FL 33920

STATE OF FL DOT
PO BOX 1249
BARTOW FL 33831

BOWDLER DAVID F
14011 CEMETERY RD
FORT MYERS FL 33905

LYNCH THOMAS
19160 PALM BEACH BLVD
ALVA FL 33920

STATE OF FL DOT
PO BOX 1249
BARTOW FL 33831

PUMPHREY TREVOR JOHN
MODERN MOULDS BUSINESS CENTRE
2-3 COMMERCE WAY
LANCING BUSINESS PARK
LANCING BN15 8TA
UNITED KINGDOM

HEATH STANLEY TR
19591 LITTLE LN
ALVA FL 33920

SMITH BRITTANY G
19471 LITTLE LN
ALVA FL 33920

REINBOTT MICHAEL + LISA
PO BOX 1423
LABELLE FL 33975

PageBreak

MARRA ESTATES LLC
3001 BATEMAN RD
ALVA FL 33920

MARRA JASON A
7800 UNIVERSITY POINT DR
FORT MYERS FL 33907

BERNARD BRIAN W & SIMONE
2995 BATEMAN RD
ALVA FL 33920

HAMILTON MILTON J III &
1901 BALSEY RD
ALVA FL 33920

EXCELLENT PROPERTIES LLC
1829 SAINT IVES CIR
LEXINGTON KY 40502

JABLONSKI JEFFREY & MARLO
18931 PALM BEACH BLVD
ALVA FL 33920

PUMPHREY TREVOR JOHN
MODERN MOULDS BUSINESS CENTRE
2-3 COMMERCE WAY
LANCING BUSINESS PARK
LANCING BN15 8TA
UNITED KINGDOM

PageBreak

MARRA ESTATES LLC
3001 BATEMAN RD
ALVA FL 33920

LEE COUNTY
PO BOX 398
FORT MYERS FL 33902

LEE COUNTY
CONSERVATION 2020
PO BOX 398
FORT MYERS FL 33902

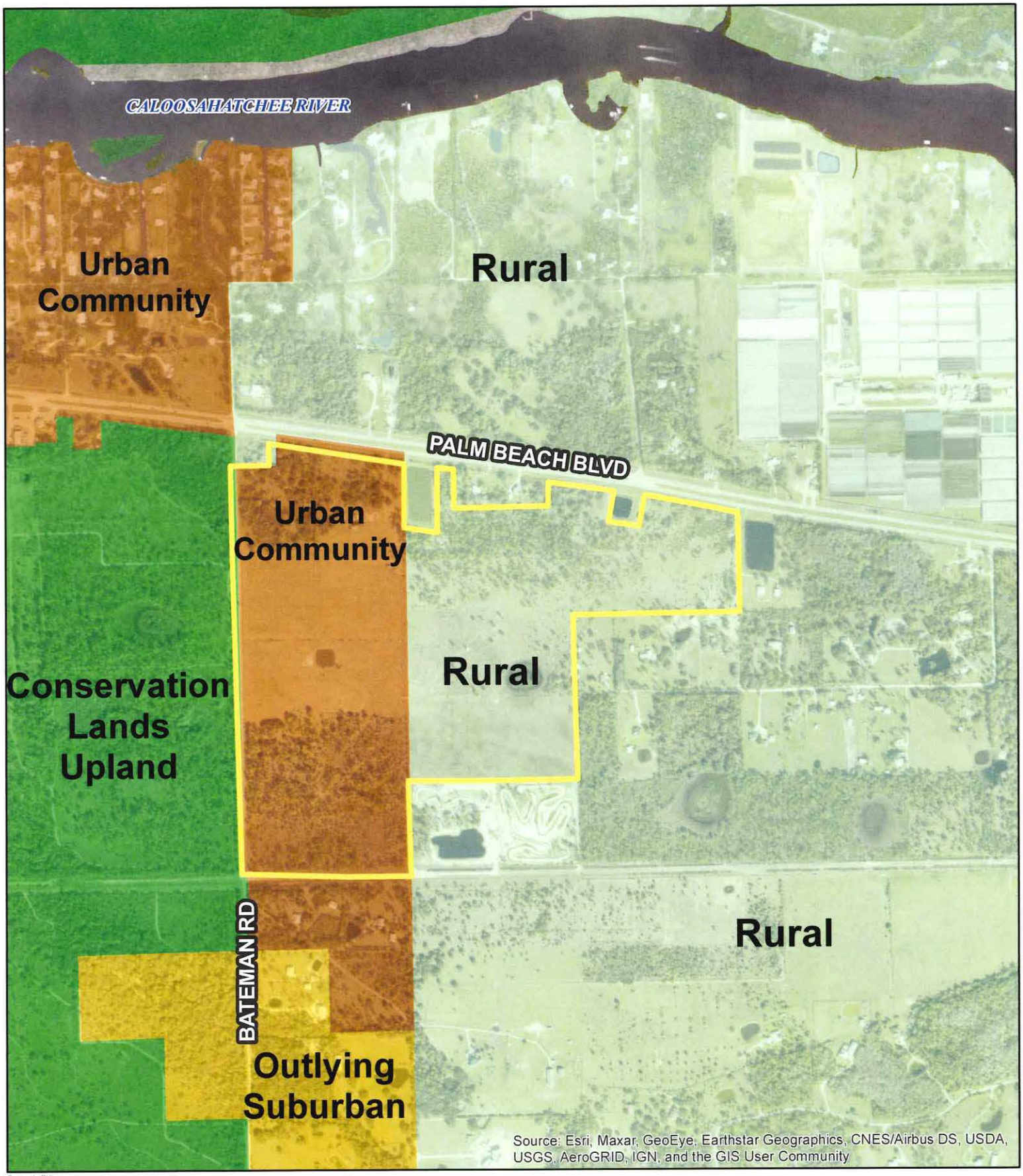
GROFF NICHOLAS PII TR
2051 SNYDER DR
ALVA FL 33920

EXCELLENT PROPERTIES LLC
1829 SAINT IVES CIR
LEXINGTON KY 40502

ALVAREZ FREDDYS VALDES
112 ORTONA ST
LEHIGH ACRES FL 33936

STULB JOSEPH JR
18070 SAN CARLOS BLVD UT 614
FORT MYERS BEACH FL 33931

Future Land Use Map
(Existing & Proposed – Map 1A, 4A and 4B)



Copyright RVI

RVi
10401 Highland Manor Dr
Suite 220
Tampa, FL 33610
Tel: 813.443.8282
www.rviplanning.com

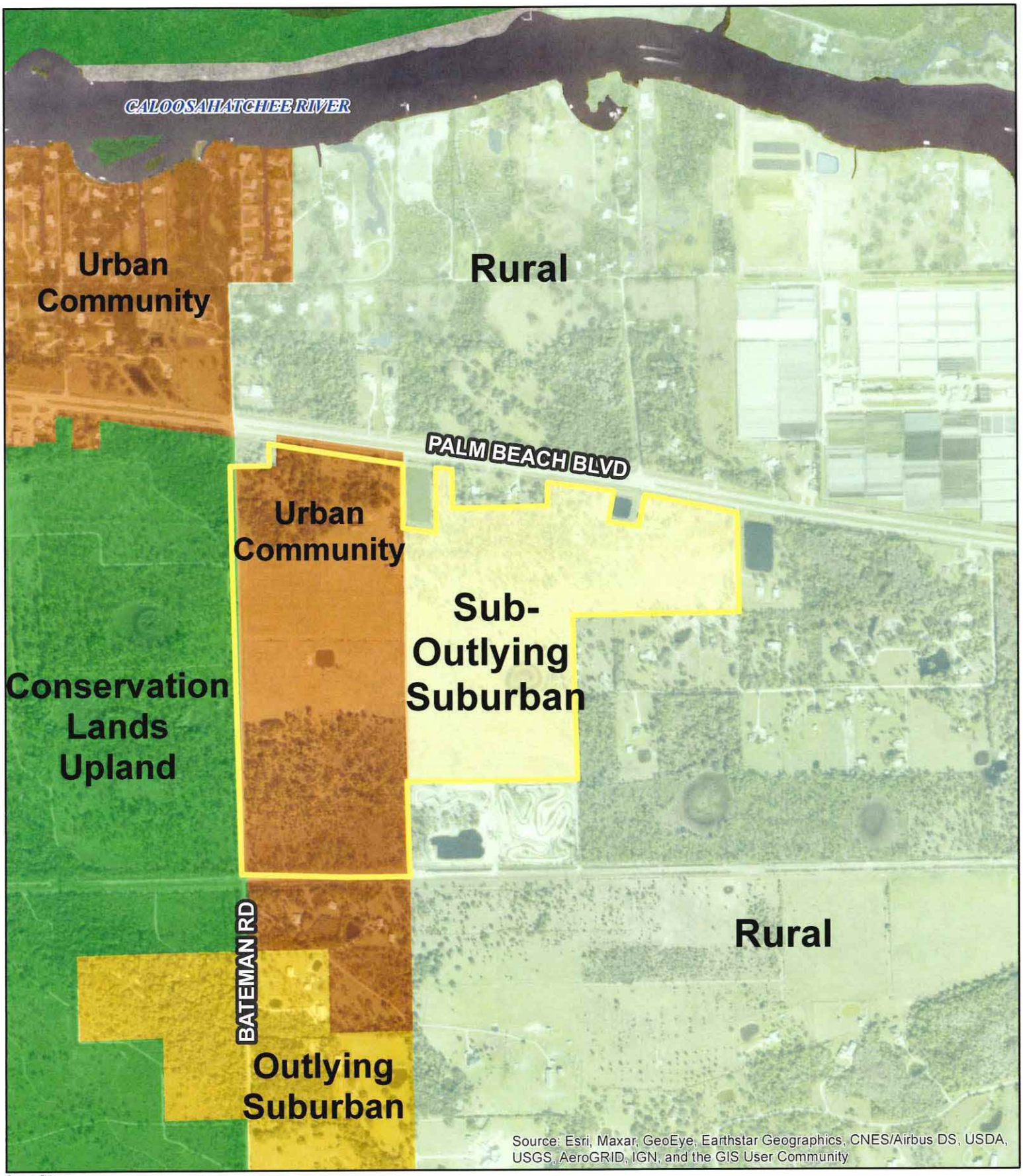
CALOOSA 80 • EXISTING FUTURE LAND USE MAP

- Lee County, FL
- Date: 5/18/2022
- # 22001218
- Caloosa 80 LLP

Subject Boundary

0 320 640 1,280
Feet

Information furnished regarding this property is from sources deemed reliable. RVi has not made an independent investigation of these sources and no warranty is made as to their accuracy or completeness. This plan is conceptual, subject to change, and does not represent any regulatory approval.



Copyright RVI

RVi
10401 Highland Manor Dr
Suite 220
Tampa, FL 33610
Tel 813.443.8282
www.rviplanning.com

CALOOSA 80 • PROPOSED FUTURE LAND USE MAP

- Lee County, FL
- Date: 5/18/2022
- # 22001218
- Caloosa 80 LLP

Subject Boundary

0 320 640 1,280
Feet

Information furnished regarding this property is from sources deemed reliable. RVi has not made an independent investigation of these sources and no warranty is made as to their accuracy or completeness. This plan is conceptual, subject to change, and does not represent any regulatory approval.



Copyright RVi

RVi
10401 Highland Manor Dr
Suite 220
Tampa, FL 33610
Tel: 813.443.8282
www.rviplanning.com

CALOOSA 80 • EXISTING FUTURE WATER SERVICE AREA MAP

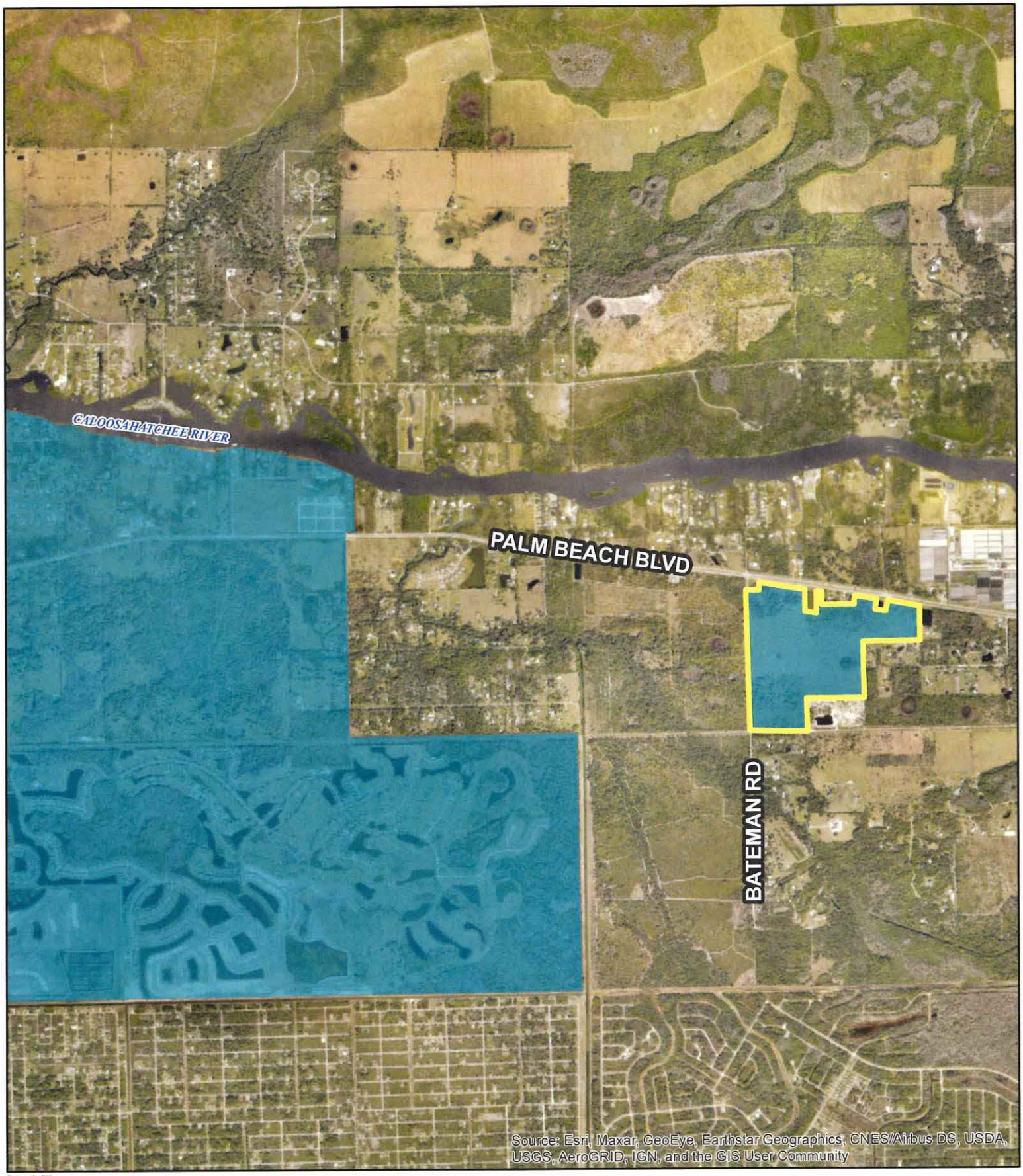
- Lee County, FL
- Date: 5/19/2022
- # 22001218
- Caloosa 80 LLP

Subject Boundary

Future Water Service Area

0 900 1,800 3,600
Feet

Information furnished regarding this property is from sources deemed reliable. RVi has not made an independent investigation of these sources and no warranty is made as to their accuracy or completeness. This plan is conceptual, subject to change, and does not represent any regulatory approval.



Copyright RVI

RVi
10401 Highland Manor Dr
Suite 220
Tampa, FL 33610
Tel 813.443.8282
www.rviplanning.com

CALOOSA 80 • PROPOSED FUTURE WATER SERVICE AREA MAP

- Lee County, FL
- Date: 4/1/2022
- # 22001218
- Caloosa 80 LLP

Subject Boundary

Proposed Future Water Service Area

0 900 1,800 3,600
Feet

Information furnished regarding this property is from sources deemed reliable. RVi has not made an independent investigation of these sources and no warranty is made as to their accuracy or completeness. This plan is conceptual, subject to change, and does not represent any regulatory approval.



Copyright RVI

RVi
10401 Highland Manor Dr
Suite 220
Tampa, FL 33610
Tel 813.443.8282
www.rviplanning.com

CALOOSA 80• EXISTING FUTURE SANITARY SEWER SERVICE MAP

- Lee County, FL
- Date: 8/31/2022
- # 22001218
- Caloosa 80 LLP

Subject Boundary

Future Sanitary Sewer Service Area

0 750 1,500 3,000
Feet

Information furnished regarding this property is from sources deemed reliable. RVi has not made an independent investigation of these sources and no warranty is made as to their accuracy or completeness. This plan is conceptual, subject to change, and does not represent any regulatory approval.



Copyright RVI

RVi
10401 Highland Manor Dr
Suite 220
Tampa, FL 33610
Tel: 813.443.8282
www.rviplanning.com

CALOOSA 80• PROPOSED FUTURE SANITARY SEWER SERVICE MAP

- Lee County, FL
- Date: 8/31/2022
- # 22001218
- Caloosa 80 LLP

Subject Boundary

Future Sanitary Sewer Service Area

0 750 1,500 3,000
Feet

Information furnished regarding this property is from sources deemed reliable. RVi has not made an independent investigation of these sources and no warranty is made as to their accuracy or completeness. This plan is conceptual, subject to change, and does not represent any regulatory approval.

Existing Land Uses Map



Copyright RVI

RVi
10401 Highland Manor Dr
Suite 220
Tampa, FL 33610
Tel: 813 443 8282
www.rviplanning.com

CALOOSA 80 • SURROUNDING PROPERTIES MAP

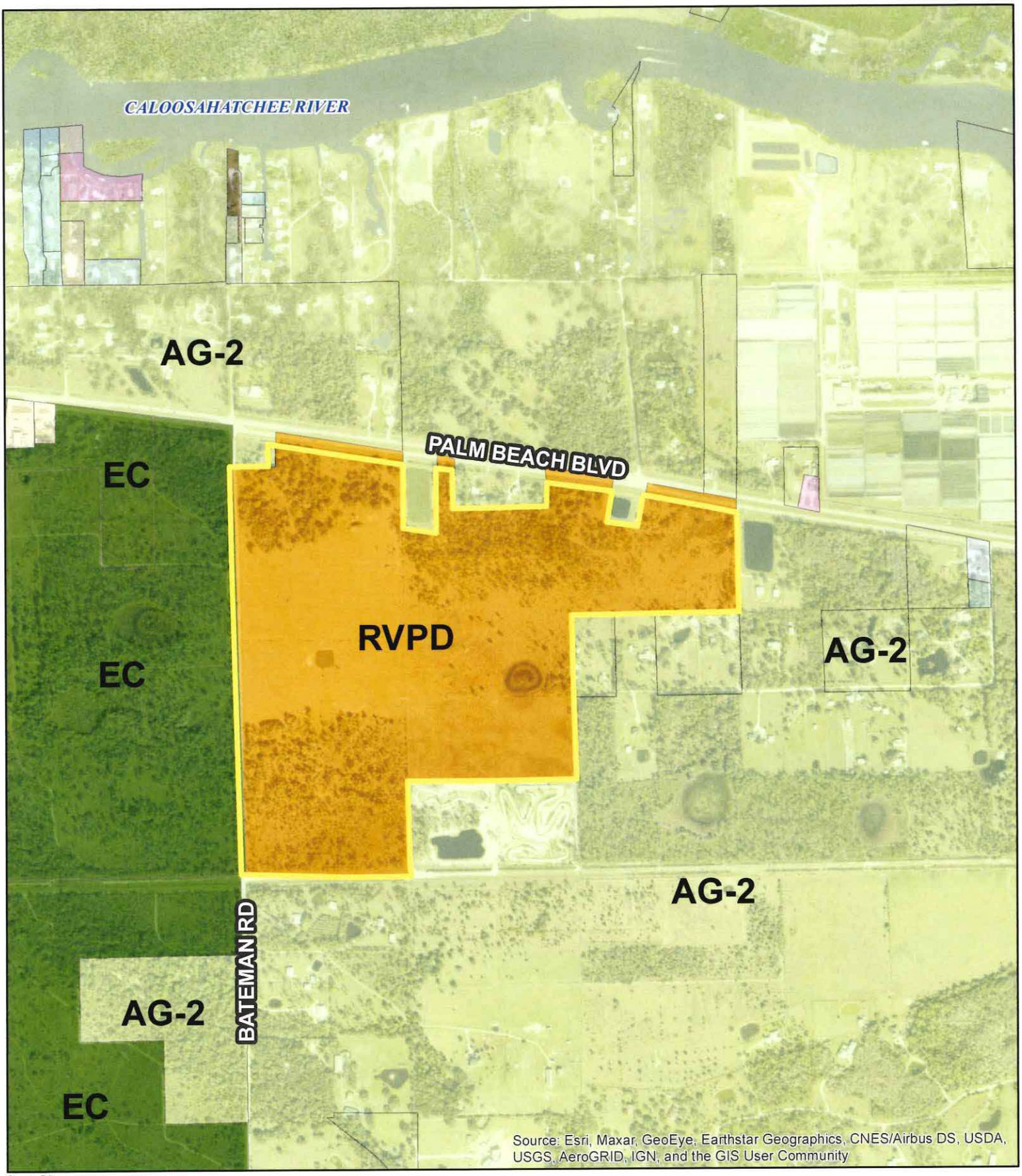
- Lee County, FL
- Date: 5/19/2022
- # 22001218
- Caloosa 80 LLP

Subject Boundary

0 320 640 1,280
Feet

Information furnished regarding this property is from sources deemed reliable. RVi has not made an independent investigation of these sources and no warranty is made as to their accuracy or completeness. This plan is conceptual, subject to change, and does not represent any regulatory approval.

Existing Zoning Map



Copyright RVI

RVi
10401 Highland Manor Dr.
Suite 220
Tampa, FL 33610
Tel: 813 443 8282
www.rviplanning.com

CALOOSA 80 • ZONING MAP

- Lee County, FL
- Date: 4/1/2022
- # 22001218
- Caloosa 80 LLP

Subject Boundary	C-2	RS-1
AG-2	CPD	RS-2
C-1A	EC	RS-3
		RVPD

0 320 640 1,280
Feet

Information furnished regarding this property is from sources deemed reliable. RVi has not made an independent investigation of these sources and no warranty is made as to their accuracy or completeness. This plan is conceptual, subject to change, and does not represent any regulatory approval.

Legal Description and Sketch of the Description of Proposed FLUC

THE NORTHERLY LINE OF SAID PARCEL AND A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 2689, PAGE 912, A DISTANCE OF 1304.26 FEET TO THE NORTHWEST CORNER THEREOF AND THE EASTERLY RIGHT-OF-WAY LINE OF BATEMAN ROAD; THENCE RUN N 01°06'11" W, ALONG SAID EASTERLY RIGHT-OF-WAY LINE, A DISTANCE OF 3267.72 FEET TO THE SOUTHWEST CORNER OF A CERTAIN PARCEL OF LAND DESCRIBED BY INSTRUMENT NUMBER 2006000445704 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA; THENCE RUN ALONG THE SOUTHERLY BOUNDARY LINE OF SAID PARCEL, N 89°33'20" E, 311.72 FEET; THENCE RUN N 01°08'20" W, 175.39 FEET ALONG THE EASTERLY BOUNDARY LINE OF SAID PARCEL TO NORTHEAST CORNER THEREOF AND THE SOUTHERLY RIGHT-OF-WAY LINE OF PALM BEACH BOULEVARD (STATE ROAD 80); THENCE RUN S 81°56'44" E, ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 1003.23 FEET TO THE NORTHWEST CORNER OF A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 2879, PAGE 3553; THENCE RUN ALONG THE WESTERLY BOUNDARY LINE OF SAID PARCEL, S 00°50'34" E, 511.38 FEET TO THE SOUTHWEST CORNER THEREOF; THENCE RUN S 81°55'10" E, 259.80 FEET ALONG THE SOUTHERLY BOUNDARY LINE OF SAID PARCEL TO THE SOUTHEAST CORNER THEREOF; THENCE N 00°50'15" W, 509.82 FEET ALONG THE EASTERLY BOUNDARY LINE OF SAID PARCEL TO THE NORTHEAST CORNER THEREOF AND THE AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE; THENCE RUN S 82°03'50" E ALONG SAID RIGHT-OF-WAY LINE, A DISTANCE OF 129.52 FEET TO THE NORTHWEST CORNER OF A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 2655, PAGE 3059; THENCE RUN S 00°54'50" E, ALONG THE WESTERLY BOUNDARY LINE OF SAID PARCEL, A DISTANCE OF 266.04 FEET TO THE SOUTHWEST CORNER THEREOF; THENCE RUN N 89°15'34" E, ALONG THE SOUTHERLY BOUNDARY LINE OF SAID PARCEL AND THE SOUTHERLY BOUNDARY LINES OF THREE PARCELS DESCRIBED IN OFFICIAL RECORDS BOOK 1140, PAGE 1744, OFFICIAL RECORDS BOOK 2983, PAGE 1220 AND OFFICIAL RECORDS BOOK 2246, PAGE 2979 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA, A DISTANCE OF 734.80 FEET TO THE SOUTHEAST CORNER OF SAID PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 2246, PAGE 2979; THENCE RUN N 00°51'50" W, ALONG THE EASTERLY BOUNDARY LINE OF SAID PARCEL, A DISTANCE OF 150.82 FEET TO THE NORTHEAST CORNER THEREOF AND THE AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE; THENCE RUN S 81°52'00" E, ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 500.41 FEET, TO THE NORTHWEST CORNER OF A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 2879, PAGE 3553; THENCE RUN ALONG THE WESTERLY BOUNDARY LINE OF SAID PARCEL, S 08°06'20" W, 250.12 FEET TO THE SOUTHWEST CORNER THEREOF; THENCE RUN S 81°52'20" E, 249.92 FEET ALONG THE SOUTHERLY BOUNDARY LINE OF SAID PARCEL TO THE SOUTHEAST CORNER THEREOF; THENCE RUN N 08°09'20" E, 250.10 FEET ALONG THE EASTERLY BOUNDARY LINE OF SAID PARCEL TO THE NORTHEAST CORNER THEREOF AND THE AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE; THENCE RUN S 81°56'50" E, ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 73.56 FEET, TO A CURVE CONCAVE TO THE SOUTHWEST, HAVING A RADIUS OF 17087.13 FEET, A CENTRAL ANGLE OF 01°40'52", A CHORD BEARING OF S 79°16'26" E FOR 501.31 FEET; THENCE ALONG THE ARC OF SAID CURVE AND THE AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE, RUN 501.33 FEET; THENCE CONTINUE ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, RUN S 78°26'40" E FOR 183.55 FEET TO A CURVE CONCAVE TO THE SOUTHWEST HAVING A RADIUS OF 17159.98 FEET, A CENTRAL ANGLE OF 00°06'34", A CHORD BEARING S 78°15'52" E FOR 32.74 FEET; THENCE ALONG THE ARC OF SAID CURVE AND THE AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE, RUN 32.74 FEET; THENCE DEPARTING SAID AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE, RUN S 01°13'02" E, 764.34 FEET TO THE NORTHEAST CORNER OF A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 3616, PAGE 2890; THENCE RUN S 89°15'48" W, ALONG THE NORTHERLY BOUNDARY LINE OF SAID PARCEL AND THE NORTHERLY BOUNDARY LINE OF THE TWO FOLLOWING PARCELS DESCRIBED IN OFFICIAL RECORDS BOOK 3906, PAGE 52 AND BY INSTRUMENT NUMBER 2007000138101 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA, A DISTANCE OF 1320.51 FEET TO THE NORTHWEST CORNER OF SAID PARCEL DESCRIBED BY INSTRUMENT NUMBER 2007000138101; THENCE RUN S 01°17'38" E, ALONG THE WESTERLY BOUNDARY LINE OF SAID PARCEL AND CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 3039, PAGE 3678, A DISTANCE OF 1319.21 FEET, TO THE NORTHEAST CORNER OF A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 3296, PAGE 4612; THENCE RUN S 89°09'58" W, ALONG THE NORTHERLY BOUNDARY LINE OF SAID PARCEL AND A CERTAIN PARCEL DESCRIBED BY INSTRUMENT NUMBER 2007000251171, A DISTANCE OF 1320.26 FEET TO THE NORTHWEST CORNER OF SAID PARCEL DESCRIBED BY INSTRUMENT NUMBER 2007000251171; THENCE RUN S 01°19'47" E, ALONG THE WESTERLY BOUNDARY LINE OF SAID PARCEL, A DISTANCE OF 747.68 FEET TO THE **POINT OF BEGINNING.**

CONTAINING 192.36 ACRES, MORE OR LESS.

SURVEYOR'S NOTES

THE DESCRIPTION SHOWN HEREON IS NEW.

BEARINGS BASED ON THE WEST LINE OF SECTION 29-43-27, AS BEARING N 01°19'47" W, PER FLORIDA GRID, WEST.

UNLESS IT BEARS THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER, AND ALL SHEETS ARE INCLUDED, THIS MAP IS NOT VALID.

COORDINATES SHOWN HEREON ARE BASED ON FLORIDA GRID, WEST ZONE, NAD 83/2011.

CERTIFICATE OF AUTHORIZATION LICENSE BUSINESS NO. 6891.

THIS IS NOT A SURVEY!

PREPARED BY:

THOMAS M. ROOKS JR. P.S.M. DATE
FLORIDA CERTIFICATE NO. 6347

11-29-2022:REVISED LEGAL

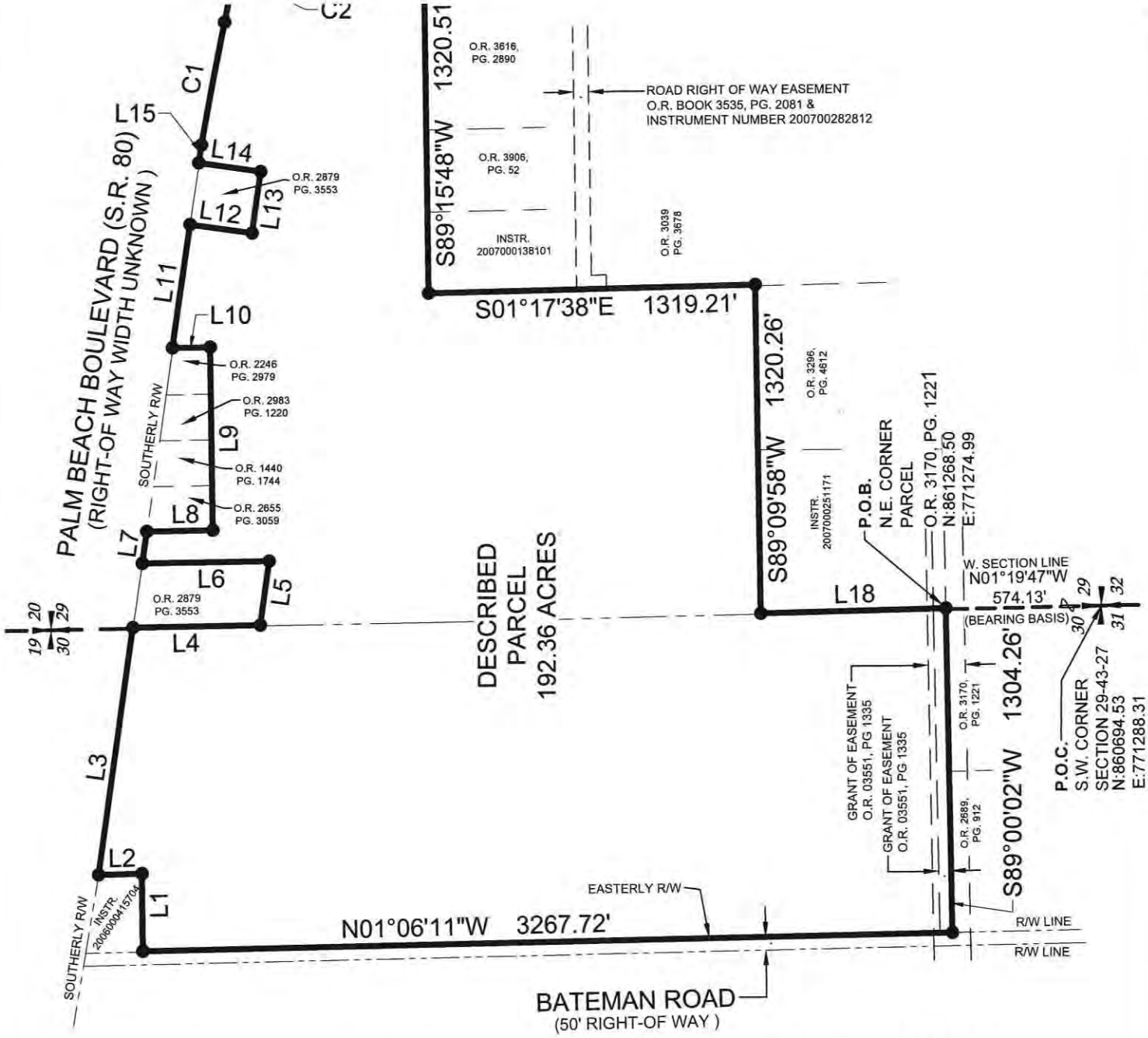
© COPYRIGHT MORRIS · DEPEW ASSOCIATES, INC. 2022 ALL RIGHTS RESERVED I:\22110 Caloosa 80\Plans\SKETCH-DESCRIPTIONS\22110-OVERALL_SD.dwg <1-OVERALL-SD_14x8.5> - Nov 29 2022 01:40:54 pm PLOTTED BY: tbailey

PROJECT:

CONSULTANT: MORRIS

CLIENT:

PROJECT MANAGER: TMR
DRAWING BY: TAB



PARCEL LINE TABLE		
LINE #	BEARING	DISTANCE
L1	N89°33'20"E	311.72
L2	N1°08'20"W	175.39
L3	S81°56'44"E	1003.23
L4	S0°50'34"E	511.38
L5	S81°55'10"E	259.80
L6	N0°50'15"W	509.82
L7	S82°03'50"E	129.52
L8	S0°54'50"E	266.04
L9	N89°15'34"E	734.80

PARCEL LINE TABLE		
LINE #	BEARING	DISTANCE
L10	N0°51'50"W	150.82
L11	S81°52'00"E	500.41
L12	S8°06'20"W	250.12
L13	S81°52'20"E	249.92
L14	N8°09'20"E	250.10
L15	S81°56'50"E	73.56
L16	S78°26'40"E	183.55
L17	S1°13'02"E	764.34
L18	S1°19'47"E	747.68

ABBREVIATIONS

BRG = BEARING
C1 = CURVE DESIGNATION
C.A. = CENTRAL ANGLE
CHD = CHORD
INSTR. = INSTRUMENT
L1 = LINE DESIGNATION
LB = LICENSED BUSINESS
O.R. = OFFICIAL RECORDS
PG. = PAGE
P.O.B. = POINT OF BEGINNING
P.O.C. = POINT OF COMMENCEMENT
P.U.E. = PUBLIC UTILITY EASEMENT
R/W = RIGHT OF WAY

11-29-2022:REVISED LEGAL

© COPYRIGHT MORRIS · DEPEW ASSOCIATES, INC. 2022 ALL RIGHTS RESERVED I:\22110 Calcosa 80\Plans\SKETCH-DESCRIPTIONS\22110-OVERALL_SD.dwg <2-OVERALL-SD_14x8.5> - Nov 29 2022 01:40:42 pm PLOTTED BY: tbailey

PROJECT:

CONSULTANT: MORRIS

CLIENT:

PROJECT MANAGER: TMR
DRAWING BY: TAB

COMMENCE AT THE SOUTHWEST CORNER OF SAID SECTION 29; THENCE N 01°19'47" W ALONG THE WEST LINE OF THE SOUTHWEST QUARTER OF SAID SECTION FOR A DISTANCE OF 1321.81 FEET TO THE NORTHWEST CORNER OF A CERTAIN PARCEL BY INSTRUMENT NUMBER 2007000251171 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA AND THE **POINT OF BEGINNING**; THENCE CONTINUE ALONG SAID WEST SECTION LINE, RUN N 01°19'47" W, 1321.45 FEET TO THE NORTHWEST CORNER OF THE SOUTHWEST OF SAID SECTION 29; THENCE RUN N 00°49'00" W, ALONG THE WEST LINE OF THE NORTHWEST QUARTER OF SAID SECTION 29, A DISTANCE OF 701.74 FEET TO THE SOUTHWEST CORNER OF A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 2879, PAGE 3553, OF THE PUBLIC RECORDS OF LEE COUNTY; THENCE DEPARTING SAID WEST SECTION LINE, RUN S 81°55'10" E, 259.80 FEET ALONG THE SOUTHERLY BOUNDARY LINE OF AFOREMENTIONED PARCEL TO THE SOUTHEAST CORNER THEREOF; THENCE N 00°50'15" W, 509.82 FEET ALONG THE EASTERLY BOUNDARY LINE OF SAID PARCEL TO THE NORTHEAST CORNER THEREOF AND THE SOUTHERLY RIGHT-OF-WAY LINE OF PALM BEACH BOULEVARD (STATE ROAD 80); THENCE RUN S 82°03'50" E ALONG SAID RIGHT-OF-WAY LINE, A DISTANCE OF 129.52 FEET TO THE NORTHWEST CORNER OF A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 2655, PAGE 3059; THENCE RUN S 00°54'50" E, ALONG THE WESTERLY BOUNDARY LINE OF SAID PARCEL, A DISTANCE OF 266.04 FEET TO THE SOUTHWEST CORNER THEREOF; THENCE RUN N 89°15'34" E, ALONG THE SOUTHERLY BOUNDARY LINE OF SAID PARCEL AND THE SOUTHERLY BOUNDARY LINES OF THREE PARCELS DESCRIBED IN OFFICIAL RECORDS BOOK 1140, PAGE 1744, OFFICIAL RECORDS BOOK 2983, PAGE 1220 AND OFFICIAL RECORDS BOOK 2246, PAGE 2979 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA, A DISTANCE OF 734.80 FEET TO THE SOUTHEAST CORNER OF SAID PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 2246, PAGE 2979; THENCE RUN N 00°51'50" W, ALONG THE EASTERLY BOUNDARY LINE OF SAID PARCEL, A DISTANCE OF 150.82 FEET TO THE NORTHEAST CORNER THEREOF AND THE AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE; THENCE RUN S 81°52'00" E, ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 500.41 FEET, TO THE NORTHWEST CORNER OF A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 2879, PAGE 3553; THENCE RUN ALONG THE WESTERLY BOUNDARY LINE OF SAID PARCEL, S 08°06'20" W, 250.12 FEET TO THE SOUTHWEST CORNER THEREOF; THENCE RUN S 81°52'20" E, 249.92 FEET ALONG THE SOUTHERLY BOUNDARY LINE OF SAID PARCEL TO THE SOUTHEAST CORNER THEREOF; THENCE RUN N 08°09'20" E, 250.10 FEET ALONG THE EASTERLY BOUNDARY LINE OF SAID PARCEL TO THE NORTHEAST CORNER THEREOF AND THE AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE; THENCE RUN S 81°56'50" E, ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 73.56 FEET, TO A CURVE CONCAVE TO THE SOUTHWEST, HAVING A RADIUS OF 17087.13 FEET, A CENTRAL ANGLE OF 01°40'52", A CHORD BEARING OF S 79°16'26" E FOR 501.31 FEET; THENCE ALONG THE ARC OF SAID CURVE AND THE AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE, RUN 501.33 FEET; THENCE CONTINUE ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, RUN S 78°26'40" E FOR 183.55 FEET TO A CURVE CONCAVE TO THE SOUTHWEST HAVING A RADIUS OF 17159.98 FEET, A CENTRAL ANGLE OF 00°06'34", A CHORD BEARING S 78°15'52" E FOR 32.74 FEET; THENCE ALONG THE ARC OF SAID CURVE AND THE AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE, RUN 32.74 FEET; THENCE DEPARTING SAID AFOREMENTIONED SOUTHERLY RIGHT-OF-WAY LINE, RUN S 01°13'02" E, 764.34 FEET TO THE NORTHEAST CORNER OF A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 3616, PAGE 2890; THENCE RUN S 89°15'48" W, ALONG THE NORTHERLY BOUNDARY LINE OF SAID PARCEL AND THE NORTHERLY BOUNDARY LINE OF THE TWO FOLLOWING PARCELS DESCRIBED IN OFFICIAL RECORDS BOOK 3906, PAGE 52 AND BY INSTRUMENT NUMBER 2007000138101 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA, A DISTANCE OF 1320.51 FEET TO THE NORTHWEST CORNER OF SAID PARCEL DESCRIBED BY INSTRUMENT NUMBER 2007000138101; THENCE RUN S 01°17'38" E, ALONG THE WESTERLY BOUNDARY LINE OF SAID PARCEL AND CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 3039, PAGE 3678, A DISTANCE OF 1319.21 FEET, TO THE NORTHEAST CORNER OF A CERTAIN PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 3296, PAGE 4612; THENCE RUN S 89°09'58" W, ALONG THE NORTHERLY BOUNDARY LINE OF SAID PARCEL AND A CERTAIN PARCEL DESCRIBED BY INSTRUMENT NUMBER 2007000251171, A DISTANCE OF 1320.26 FEET TO THE **POINT OF BEGINNING.**

CONTAINING 92.75 ACRES, MORE OR LESS.

SURVEYOR'S NOTES

THE DESCRIPTION SHOWN HEREON IS NEW.

BEARINGS BASED ON THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 29-43-27, AS BEARING N 01°19'47" W, PER FLORIDA GRID, WEST.

UNLESS IT BEARS THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER, AND ALL SHEETS ARE INCLUDED, THIS MAP IS NOT VALID.

COORDINATES SHOWN HEREON ARE BASED ON FLORIDA GRID, WEST ZONE, NAD 83/2011.

CERTIFICATE OF AUTHORIZATION LICENSE BUSINESS NO. 6891.

THIS IS NOT A SURVEY!

PREPARED BY:

THOMAS M. ROOKS JR. P.S.M. DATE
FLORIDA CERTIFICATE NO. 6347

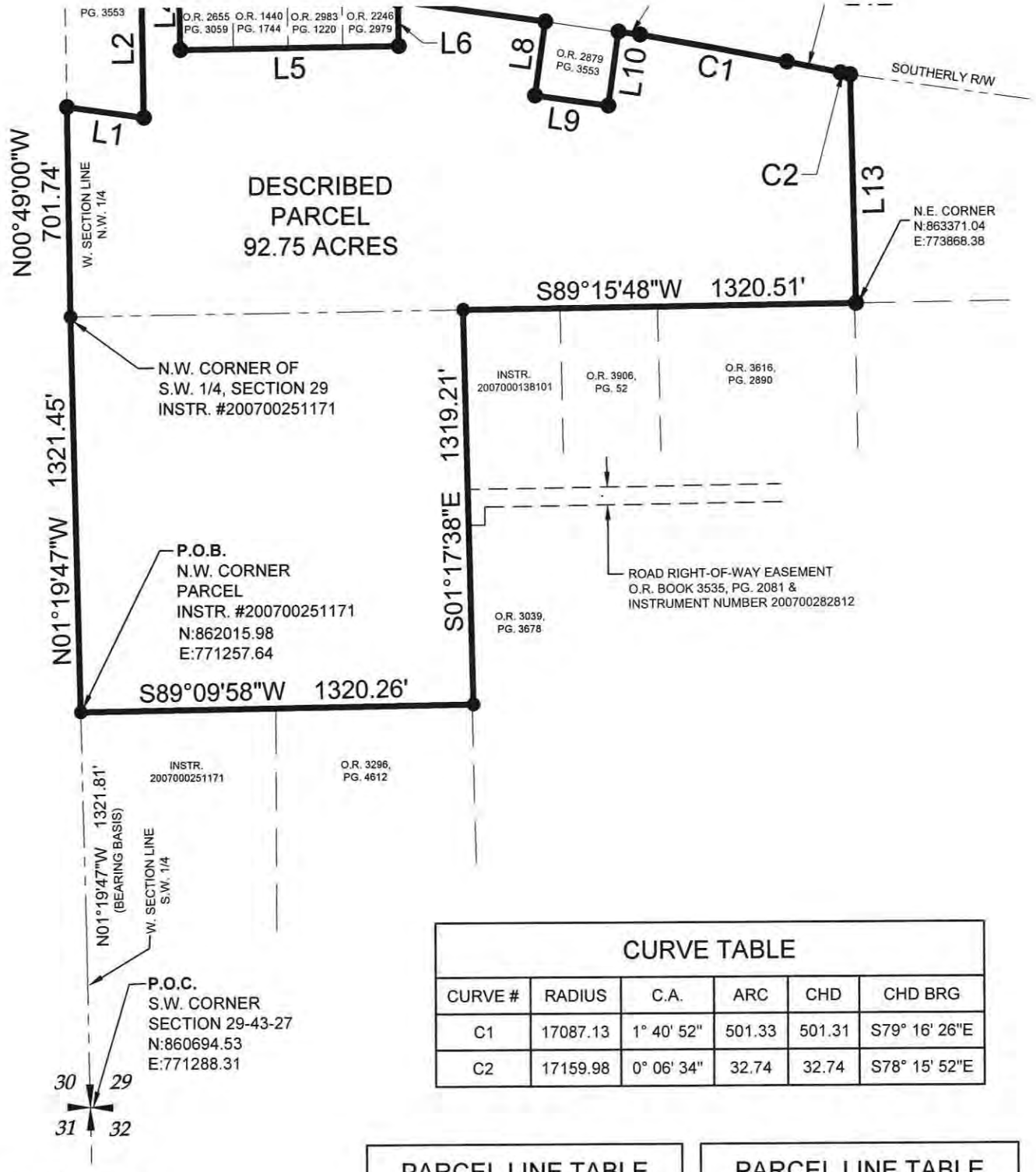
© COPYRIGHT MORRIS • DEPEW ASSOCIATES, INC. 2022 ALL RIGHTS RESERVED I:\22110 Caloosa 80\Plans\SKETCH-DESCRIPTIONS\22110-RURAL FLU_SD.dwg <1-FLU-SD_14x8.5> - Nov 08 2022 09:53:06 am PLOTTED BY: tbailey

PROJECT:

CONSULTANT: MORRIS

CLIENT:

PROJECT MANAGER: TMR
DRAWING BY: TAB



CURVE TABLE					
CURVE #	RADIUS	C.A.	ARC	CHD	CHD BRG
C1	17087.13	1° 40' 52"	501.33	501.31	S79° 16' 26"E
C2	17159.98	0° 06' 34"	32.74	32.74	S78° 15' 52"E

PARCEL LINE TABLE		
LINE #	BEARING	DISTANCE
L1	S81°55'10"E	259.80
L2	N0°50'15"W	509.82
L3	S82°03'50"E	129.52
L4	S0°54'50"E	266.04
L5	N89°15'34"E	734.80
L6	N0°51'50"W	150.82
L7	S81°52'00"E	500.41

PARCEL LINE TABLE		
LINE #	BEARING	DISTANCE
L8	S8°06'20"W	250.12
L9	S81°52'20"E	249.92
L10	N8°09'20"E	250.10
L11	S81°56'50"E	73.56
L12	S78°26'40"E	183.55
L13	S1°13'02"E	764.34

ABBREVIATIONS

BRG = BEARING
C1 = CURVE DESIGNATION
C.A. = CENTRAL ANGLE
CHD = CHORD
INSTR. = INSTRUMENT
L1 = LINE DESIGNATION
LB = LICENSED BUSINESS
O.R. = OFFICIAL RECORDS
PG. = PAGE
P.O.B. = POINT OF BEGINNING
P.O.C. = POINT OF COMMENCEMENT
R/W = RIGHT OF WAY

© COPYRIGHT MORRIS · DEPEW ASSOCIATES, INC. 2022 ALL RIGHTS RESERVED I:\22110 Caloosa 80\Plans\SKETCH-DESCRIPTIONS\22110-RURAL FLU_SD.dwg <2-FLU-SD_14x8.5> - Nov 08 2022 09:53:23 am PLOTTED BY: tbailey

PROJECT:

CONSULTANT: MORRIS

CLIENT:

PROJECT MANAGER: TMR
DRAWING BY: TAB

VICINITY MAP
NOT TO SCALE

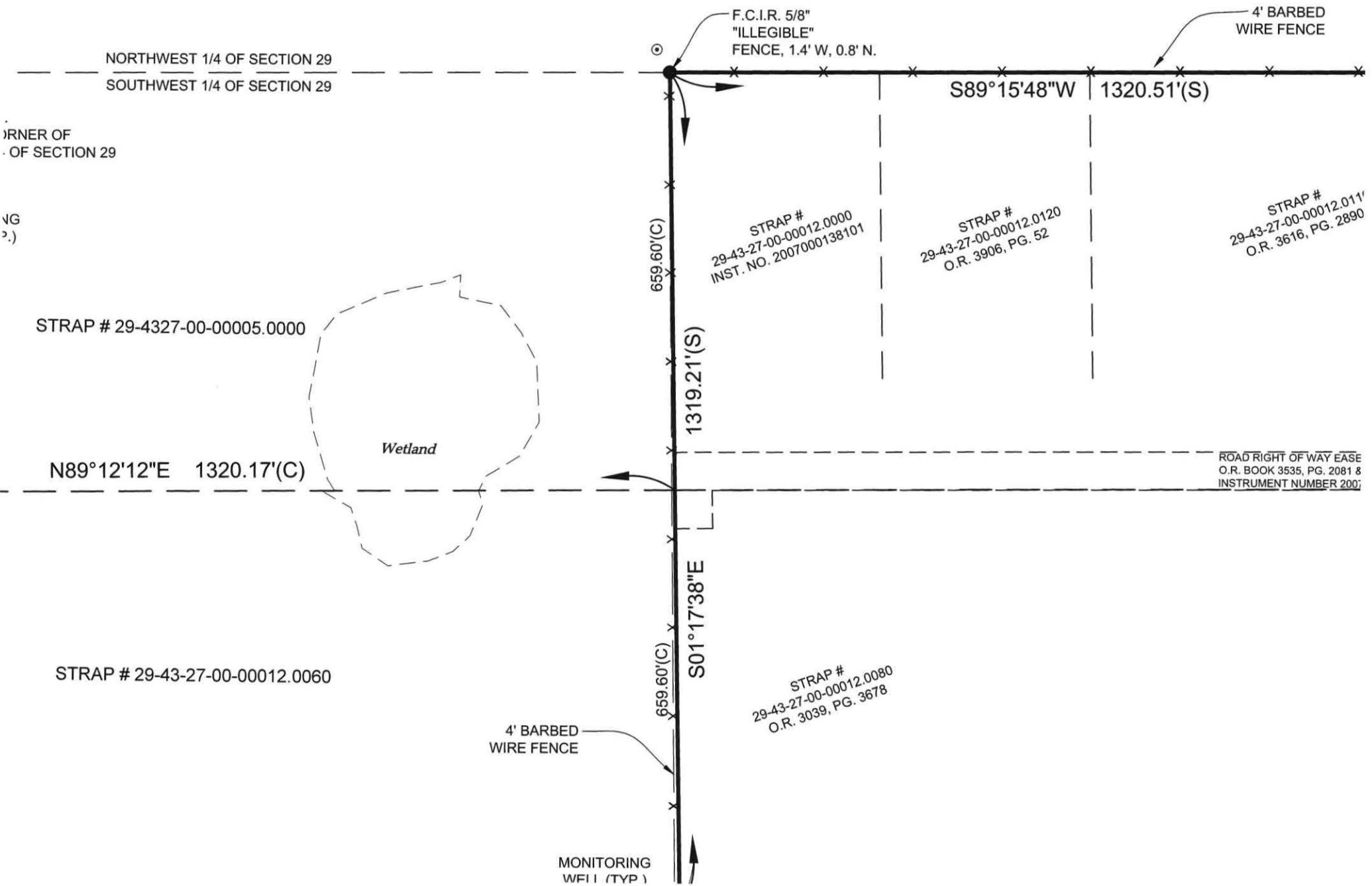
CORNER OF A CERTAIN
ING THE NORTHERLY
E EASTERLY
TAIN PARCEL OF LAND
39°33'20" E, 311.72 FEET;
M BEACH BOULEVARD
BED IN OFFICIAL
RUN S 81°55'10" E,
LINE OF SAID PARCEL
.52 FEET TO THE
ARCEL, A DISTANCE OF
THREE PARCELS
E COUNTY, FLORIDA, A
BOUNDARY LINE OF
ID SOUTHERLY
THE WESTERLY
OF SAID PARCEL TO
E AFOREMENTIONED
VING A RADIUS OF
RIGHT-OF-WAY LINE,
OF 17159.98 FEET, A
, RUN 32.74 FEET;
ICIAL RECORDS BOOK
SCRIBED IN OFFICIAL
ORNER OF SAID
IN OFFICIAL RECORDS
9°09'58" W, ALONG THE
ER OF SAID PARCEL
OF BEGINNING.

SURVEY NOTES:

Parcel
192.36 ACRES

OPEN PASTURE AREA

INTERIOR FENCES NOT SHOWN



Warranty Deeds

Address: Don R. Livingstone, P.A.
7711 S. W. 62 Avenue, #101
South Miami, Fl. 33143
Property Appraisers Parcel Identification (Folio) Number(s):

29-43-27-00-00005.0000

SPACE ABOVE THIS LINE FOR PROCESSING DATA

SPACE ABOVE THIS LINE FOR RECORDING DATA

WARRANTY DEED (STATUTORY FORM - SECTION 689.02, F.S.)

This Indenture, made this 11th day of August, 2005 , **Between** BONITA GLADE, L.C., A FLORIDA LIMITED LIABILITY COMPANY, of the County of Miami-Dade , State of FL. , grantor*, and CALOOSA 80, LLP, A FLORIDA LIMITED LIABILITY PARTNERSHIP whose post office address is 8891 Brighton Lane Suite126, Bonita Springs, Florida 34135, Grantee*,

Witnesseth that said grantor, for and in consideration of the sum of Ten ..... Dollars, and other good and valuable consideration to said grantor in hand paid by said grantee, the receipt whereof is hereby acknowledged, has granted and sold to the said grantee, and grantee's heirs and assigns forever, the following described land, situate, lying and being in Lee County, Florida, to-wit:

A tract of Land in Section 29, Township 43 South, Range 27 East, Lee County, Florida, being more particularly described as follows: SEE ATTACHED EXHIBIT "A"

(A)

SUBJECT TO: Zoning, restrictions, prohibitions and other requirements imposed by governmental authority; restrictions and mattters appearing on the Plat or otherwise common to the subdivision; public utility easements of record, restrictions, reservations, conditions, easements, dedications and limitations of record and taxes for the year 2005 and subsequent years.

and said grantor does hereby fully warrant the title to said land, and will defend the same against the lawful claims of all persons whomsoever.

*"Grantor" and "grantee" are used for singular or plural, as context requires.

In Witness Whereof, grantor has hereunto set grantor's hand and seal the day and year first above written.

Signed sealed and delivered in our presence:

Melinda Osborne
Witness Signature

MELINDA OSBORNE
Printed name

Douglas J. Smith
Witness Signature

Douglas J. Smith
Printed Name

BONITA GLADE, L.C., A FLA. LTD. LIABILITY COMPANY

By: Roy F. Custer, Jr.
Grantor Signature

ROY F. CUSTER, JR., MANAGER
Printed name

6924 Willow Lane, Miami Lakes, Fl. 33014
Post Office Address

STATE OF FLORIDA
COUNTY OF MIAMI-DADE

The foregoing instrument was acknowledged before me this 11th day of August, 2005, by ROY F. CUSTER, JR., as Manager of BONITA GLADE, L.C., A FLORIDA LIMITED LIABILITY COMPANY, who is personally known to me or who has produced a n/a as identification and did take an oath.

NOTARY PUBLIC:
Melinda Osborne
Print Name: MELINDA OSBORNE

My Commission Expires:

State of Florida at Large (Seal)

EXHIBIT "A"

THE NORTH ONE-HALF (N-1/2) OF THE NORTHWEST ONE-QUARTER (NW-1/4) OF THE SOUTHWEST ONE-QUARTER (SW-1/4) OF SECTION 29, TOWNSHIP 43 SOUTH, RANGE 27 EAST, LEE COUNTY, FLORIDA,

AND

THE SOUTH ONE-HALF (S-1/2) OF THE NORTHWEST ONE-QUARTER (NW-1/4) OF SECTION 29, TOWNSHIP 43 SOUTH, RANGE 27 EAST, LEE COUNTY, FLORIDA, LYING SOUTH OF THE SOUTHERLY RIGHT-OF-WAY LINE OF PALM BEACH BOULEVARD (STATE ROAD 80),

LESS THE FOLLOWING SEVEN (7) PARCELS:

THREE (3) PARCELS DESCRIBED IN STIPULATED ORDER OF TAKING RECORDED IN OFFICIAL RECORDS BOOK 2879, AT PAGES 3553 THROUGH 3558, OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA, MORE PARTICULARLY DESCRIBED AS:

PARCEL 1:

THAT PORTION OF THE NORTHWEST (1/4) OF SECTION 29, TOWNSHIP 43 SOUTH, RANGE 27 EAST, LEE COUNTY, FLORIDA;

BEING DESCRIBED AS FOLLOWS:

COMMENCE AT THE SOUTHWEST CORNER OF SAID NORTHWEST 1/4 OF SECTION 29; THENCE ALONG THE WEST BOUNDARY OF SAID SECTION 29, NORTH 00°53'13" WEST, 1,211.99 FEET TO THE SOUTHERLY EXISTING RIGHT OF WAY LINE OF STATE ROAD 80 (PALM BEACH BOULEVARD [PER SECTION 1202-108]) FOR A POINT OF BEGINNING; THENCE ALONG SAID SOUTHERLY EXISTING RIGHT OF WAY LINE SOUTH 81°52'20" EAST, 260.00 FEET; THENCE SOUTH 00°53'13" EAST, 510.00 FEET; THENCE NORTH 81°52'20" WEST, 260 FEET TO SAID WEST BOUNDARY OF SECTION 29; THENCE ALONG SAID WEST BOUNDARY NORTH 00°53'13" WEST, 510.00 FEET TO THE POINT OF BEGINNING,

PARCEL 2:

THAT PORTION OF THE NORTHWEST 1/4 OF SECTION 29, TOWNSHIP 43 SOUTH, RANGE 27 EAST, LEE COUNTY, FLORIDA;

BEING DESCRIBED AS FOLLOWS:

COMMENCE AT THE SOUTHEAST CORNER OF SAID NORTHWEST 1/4 OF SECTION 29; THENCE ALONG THE EAST LINE OF SAID NORTHWEST 1/4, NORTH 01°11'04" WEST, 876.48 FEET TO THE SURVEY BASE LINE OF STATE ROAD 80 (PALM BEACH BOULEVARD); THENCE ALONG SAID SURVEY BASE LINE NORTH 81°52'20" WEST, 1,022.32 FEET; THENCE SOUTH 08°07'40"WEST, 75 FEET TO THE SOUTHERLY EXISTING RIGHT OF WAY LINE OF SAID STATE ROAD 80 (PER SECTION 1202-108) FOR A POINT OF BEGINNING; THENCE ALONG SAID SOUTHERLY EXISTING RIGHT OF WAY LINE SOUTH 81°52'20" EAST, 250.00 FEET; THENCE SOUTH 08°07'40" WEST, 250.00 FEET; THENCE NORTH 81°52'20" WEST, 250.00 FEET; THENCE NORTH 08°07'40" EAST, 250.00 FEET TO THE POINT OF BEGINNING,

EXHIBIT "A" CONTINUED

PARCEL 3:

THAT PORTION OF THE NORTHWEST 1/4 OF SECTION 29, TOWNSHIP 43 SOUTH, RANGE 27 EAST, LEE COUNTY, FLORIDA,

BEING DESCRIBED AS FOLLOWS:

COMMENCE AT THE SOUTHEAST CORNER OF SAID NORTHWEST 1/4 OF SECTION 29; THENCE ALONG THE EAST LINE OF SAID NORTHWEST 1/4, NORTH 01°11'04" WEST, 800.48 FEET TO THE SOUTHERLY EXISTING RIGHT OF WAY LINE OF STATE ROAD 80 (PALM BEACH BOULEVARD [PER SECTION 1202-108]) FOR A POINT OF BEGINNING; THENCE ALONG SAID EAST LINE SOUTH 01°11'04" EAST, 36.10 FEET TO THE BEGINNING OF A CURVE CONCAVE NORTHERLY; THENCE ALONG THE ARC OF SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 17,159.98 FEET, A CENTRAL ANGLE OF 00°06'33.9", AN ARC LENGTH OF 32.77 FEET, THE CHORD FOR WHICH BEARS NORTH 78°29'32" WEST TO THE END OF SAID CURVE; THENCE NORTH 78°26'15" WEST, 183.47 FEET TO THE BEGINNING OF A CURVE CONCAVE SOUTHERLY; THENCE ALONG THE ARC OF SAID CURVE TO THE LEFT, HAVING A RADIUS OF 17,087.13 FEET, A CENTRAL ANGLE OF 01°40'53.3", AN ARC LENGTH OF 501.46 FEET, THE CHORD FOR WHICH BEARS NORTH 79°16'41" WEST TO SAID SOUTHERLY EXISTING RIGHT OF WAY LINE AND THE END OF SAID CURVE; THENCE ALONG SAID SOUTHERLY EXISTING RIGHT OF WAY LINE SOUTH 81°52'20" EAST, 710.95 FEET TO THE POINT OF BEGINNING,

PARCEL DESCRIBED IN DEED RECORDED IN OFFICIAL RECORD BOOK 2655, AT PAGES 3059 THROUGH 3060, OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA, MORE PARTICULARLY DESCRIBED AS:

PARCEL 4:

BEGINNING AT A POINT 385 FEET EAST AND 1150.17 FEET NORTH OF THE SOUTHWEST CORNER OF THE NORTHWEST 1/4, SECTION 29, TOWNSHIP 43 SOUTH, RANGE 27 EAST, SAID POINT OF BEGINNING BEING ON THE SOUTH RIGHT-OF-WAY LINE OF STATE ROAD 80; THENCE SOUTH 260.17 FEET; THENCE EAST 100 FEET; THENCE NORTH 243.73 FEET TO THE SOUTH RIGHT-OF-WAY LINE OF STATE ROAD 80; THENCE WESTERLY 101.34 FEET ALONG SAID SOUTH RIGHT-OF-WAY LINE OF STATE ROAD 80 TO THE POINT OF BEGINNING.

EXHIBIT "A" CONTINUED

PARCEL DESCRIBED IN DEED RECORDED IN OFFICIAL RECORD BOOK 1440, AT PAGES 1744 THROUGH 1745, OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA, MORE PARTICULARLY DESCRIBED AS:

PARCEL 5:

A TRACT OF PARCEL OF LAND LYING IN THE S.W. 1/2 OF THE N.W. 1/4 OF SECTION 29, TOWNSHIP 43 SOUTH, RANGE 27 EAST, LEE COUNTY, FLORIDA, SAID TRACT OR PARCEL IS FURTHER DESCRIBED AS:

COMMENCE AT THE N.W. CORNER OF THE S. 1/2 OF THE N. 1/2 OF THE S.W. 1/4 OF THE N.W. 1/4 OF SAID SEC. 29; THENCE RUN S. 89°59'08" E., ALONG THE NORTH LINE OF SAID FRACTION, FOR 496.50 FEET TO THE P.O.B. OF THE PARCEL HEREIN DESCRIBED: FROM SAID P.O.B. RUN S. 00°08'42" E., PARALLEL TO THE WEST LINE OF SAID SEC. 29, FOR 100.00 FEET; THENCE RUN S 89°59'08" E., PARALLEL TO THE NORTH LINE OF SAID FRACTION, FOR 310.00 FEET; THENCE RUN N. 00°08'42" W., FOR 100.00 FEET TO A POINT ON SAID NORTH LINE OF FRACTION; THENCE CONTINUE N. 00°08'42" W., FOR 100.22 FEET, MORE OR LESS, TO A POINT ON THE S'LY R/W LINE OF S.R. #80, "PALM BEACH BLVD."; THENCE RUN N. 81°08'00" W., ALONG SAID R/W LINE, FOR 313.88 FEET, MORE OR LESS TO A POINT WHICH LIES N. 00°08'42" W., FROM P.O.B.: THENCE RUN S. 00°08'42" E., FOR 148.52 FEET TO THE P.O.B.

PARCEL DESCRIBED IN DEED RECORDED IN OFFICIAL RECORD BOOK 2983, AT PAGE 1220 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA, MORE PARTICULARLY DESCRIBED AS:

PARCEL 6:

THE EAST 500 FEET OF THE NORTH HALF (N 1/2) OF THE NORTH HALF (N 1/2) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 29, TOWNSHIP 43 SOUTH, RANGE 27 EAST, LYING SOUTH OF STATE ROAD NO. 80, EXCEPTING THERE FROM THE EASTERLY 390 FEET THEREOF.

COMMENCING AT THE SOUTHWEST CORNER OF THE NORTH HALF (N 1/2) OF THE NORTH HALF (N 1/2) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 29, TOWNSHIP 43 SOUTH, RANGE 27 EAST, THENCE RUN EAST 820 FEET TO THE POINT OF BEGINNING; THENCE RUN SOUTH 100 FEET; THENCE EAST 100 FEET; THENCE NORTH 100 FEET; THENCE WEST 110 FEET TO THE POINT OF BEGINNING.

PARCEL DESCRIBED IN DEED RECORDED IN OFFICIAL RECORD BOOK 2246, AT PAGE 2979 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA, MORE PARTICULARLY DESCRIBED AS:

PARCEL 7:

FROM NW CORNER S 1/2 OF THE N 1/2 OF THE SW 1/4 OF THE NW 1/4, THENCE EAST 930 FEET TO POB THENCE S 100 FEET, THENCE EAST 190 FEET; NORTH TO S R/W LINE STATE ROAD 80 NORTHWESTERLY ALONG S.R. R/W TO A POINT NORTH OF POB, THENCE SOUTH TO POB, BEING IN SECTION 29, TOWNSHIP 43 SOUTH, RANGE 27 EAST.

This Document Prepared By and Return to:
Jayne M. Skindzier, Esq.
Cummings & Lockwood LLC
3001 Tamiami Trail North
Naples, FL 34103

Parcel ID Number: 29-43-27-00-00012.0060

Warranty Deed

This Indenture, Made this 16TH day of **August** , 2007 A.D., **Between**
Morgan Halle

of the County of **Lee** , State of **Florida** , **grantor,** and
Caloosa 80 LLP, a Florida limited liability partnership

whose address is: **3461 Bonita Bay Boulevard #101, Bonita Springs, FL 34134**

of the County of **Lee** , State of **Florida** , **grantee.**

Witnesseth that the GRANTOR, for and in consideration of the sum of
----------**TEN DOLLARS ($10)**---------- DOLLARS,
and other good and valuable consideration to GRANTOR in hand paid by GRANTEE, the receipt whereof is hereby acknowledged, has granted, bargained and sold to the said GRANTEE and GRANTEE'S heirs, successors and assigns forever, the following described land, situate, lying and being in the County of **Lee** State of **Florida** to wit:

The following described parcel lying in Section 29, Township 43 South, Range 27 East, Lee County, Florida, described as follows: The South 1/2 of the Northwest 1/4 of the Southwest 1/4, together with a non-exclusive easement for road right of way purposes over and across the following described property: the West 60 feet of the East 1/2 of the Southeast 1/4 of the Northeast 1/4, lying South of SR-80; and the West 60 feet of the Northeast 1/4 of the Northeast 1/4 of the Southeast 1/4 and the South 60 feet of the Northwest 1/4 of the Northeast 1/4 of the Southeast 1/4 and the South 60 feet of the North 1/2 of the Northwest 1/4 of the Southeast 1/4 and the South 60 feet of the North 1/2 of the Northeast 1/4 of the Southwest 1/4 and North 60 feet of the West 60 feet of the Southwest 1/4 of the Northeast 1/4 of the Southwest 1/4, Lee County, Florida.

Subject to (i) comprehensive land use plans, zoning, restrictions, prohibitions and other requirements imposed by governmental authority; (ii) restrictions and matters appearing on the plat or otherwise common to the subdivision; (iii) outstanding oil, gas and mineral interest of record, without right of entry; (iv) unplatted public utility easements of record; and (v) real property taxes for the year of closing and subsequent years.

The subject property is vacant land and not the homestead of the Grantor who resides as listed herein.

In Witness Whereof, the grantor has hereunto set his hand and seal the day and year first above written.

Signed, sealed and delivered in our presence:

Darlajo I. Angelo
Printed Name: Darla Jo I. Angelo
Witness

Jean A Cea
Printed Name: Jean A Cea
Witness

_____ (Seal)
Morgan Halle
P.O. Address: **208 NW 5th Terrace, Cape Coral, FL 33993**

STATE OF Florida
COUNTY OF Lee

The foregoing instrument was acknowledged before me this 16TH day of August, 2007 by Morgan Halle

he is personally known to me or he has produced his FLDL as identification.

Darlajo I. Angelo
Printed Name:
Notary Public
My Commission Expires:

DARLAJO C. ANGELO
MY COMMISSION # DD 244333
EXPIRES: November 2, 2007
Bonded Thru Notary Public Underwriters

Address: Don R. Livingstone, P.A.
7711 S. W. 62 Avenue, #101
South Miami, Fl. 33143
Property Appraisers Parcel Identification (Folio) Number(s):

30-43-27-00-00001.0190

SPACE ABOVE THIS LINE FOR PROCESSING DATA — SPACE ABOVE THIS LINE FOR RECORDING DATA

WARRANTY DEED (STATUTORY FORM - SECTION 689.02, F.S.)

This Indenture, made this 11th day of August, 2005, **Between** ROY F. CUSTER and PEGGY M. CUSTER, HUSBAND AND WIFE of the County of Miami-Dade, State of FL., grantor*, and CALOOSA 80, LLP, A FLORIDA LIMITED LIABILITY PARTNERSHIP whose post office address is 8891 Brighton Lane Suite126, Bonita Springs, Florida 34135 Grantee*,

Witnesseth that said grantor, for and in consideration of the sum of Ten ..... Dollars, and other good and valuable consideration to said grantor in hand paid by said grantee, the receipt whereof is hereby acknowledged, has granted and sold to the said grantee, and grantee's heirs and assigns forever, the following described land, situate, lying and being in Lee County, Florida, to-wit:

A tract of Land in the East half of Section 30, Township 43 South, Range 27 East, Lee County, Florida, being more particularly described as follows:

(2)

Commencing at the Southeast corner of Section 30, Township 43 South, Range 27 East, Lee County, Florida; thence North 00 degrees 17 minutes and 18 seconds West along the East section line of said Section 30, a distance of 574.13 feet to the centerline of the Florida Power and Light Easement and the point of beginning of a tract of land herein described; thence run North 00 degrees 17 minutes 18 seconds West along the East section line of said Section 30 a distance of 2,069.55 feet to the North line of the Southeast Quarter of said Section 30; thence North 00 degrees 53 minutes 41 seconds West along the East Section line of said Section 30, a distance of 1,211.84 feet, to the Southerly right of way line of State Road 80; thence North 81 degrees 53 minutes 8 seconds West, along Southerly right of way line of State Road 80, a distance of 1,003.30 feet; thence South 1 degree 9 minutes 48 seconds East, a distance of 175.44 feet; thence South 89 degrees 32 minutes 57 seconds West, a distance of 312.00 feet, to the Easterly R/W of Bateman Road, (50 foot wide) as described in County Commissioner's Minute Book 5, at Page 592, of the Public Records of Lee County, Florida; thence South 1 degree 7 minutes 53 seconds East (South 1 degree 8 minutes 50 seconds East on Johnson Engineering Survey, dated June 9, 1994), along the centerline of Bateman Road, a distance of 3267.33 feet, to the centerline of a 150 foot Florida Power and Light Electrical Easement; thence North 89 degrees 1 minute 22 seconds East, along the centerline of aforesaid electrical easement, a distance of 1,302.81 feet, to the East section line of said Section 30, and the point of beginning. Less and Except any road right-of-way.

SUBJECT TO: Zoning, restrictions, prohibitions and other requirements imposed by governmental authority; restrictions and mattters appearing on the Plat or otherwise common to the subdivision; public utility easements of record, restrictions, reservations, conditions, easements, dedications and limitations of record and taxes for the year 2005 and subsequent years.

and said grantor does hereby fully warrant the title to said land, and will defend the same against the lawful claims of all persons whomsoever.

*"Grantor" and "grantee" are used for singular or plural, as context requires.

In Witness Whereof, grantor has hereunto set grantor's hand and seal the day and year first above written.
Signed sealed and delivered in our presence:

Witness Signature

MELINDA OSBORNE
Printed name

Witness Signature

Douglas J. Smith
Printed Name

Witness Signature

Roy F. Custer
Grantor Signature

ROY F. CUSTER
Printed name

6924 Willow Lane, Miami Lakes, Fl. 33014
Post Office Address

Peggy M. Custer
Grantor Signature

STATE OF FLORIDA
COUNTY OF MIAMI-DADE

The foregoing instrument was acknowledged before me this 11th day of August, 2005, by ROY F. CUSTER and PEGGY M. CUSTER, HUSBAND AND WIFE, who are personally known to me or who have produced a n/a as identification and did take an oath.

NOTARY PUBLIC: Melinda Osborne

Print Name: MELINDA OSBORNE

My Commission Expires:

State of Florida at Large (Seal)

NOTARY PUBLIC STATE OF FLORIDA
OFFICIAL NOTARY SEAL
MELINDA OSBORNE
COMMISSION NUMBER
DD167217
MY COMMISSION EXPIRES
DEC. 2,2006

Aerial Map



Copyright RVI

RVi
10401 Highland Manor Dr
Suite 220
Tampa, FL 33610
Tel: 813.443.8282
www.rviplanning.com

CALOOSA 80 • **AERIAL MAP**

- Lee County, FL
- Date: 4/1/2022
- # 22001218
- Caloosa 80 LLP

Subject Boundary

0 320 640 1,280
Feet

Information furnished regarding this property is from sources deemed reliable. RVi has not made an independent investigation of these sources and no warranty is made as to their accuracy or completeness. This plan is conceptual, subject to change, and does not represent any regulatory approval.

Letter of Authorization

AFFIDAVIT OF AUTHORIZATION

APPLICATION IS SIGNED BY INDIVIDUAL OWNER, APPLICANT, CORPORATION, LIMITED LIABILITY COMPANY (L.L.C.), LIMITED COMPANY (L.C.), PARTNERSHIP, LIMITED PARTNERSHIP, OR TRUSTEE

I, Alfred Hoffman Jr. (name), as Registered Agent (owner/title) of Caloosa 80 LLP (company/property), swear or affirm under oath, that I am the owner or the authorized representative of the owner(s) of the property and that:

1. I have full authority to secure the approval(s) requested and to impose covenants and restrictions on the referenced property as a result of any action approved by the County in accordance with this application and the Land Development Code;
2. All answers to the questions in this application and any sketches, data or other supplementary matter attached hereto and made a part of this application are honest and true;
3. I have authorized the staff of Lee County Community Development to enter upon the property during normal working hours for the purpose of investigating and evaluating the request made thru this application; and that
4. The property will not be transferred, conveyed, sold or subdivided unencumbered by the conditions and restrictions imposed by the approved action.

Notes:

- *If the applicant is a corporation, then it is usually executed by the corp. pres. or v. pres.*
- *If the applicant is a Limited Liability Company (L.L.C.) or Limited Company (L.C.)., then the documents should typically be signed by the Company's "Managing Member."*
- *If the applicant is a partnership, then typically a partner can sign on behalf of the partnership.*
- *If the applicant is a limited partnership, then the general partner must sign and be identified as the "general partner" of the named partnership.*
- *If the applicant is a trustee, then they must include their title of "trustee."*
- *In each instance, first determine the applicant's status, e.g., individual, corporate, trust, partnership, estate, etc., and then use the appropriate format for that ownership.*

Under penalties of perjury, I declare that I have read the foregoing Affidavit of Authorization and that the facts stated in it are true.

Signature

5/26/22
Date

**************NOTE: NOTARY PUBLIC IS NOT REQUIRED FOR ADMINISTRATIVE APPROVALS**************
ALL OTHER APPLICATION TYPES MUST BE NOTARIZED

STATE OF FLORIDA
COUNTY OF LEE

The foregoing instrument was sworn to (or affirmed) and subscribed before me by means of ☒ physical presence or ☐ online notarization, this 26th day of May, 2022, by Alfred Hoffman Jr. (name of person providing oath or affirmation), who is personally known to me or who has produced N/A (type of identification) as identification.

STAMP/SEAL

SHEILA PENNY
Notary Public-State of Florida
Commission # HH 206430
My Commission Expires
December 09, 2025

Signature of Notary Public

Project Narrative

Caloosa 80 Comprehensive Plan Amendment (Map & Text)

Lee Plan, State Policy Plan, Regional Policy Plan, Community Plan Area Consistency & Justification of the Proposed Amendment

I. Request

Caloosa 80 LLP ("Applicant") is requesting approval of a Large-Scale Comprehensive Plan Amendment to change the future land use (FLU) category of 92.71 +/- acres of the 192.3+/- acre site ("Property") from Rural to Sub-Outlying Suburban, and to add the Property to the Lee County Utilities, Future Water and Sanitary Sewer Service Areas. This request requires three map amendments to Lee Plan Maps 1A, Map 4A, and Map 4B. It also includes a text amendment to Table 1(b) to increase the residential acreage of land in the Sub-Outlying Suburban FLU category of District 1, Northeast Lee County.

The total Property owned by the Applicant is 192.3 acres. Currently, the majority of the site (99.6 acres) is within the Urban Community FLU category, which allows for 6 du/acre and commercial uses. The remaining 92.7 acres of the Property are designated as Rural and are limited to 1 du/acre.

The amendment will allow for the development of a maximum of 2 du/ac in the parcels proposed as Sub-Outlying Suburban. This would entail a maximum total of 650 dwelling units, well below the use and density limitations set forth in Lee Plan Table 1(a).

The proposed text amendment will ensure sufficient residential acreage is allocated to the Sub-Outlying Suburban FLU category of District 1 per Lee Plan Table 1(b) to support this request. There is existing available residential acreage within the Urban Community FLU category of District 1 as well as commercial acreage in District 1.

The Applicant has filed a companion Mixed Use Planned Development (MPD) rezoning application to further limit development of the Property to 650 Recreational Vehicle (RV) units and up to 30,000 SF of neighborhood commercial retail along with accessory uses, and supportive infrastructure.

II. Existing Conditions & Property History

The Property is located south of Palm Beach Boulevard (SR 80) and east of Bateman Road and west of Goggin Road. The Property is currently zoned Recreational Vehicle Planned Development (RVPD) per Resolution No. Z-09-042 and is located within the Northeast Lee County and Alva Community Planning Areas. The Property is currently utilized as pastures. The RVPD zoning district permits the development of 417 RV site, including 121 transient and 296 non-transient RV sites, with associated accessory and subordinate uses, including limited commercial uses.

III. Surrounding Land Use Pattern

The Property is within a suburban area with a mix of residential, commercial, and public land uses. The surrounding land use pattern consists of public rights-of-way to the north and west, low-density single-family residential dwellings and pastures to the north, east, and south, and the Hickey Creek

Mitigation Park to the west. To the northeast of the Property, across SR 80, there are some commercial uses including a restaurant and plant nursery.

Lands in the immediate area are designated Rural, Conservation, as well as Urban Community to the south and northwest of the Property, and further to the east along SR 80. While there are significant lands in the area already in Urban Community, including the majority of the Property, the request is to allow for a "step down" or transition of density through the Sub Outlying Suburban FLU.

Table 1 below further defines the surrounding Future Land Use designations, zoning districts and existing land uses.

Table 1: Inventory of Surrounding Lands

	FUTURE LAND USE	ZONING DISTRICT	EXISTING LAND USE
NORTH	Rural	AG-2 (Agricultural)	Right of Way (Palm Beach Blvd.), single-family residential homes, pastures, restaurant, nursery
SOUTH	Urban Community, Rural	AG-2 (Agricultural)	Florida Power & Light easement, single-family residential homes, pastures
EAST	Rural	AG-2 (Agricultural)	Single-family residential homes, pastures
WEST	Conservation Lands - Upland	EC (Environmentally Critical)	Right-of-Way (Bateman Road), Hickey Creek mitigation park

IV. Public Infrastructure

As outlined in the enclosed application, the subject property is serviced by existing public infrastructure that can accommodate the proposed mix of residential and commercial uses.

The amendment proposes to add the Property to the Lee County Utilities, Future Service Areas for Water and Sanitary Sewer. Lee County Utilities has indicated adequate capacity to serve the project for potable water and sanitary sewer service (Exhibit M17).

The Property has frontage and access to SR 80, a state maintained arterial corridor connecting the east and west coasts of the state. The surrounding roadway network has adequate capacity as set forth in the accompanying Traffic Circulation Analysis prepared by TR Transportation Consultants, Inc. (Exhibit M15). There are adequate community facilities and services in the immediate vicinity of the project, including Fire, Law Enforcement, Schools, and Parks. Adequate EMS services are unavailable from the Lee County Public Safety Department. The Applicant is open to working with the County on Conditions to ensure that adequate service is available at the time of construction. Please refer to the enclosed infrastructure analysis and agency availability letters (Exhibit M14, M16 & M17) for a complete description of available infrastructure and services to support the amendment request.

V. Proposed Amendment

The amendment request will allow for development of the Property as a Recreational Vehicle Park, with a maximum of 650 units and up to 30,000 SF of commercial uses, along with associated infrastructure and amenities. The Applicant has submitted a companion MPD rezoning petition to implement the intended development program, while ensuring adequate protection to the environment and rural character of the area.

The current amendment requests for a change in FLU from Rural to Sub-Outlying Suburban, which allows for the increase in density to allow for a compact form of development where infrastructure exists to support new growth, while ensuring that the rural character of the community is preserved. The proposed FLU category restricts residential density to 2 units per acre, achieving a gradual reduction in densities from Urban Community that lies to the immediate west to the Rural lands to the east.

At the same time, the RV park introduces housing options in the community as well as commercial uses that could provide required services to the residents of the RV park and the adjoining rural areas, thereby reducing vehicle miles travelled and allowing for accessibility by bicycle and pedestrians in the project and immediate area.

The proposed development, being developed at a density greater than 2.5 du/ac is required to connect to a public water service, per the Lee Plan Standard 4.1.1. The amendment includes a request for the Property to be added to the Lee County Utilities, Future Water Service Areas. The gross density of the companion MPD is 4 du/acre, thereby exceeding this minimum threshold.

Further, the proposed text amendment requests that additional acreage be added to the Sub-Outlying Suburban FLU category in District 1, ensuring that the project is consistent with Table 1(b) of the Lee Plan.

VI. Lee Plan Consistency & Community Plan Area Consistency

The following is an analysis of how the proposed amendment is consistent with the goals, policies and objectives of the Lee Plan.

POLICY 1.1.11: The Sub-Outlying Suburban future land use category is characterized by low density residential areas. Generally, the infrastructure needed for higher density development is not planned or in place. This future land use category will be placed in areas where higher densities would be incompatible or where there is a desire to retain a low-density community character. Industrial land uses are not permitted. The standard density range is from one dwelling unit per acre (1 du/acre) to two dwelling units per acre (2 du/acre). Bonus densities are not allowed.

In compliance with this policy, the Property is located in a suburban area of the County, with less dense development. One of the parcels comprising the Property has an Urban Community FLU designation, which allows development of 6 du/ac as evidence of the transitioning nature of this area. By changing the FLU designations of the eastern two parcels from Rural to Sub-Outlying Suburban, there will be a gradual decrease in densities from west to east. While this allows for the increase in density necessary to achieve the Client's compact development program and make appropriate use of available infrastructure, it still ensures a low-density community character, with a net increase of only 1 du/ac across 92.71 acres or 93 units.

Goal 2: GROWTH MANAGEMENT. To provide for an economically feasible plan which coordinates the location and timing of new development with the provision of infrastructure by government agencies, private utilities, and other sources.

The Property is partially located in an urban area pursuant to the underlying Urban Community future land use category. The Property abuts and has direct access to a 4-lane state-maintained arterial roadway. The application proposes to extend water and sewer to the site providing for centralized utility service via water and wastewater treatment plants with capacity to serve the project. The development will be served by the Alva Fire District and the Lee County Sheriff's Office. The proposal to convert the Rural portion of the Property to Sub-Outlying Suburban will accommodate slightly higher densities and make efficient use of infrastructure and services. The request also provides private investment in the County's infrastructure system that will help to reduce reliance on wells and septic tanks in the general area.

Objective 2.1: DEVELOPMENT LOCATION. Contiguous and compact growth patterns will be promoted through the rezoning process to contain urban sprawl, minimize energy costs, conserve land, water, and natural resources, minimize the cost of services, and prevent development patterns where large tracts of land are by-passed in favor of development more distant from services and existing communities.

The proposed development would result in a contiguous and compact growth pattern. As noted above, the majority of the Property is within Urban Community. The request will allow for additional density and provides infrastructure in an area that Lee County Utilities is able and interested in serving. An existing RVPD zoning approval authorizes development of the RV uses and ancillary commercial uses. The applications filed by the Applicant will simply allow connection to water and sewer; 8 additional RV lots, and commercial that serves not only the RV park residents but the surrounding rural community that is in need of additional retail and services. The applications also protect natural resources by preserving wetlands, reconfiguring the lake system, and providing for expansive perimeter buffers.

Objective 2.2: DEVELOPMENT TIMING. Direct new growth 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.

As noted above, the majority of the Property is within the Future Urban Area. The request will allow for an expansion of the already approved RV and commercial development program to allow for neighborhood commercial to reduce vehicle miles travelled in the Alva area. LCU has indicated ability to serve the project for both water and sewer, thereby allowing for the expansion of infrastructure along a major arterial corridor, and reducing reliance on wells, septic and/or private wastewater treatment facilities. Other infrastructure and services are available to serve the project per the letters of availability provided.

STANDARD 4.1.1: WATER.

1. *Any new residential development that exceeds 2.5 dwelling units per gross acre, and any new single commercial or industrial development in excess of 30,000 square feet of gross leasable (floor) area per parcel, must connect to a public water system (or a "community" water system as that is defined by Fla. Admin. Code R. 62-550)*

   ...

6. *If a development lies outside any service area as described above, the developer may:*

• request that the service area of Lee County Utilities or an adjacent water utility be extended to incorporate the property;
• establish a community water system for the development; or
• develop at an intensity that does not require a community water system.

The proposed development of the Property is 650 RVs on 192.3 acres, for a total gross density of 4 du/acre. The amendment proposes to add the Property to the Lee County Utilities Service Area Maps, Future Service Areas for Sanitary Sewer and Potable Water as contemplated by subsection 5 of this policy. Lee County Utilities has indicated adequate capacity to serve the project per the attached letter of availability.

The public benefit of the utilities expansion to the subject property includes reduction of reliance on individual wells and septic tanks in an area proximate to the Caloosahatchee River and significant natural resources (Hickey Creek Mitigation Park). It is understood that the City of LaBelle and Hendry County are extending utilities from the City of LaBelle to the Lee/Hendry County line along SR 80. The proposed expansion will help fill a gap in utility service along this important growth corridor. Therefore, the amendment is consistent with this policy.

POLICY 5.1.5: Protect existing and future residential areas from any encroachment of uses that are potentially destructive to the character and integrity of the residential environment. Requests for conventional rezonings will be denied in the event that the buffers provided in Chapter 10 of the Land Development Code are not adequate to address potentially incompatible uses in a satisfactory manner. If such uses are proposed in the form of a planned development or special exception and generally applicable development regulations are deemed to be inadequate, conditions will be attached to minimize or eliminate the potential impacts or, where no adequate conditions can be devised, the application will be denied altogether. The Land Development Code will continue to require appropriate buffers for new developments.

The proposed amendment is requesting a change in the FLU designation from Rural to Sub-Outlying Suburban. The proposed FLU designation does not permit commercial or industrial development, that could be destructive to the low-density, rural character of the area. Further, through the companion MPD rezone, non-residential uses are further restricted to specific neighborhood commercial uses that would serve the Recreational Vehicle (RV) park community and adjoining residential areas within the Urban Community designated portions of the site. Roughly 4.5 acres of the project are to be dedicated towards 30,000 SF of neighborhood commercial uses and are appropriately oriented to the intensive SR 80 frontage. Per the companion rezone, this proposed MPD is planned with adequate buffering from adjoining residential uses that meet the requirements of the Land Development Code (LDC).

Objective 17.3: PUBLIC INPUT. To provide opportunities for public input as part of the comprehensive plan and land development code amendment process.

The Applicant conducted public information meeting at the Alva Community Center, 21471 N River Rd., Alva, FL 33920, at 7:00 p.m., on Tuesday, December 13, 2022 and February 14, 2023, as part of the Alva, Inc. monthly meeting. The meeting summary prepared by Alva, Inc. is included in this submittal.

GOAL 27: NORTHEAST LEE COUNTY COMMUNITY PLAN. Maintain, enhance, and support the heritage and rural character, natural resources, and agricultural lands. Alva and North Olga will work cooperatively toward this goal through the objectives and policies that follow, and through their individual community plans.

The proposed amendment will maintain the rural character through substantial perimeter buffers, clustering of development around protected wetlands and native preserve, and 40' wide setback/vegetative buffer adjacent to Hickey Creek Mitigation Park. The Property is permitted a maximum of 692 RV lots per the underlying future land use map as it exists today. The increase to 650 RV lots is a nominal increase to this allowable density. The proposed commercial uses are also permitted today per the underlying Urban Community future land use on the western portion of the site.

The proposed amendment will result in an enhanced quality of life for existing and future residents through the extension of centralized utility services, which will reduce reliance on private wells and septic tanks, which pose an environmental risk to the groundwater and surface waters. The proposed neighborhood commercial uses will be limited by the companion MPD zoning petition to ensure the uses are appropriate for the rural community, low intensity in nature, and are designed in buildings that achieve the Old Florida architectural vernacular preferred by the Alva Community.

OBJECTIVE 27.3: NATURAL RESOURCES. To enhance, preserve and protect the physical integrity, ecological standards, and rural character of Northeast Lee County by focusing on: water basins; native vegetation; wildlife habitat and resources; and areas designated for long-term conservation.

A detailed environmental assessment for the project site was conducted by BearPaws Environmental Consulting and is included in the application materials. The companion rezoning will provide for protection of natural resources by preserving on-site wetlands, providing native preserve in accordance with the LDC, and implementing expansive perimeter buffers, including a 40-foot-wide buffer adjacent to Bateman Road/Hickeys Creek Mitigation Park. When combine the proposed design will fully comply with the above policy. Moreover the extension of utilities will reduce the number of private wells and septic tanks in the area, and provide centralized public utilities to this site, which is preferred when compared to a private, on-site wastewater treatment facility.

OBJECTIVE 28.1: RURAL CHARACTER. Maintain and enhance the rural character and environment of Alva through planning practices that: 1. Manage growth and protect Alva's rural nature. 2. Maintain agricultural lands and rural land use patterns. 3. Provide needed community facilities, transportation systems, and infrastructure capacity. 4. Protect and enhance native species, ecosystems, habitats, natural resources, and water systems. 5. Preserve Alva's historic places and archaeological sites.

The majority of the Property is located in the Urban Community future land use, which is a future urban area per the Lee Plan. The proposed amendment and companion MPD rezone will increase the allowable density of RV lots to 650, an increase of 8 RV lots. The commercial component of the project is permitted today per the underlying Urban Community future land use. The extension of utilities will provide community facilities to the immediate area and allow more areas to be served by centralized public utilities. The applications will allow for an appropriate transition of growth from west to east and a nominal increase in allowable density. The plan also protects natural resources, including on-site wetlands and uplands, as detailed in this application, as well as the companion MPD rezone. There are no current historic and/or archeological sites located on the development.

The rural character of Alva/Northeast Lee County is also addressed through the design of the project as shown on the companion Planned Development Rezone Master Concept Plan. Expansive buffers and preserve areas along all publicly visible perimeters. Wetland and upland preserve areas will ensure views from SR 80 and Bateman Road are of native vegetation as opposed to development. RV resorts are also indicative of a rural character

based on their locations in Lee County and propensity to locate in areas with open space, publicly owned preserve areas, lower densities and other factors that contribute as a nature amenity. Densities are lower than the maximum attainable with the underlying Urban Community and proposed Sub-Outlying Suburban categories and do not represent the "maximum" attainable densities. Lastly, the proposed commercial uses are low intensity and sized to serve the community and surrounding rural area with neighborhood scale goods and services, and transient RV lots will only be located in the Urban Community area of the site per the companion MPD.

POLICY 28.1.4: New industrial activities or changes of land use that allow future industrial activities, not directly associated with Alva's commercial agriculture, are prohibited in Alva.

The proposal requests a change of FLU from Rural to Sub-Outlying Suburban. Industrial uses are not permitted in this FLU category per Policy 1.1.11. Further, only neighborhood commercial uses, that could benefit the RV park residents and surrounding neighborhoods are being proposed through the companion MPD rezone.

POLICY 28.2.2: Future land use amendments that would increase the allowable total density of Alva are discouraged and must demonstrate consistency with the objectives and policies of this goal through concurrent planned development rezoning. Future Land Use Map amendments that would decrease the allowable total density of Alva and that are otherwise consistent with the objectives and policies of this goal are encouraged.

While the proposed FLU amendment looks to increase the allowable total density of Alva, it is accompanied by a planned development rezoning to MPD. Through this companion rezoning petition, the objectives and policies of the Alva Community Plan Goal to enhance the rural, historic and agricultural character and protect natural resources will be met. The rezone establishes development standards for the RV park, along with protection of natural resources. Impacts to existing wetlands on the Property are minimized through establishment of preserve areas. Further, adequate buffering is proposed along Bateman Road, adjacent to the Hickey Creek Mitigation Park. The proposed development will be clustered to ensure adequate open space on the Property.

Further, the FLU amendment is to change the designation of part of the Property from Rural to Sub-Outlying Suburban. The remainder of the Property is already designated as Urban Community, allowing for development of up to 6 du/ac. While there is a proposed increase in density to allow for financial feasibility of the project, the change to the Sub-Outlying Suburban designation only creates an increase of 93 units across the 192.3 +/- project. The Sub-Outlying Suburban FLU designation is specifically designed for places "where there is a desire to retain a low-density community character" per Policy 1.1.11 of the Lee Plan. This designation would allow for densities to gradually decrease from Urban Community to the adjoining Rural.

OBJECTIVE 28.5: NATURAL RESOURCES AND ENVIRONMENTAL SYSTEMS. To enhance, preserve, protect, and restore the physical integrity, ecological standards, and natural beauty of the Alva Community Plan area.

A detailed environmental assessment for the project site was conducted by BearPaws Environmental. The amendment and companion MPD protect natural resources, including on-site wetlands and uplands, as detailed in this application, as well as the companion MPD rezone. There are no current historic and/or archeological sites located on the development.

The plan also protects natural resources, including on-site wetlands and uplands, as detailed in this application, as well as the companion MPD rezone. There are no current historic and/or archeological sites located on the development. been protected to ensure natural beauty on the property while also maintain the rural character of Alva Community.

POLICY 28.5.3: All new development and redevelopment must maintain compliance with State of Florida mandated Total Maximum Daily Load (TMDL) requirement for designated water bodies.

The Applicant will remain compliant with State of Florida mandated Total Maximum Daily Load requirement. Total Maximum Daily Loads (TMDLs) adopted under Chapter 62-304, F.A.C., that interpret the narrative water quality criterion for nutrients in paragraph 62-302.530(47)(b), F.A.C., for one or more nutrients or nutrient response variables. This will be thoroughly evaluated during the South Florida Water Management (SFWMD) permitting process, and an environmental resource permit (ERP) will not be issued unless the project design demonstrates compliance with these requirements.

POLICY 28.5.4: New development and redevelopment in or near existing and potential wellfields must: 1. Be designed to minimize the possibility of contaminating groundwater during construction and operation. 2. Comply with the Lee County Wellfield Protection Ordinance.

There are no wellfields on the Property. Please see attached stormwater management narrative describing the lake design and its consistency with Lee County's groundwater protection regulations. Moreover, the lakes have been redesigned since the original zoning approval to break the large central lake previously approved into smaller lakes to better protect the groundwater within and abutting the property.

POLICY 28.5.5: Provide educational programs or materials on energy conservation, energy efficiency, greenhouse gas emission reductions, solid waste management, hazardous waste, surface water runoff, septic maintenance, water conservation, Florida Friendly Landscaping, green building, cultural resources, history, etc.

This policy is not applicable to individual developments.

POLICY 28.1.1: Evaluate and identify appropriate commercial areas with a focus on the rural village area.

The commercial uses proposed on the Property will be along SR 80. SR 80 is a 4-lane arterial roadway, that will provide a strategic location for neighborhood commercial uses. Further, sidewalks and a shared-use path are planned for the portion of SR 80 within the Alva Community (Map 3-D), allowing for pedestrian access from surrounding neighborhoods.

GOAL 60: COORDINATED SURFACE WATER MANAGEMENT AND LAND USE PLANNING ON A WATERSHED BASIS. To protect or improve the quality of receiving waters and surrounding natural areas and the functions of natural groundwater aquifer recharge areas while also providing flood protection for existing and future development.

The development has conserved the on-site wetlands, which aid in flood protection. The proposed lake system will be designed in accordance with the SFWMD requirement to ensure water is retained on-site until water quality meets minimum standards, at which time water will slowly attenuate off-site at flow rates approved by the district.

GOAL 61: PROTECTION OF WATER RESOURCES. To protect the County's water resources through the application of innovative and sound methods of surface water management and by ensuring that the public and private construction, operation, and maintenance of surface water management systems are consistent with the need to protect receiving waters.

The site will contain 32+/- acres of lakes that will be maintained properly in accordance with the Lee County Land Development Code. The surface waters and groundwater resources of the County shall be protected to ensure that their biological, ecological, and hydrological functions are maintained, conserved, or improved.

POLICY 77.3.7: New development and redevelopment in areas containing a component of the greenways trail system, as identified by the Lee County Greenways Master Plan, must incorporate the greenway trail into their development design. In addition to counting towards the project's general open space requirements, developments constructing the onsite portions of the greenway trail will be eligible for community and regional park impact fee credit.

The Pine Island-Hendry Trail is located on SR 80 Beach Boulevard in Lee County. The trail is a part of the Lee County Greenway Master Plan. However, the trail is shared within the arterial roadway. Because the trail is not located within the subject property, the applicant will continue to make improvements in the right-of-way.

Policy 124.1.1: Ensure that development in wetlands is limited to very low density residential uses and uses of a recreational, open space, or conservation nature that are compatible with wetland functions. The maximum density in the Wetlands category is one unit per 20 acres, except that one single family residence will be permitted on lots meeting the standards in Chapter XIII. Owners of wetlands adjacent to Intensive Development, General Interchange, Central Urban, Urban Community, Suburban, New Community, Outlying Suburban, Sub-Outlying Suburban, and Rural future land use categories may transfer dwelling units from preserved freshwater wetlands to developable contiguous uplands under common ownership at the same underlying density as permitted for those uplands.

The site contained approximately 10.3 acres of wetlands. These wetlands are planned to be protected and designated within the preserve areas on the companion MPD rezone's MCP. The project will ensure preservation of environmental resources through preservation of wetlands and other sensitive lands, and stormwater management. Development will be clustered to ensure open space as well as adequate buffering, particularly along Bateman Road, adjacent to the Hickey Creek Mitigation Park.

POLICY 124.1.2: The County's wetlands protection regulations will be consistent with the following: 4. Every reasonable effort will be required to avoid or minimize adverse impacts on wetlands through the clustering of development and other site planning techniques. On- or off-site mitigation will only be permitted in accordance with applicable state standards.

The proposed development protects on-site wetlands, by designation of preserve areas through the companion MPD Rezone.

POLICY 125.1.2: New development and additions to existing development must not degrade surface and ground water quality.

Prior to future development activities on the Property, the Applicant will obtain the requisite Environmental Resource Permit (ERP) from the South Florida Water Management District, and all other applicable state agencies. The site design will ensure pretreatment of stormwater prior to discharge off-site.

Policy 126.1.1: Natural water system features which are essential for retention, detention, purification, runoff, recharge, and maintenance of stream flows and groundwater levels shall be identified, protected, and managed.

The development has conserved the wetlands and natural preserve on property. The proposed lakes will provide flooding runoff and further protection for the proposed development. The natural water system features such as the surface waters and groundwater levels will be identified, protected and managed.

Policy 126.1.4.: Development designs must provide for maintaining or improving surface water flows, groundwater levels, and lake levels at or above existing conditions.

The proposed lakes will provide flooding runoff and further protection for the proposed development. the surface waters and groundwater resources of the County shall be protected to ensure that their biological, ecological, and hydrological functions are maintained, conserved, or improved.

VII. Adjacent Local Governments

The subject property is located entirely within Lee County.

VII. State Comprehensive Plan Consistency

The proposed amendment is consistent with the State Comprehensive Land Use Plan's intent to ensure protection of natural resources while providing housing opportunities. Specifically, the amendment is consistent with the following guiding policies:

Housing. The public and private sectors shall increase the affordability and availability of housing for low-income and moderate-income persons, including citizens in rural areas, while at the same time encouraging self-sufficiency of the individual and assuring environmental and structural quality and cost-effective operations.

The proposal will allow for housing opportunities through the RV park, while also ensuring clustering through the Planned Development zoning to minimize impacts on wetlands and the adjacent Hickey Creek Mitigation Park through designation of preserve areas and buffers, as demonstrated on the MCP included in the companion MPD rezone petition. The amendment will allow for slightly higher densities to accommodate the demand for housing options in Lee County, in an area that fronts a major state corridor and where surrounding densities/intensities support the change.

Land Use. In recognition of the importance of preserving the natural resources and enhancing the quality of life of the state, development shall be directed to those areas which have in place, or have agreements to provide, the land and water resources, fiscal abilities, and service capacity to accommodate growth in an environmentally acceptable manner.

There is service capacity in place to serve the project in terms of potable water, sanitary sewer service, solid waste, law enforcement, fire, parks, and school services. The Applicant will work with County regarding EMS services. Further, through the companion MPD rezone petition, the project will ensure preservation of environmental resources through preservation of wetlands and other sensitive lands, and stormwater management. Development will be clustered to ensure open space as well as adequate buffering, especially along Bateman Road, adjacent to the Hickey Creek Mitigation Park.

Transportation. Florida shall direct future transportation improvements to aid in the management of growth and shall have a state transportation system that integrates highway, air, mass transit and transportation.

The project is serviced by an arterial roadway, SR 80. Pedestrian access options through a shared use path and sidewalks are planned for the area (Map 3-D).

Natural Systems & Recreational Lands. Florida shall protect and acquire unique natural habitats and ecological systems, such as wetlands, tropical hardwood hammocks, palm hammocks, and virgin longleaf pine forests, and restore degraded natural systems to a functional condition.

The site is an active agricultural pasture with just 10.3 acres of wetlands. These wetlands are planned to be protected and designated within the preserve areas on the companion MPD rezone.

VIII. Regional Policy Plan Consistency

The proposed amendment is consistent with the Southwest Florida Regional Policy Plan (SWFRPP) as follows:

Housing Element
Goal 2: Southwest Florida will develop (or redevelop) communities that are livable and offer residents a wide range of housing and employment opportunities.

The proposed amendment will offer a unique option for housing through the RV park. Further, 30,000 SF of commercial uses on the property will help provide services to the residents of the park as well as the neighboring rural communities.

Natural Resources Element
Goal 4: Livable communities designed to improve quality of life and provide for the sustainability of our natural resources.

The proposed amendment and companion rezoning application will provide for stormwater management infrastructure to ensure protection of the wetlands located within the Property.

Regional Transportation
Goal 2: Livable communities designed to affect behavior, improve quality of life and responsive to community needs.

The property is serviced by The property is serviced by Palm Beach Boulevard (SR 80), a county-maintained 4-lane arterial roadway. As demonstrated in the Traffic Circulation Analysis by TR Transportation Consultants, Inc., there is adequate capacity available to serve the project. Further, the strategic location of neighborhood commercial uses in the project will serve the future residents of the RV park as well as surrounding rural residential areas.

IX. Conclusion

The proposed Comprehensive Plan Text and Map Amendments are to allow for an increase in density and to add the Property to the Lee County Utilities service areas for water and sanitary sewer. These amendments will allow for a change to the existing RVPD zoning on the Property, through the companion MPD rezone application. The application is consistent with the Lee Plan, the

State Comprehensive Plan, and Regional Policy Plan. The Applicant respectfully requests approval of this petition and reserves the right to make any changes to the request during the review process.

Environmental Impacts Analysis

CALOOSA 80

ENVIRONMENTAL ASSESSMENT & CURSORY SPECIES SURVEY REPORT

Lee County STRAP #'s: 29-43-27-00-00005.0000; 29-43-27-00-00012.0060; 30-43-27-00-00001.0190

August 2022

Prepared For:

Caloosa 80, LLP. - Stan Whitcomb
c/o: RVi Planning & Landscape Architecture
Rhea Lopes – Project Manager
28100 Bonita Grande Drive, Suite 305
Bonita Springs, FL 34135
Phone: 239-850-8525
Email: rlopes@rviplanning.com

Prepared By:

BearPaws Environmental Consulting
1599 Covington Circle East
Phone: (239) 340-0678
Email: BearPaws.Env.Consulting@GMail.com

Introduction

An environmental assessment and cursory species survey was conducted on the Caloosa 80 property on August 9, 2022. The 191.06± acre site is located in Sections 29 & 30, Township 43S, and Range 27E, of Lee County, Florida. More specifically, the site is located immediately south of SR 80 (Palm Beach Boulevard), east of Bateman Road, and west of Goggin Road, in Fort Myers, Florida. Please see the attached Project Location Map (Exhibit A).

The purpose of this assessment was to identify the potential for either U.S. Army Corps of Engineers (ACOE) Department of Environmental Protection (DEP), and/or South Florida Water Management District (SFWMD) jurisdictional wetlands. The site was also assessed to determine the potential of listed (endangered, threatened, etc.) species inhabiting the site that are regulated by the U.S. Fish & Wildlife Service (FWS) and the Florida Fish & Wildlife Conservation Commission (FWC).

A cursory species survey was also provided to inspect the property for any and all potential listed species that could inhabit the site. Listed (endangered, threatened, etc.) species are regulated by the US Fish & Wildlife Service (FWS) and/or the Florida Fish & Wildlife Conservation Commission (FWC). Specific attention was paid toward that of locating any gopher tortoise (*Gopherus polyphemus*), as well as locating any potential fox squirrel (*Sciurus niger*) nests, Florida bonneted bat (*Eumops floridanus*) cavity trees, and any Audubon's crested caracara (*Caracara plancus audubonii*) or bald eagle (*Haliaeetus leucocephalus*) nests. An updated survey covering the entire property, including preserve areas, will be provided prior to any on-site development.

The project's surrounding land uses are a mixture of residential homes, undeveloped vacant land, and forested land. The surveys were conducted throughout the day; the temperatures were in the mid-upper 80's, with light breezes, and mostly cloudy skies.

Background

The ACOE, DEP, and the SFWMD are the agencies that regulate development activities in wetlands. To be considered wetlands by the ACOE, DEP, and/or SFWMD, the area should exhibit wetland hydrology, contain wetland vegetation, and have hydric soils. For an area to be considered wetlands, a site should have hydric soils, wetland hydrology, and wetland vegetation present. The property was reviewed for indicators of these parameters.

Hydric soils are identified by certain characteristics that are unique to wetland soils. Wetland hydrology is normally present if the soil is saturated or inundated for a period of time; typically, from May through November; the rainy season in Southwest Florida. In the absence of visual signs of saturation or inundation, the regulatory agencies typically use hydrologic indicators such as adventitious rooting, lichen lines, or algal matting as method of guidance. If the majority of the shrubs/plants that are present are those that are adapted to saturated soil conditions, it's likely wetland vegetation.

The FWS and FWC are the primary agencies that review potential impacts to listed species. The FWS reviews potential impacts and provides comments to the ACOE and DEP during the permitting process, while the FWC provides comments to the SFWMD. In general, the wildlife agency concerns need to be addressed in order for the permits to be authorized by the ACOE, DEP, and/or the SFWMD.

Methodology

The species survey was conducted utilizing combined methodologies from Lee County's Land Development Code (LDC, Chapter 10, Article III, Division 8 - Protection of Habitat) and also encompassed the Lee County Endangered Species Ordinance No. 89-34. Surveys for Lee County protected species are based on the presence of specific vegetation associations and habitat types noted on-site, as outlined in the LDC. The frequency of transects performed in these habitats, unless otherwise discussed, were designed to meet the minimum updated coverage requirement. Following the Lee County Endangered Species Ordinance No. 89-34, the specific methodology included pedestrian surveys of parallel transects. The survey was conducted according to the previously approved Lee County methodology, submitted by Kevin L. Erwin Consulting Ecologist, Inc.

These methods are comprised of a several step process. The vegetation communities or land-uses on the study area are delineated on an aerial photograph using the Florida Land Use, Cover and Forms Classification System (FLUCFCS). Next, these FLUCFCS codes are cross-referenced with the Lee County Protected Species List. With a list of the potential listed plants and animals, each FLUCFCS community is searched in the field for these species. An intensive pedestrian survey is conducted using parallel belt transects as a means of searching for protected plants and animals; signs or sightings of these species are then recorded.

Existing Site Conditions

Boundary – The project boundary was obtained from the Lee County parcel data and is assumed to be approximately 191.06± acres.

Soils - The soils on the property have been mapped by the National Resource Conservation Service (NRCS, formerly the Soil Conservation Service). These mappings are general in nature but can provide a certain level of information about the site as to the possible extent of wetland area. The agencies commonly use these mappings as justification for certain wetland/upland determinations. According to these mappings, the parcel is underlain by Myakka fine sand (NRCS #11; non-hydric), Boca fine sand (NRCS #13; non-hydric), Immokalee sand (NRCS #28; hydric), Oldsmar sand (NRCS #33; non-hydric), Wabasso sand (NRCS #35; non-hydric), Myakka fine sand, depressional (NRCS #53; hydric), and Boca fine sand, slough (NRCS #74; hydric), soils. Myakka fine sand, Boca fine sand, Immokalee sand, Oldsmar sand, and Wabasso sand soils are considered non-hydric at both the local and national levels. Please see the attached NRCS Soils Map (Exhibit D).

Vegetation Descriptions – Vegetation is one parameter used in determining the presence of uplands or wetlands; these community mappings will generally reflect what a specific area could be considered by the regulatory agencies. We identified approximately 8.68± acres of wetlands and 1.62± acres of "other surface water" communities on-site during the initial site assessment.

While on-site, generalized community delineations are hand-drawn on an aerial defining the different vegetation associations on-site. These general delineations were based on the nomenclature of the Florida Land Use, Cover and Forms Classification System (FLUCFCS), Level III and IV (FDOT 1999). Please see the attached FLUCFCS Map with Aerial (Exhibit B) and FLUCFCS Map without Aerial (Exhibit C). Listed below are the vegetation communities and land-uses identified on the site.

FLUCFCS Codes & Community Descriptions

Uplands

The following community areas have been designated as upland habitats. Uplands are any area that does not qualify as a wetland because the associated hydrologic regime is not sufficiently wet enough to elicit development of vegetation, soils, and/or hydrologic characteristics associated with wetlands.

FLUCFCS 211 Improved Pastures – 67.05 ± Acres

This upland habitat type occupies approximately 67.05± acres. The canopy and sub-canopy is mostly open with widely scattered slash pine (*Pinus elliotti*), and live oak (*Quercus virginiana*). Young specimens of these tree species are also found widely scattered in the mid-story and groundcover. Other common mid-story species include Brazilian pepper (*Schinus terebinthifolius*), and cabbage palm (*Sabal palmetto*). The groundcover is dominated by bahia grass (*Paspalum notatum*), with musky mint (*Hyptis alata*), spadeleaf (*Centella asiatica*), cesar weed (*Urena lobata),* tickseed (*Coreopsis floridana*), rosy camphorweed (*Pluchea rosea*), and dollarweed (*Hydrocotyle umbellata*), with various other opportunistic weedy species. Commonly observed vines include greenbriar (*Smilax sp.)*, grapevine (*Vitis rotundifolia)*, Virginia creeper (*Parthenocissus quinquefolia*), and peppervine (*Ampelopsis arborea*). This community should be considered uplands by regulatory agencies.

FLUCFCS 213 Woodland Pasture – 42.65± Acres

This upland habitat type occupies the approximately 42.65± acres of the property. Canopy is mostly open with widely scattered live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), and slash pine (*Pinus elliottii*). The sub-canopy includes cabbage palm (*Sabal palmetto*), wax myrtle (*Myrica cerifera*), and Brazilian pepper (*Schinus terebinthifolius*). Ground cover is dominated by bahia grass *(Paspalum notatum)* with scattered saw palmetto (*Serenoa repens*), dog fennel (*Eupatorium capillifolium*), ragweed (*Ambrosia trifida*), caesar weed (*Urena lobata*), hairy beggar-ticks (*Bidens alba*), smutgrass (*Sporobolus sp.*), false buttonweed (*Spermacoce verticillata*), three-awn grass (*Aristida purpurea*), and flattop goldenrod *(Euthamia caroliniana),* with various other opportunistic weedy species. Commonly observed vines include greenbriar (*Smilax sp.)*, grapevine (*Vitis rotundifolia)*, Virginia creeper (*Parthenocissus quinquefolia*), peppervine (*Ampelopsis arborea*), and poison ivy (*Toxicodendron radicans*). This community would be considered uplands by the regulatory agencies.

FLUCFCS 321 Palmetto Prairie – 3.66± Acres

This upland habitat type occupies approximately 3.66± acres of the property. The canopy contains scattered slash pine (*Pinus elliottii*), live oak (*Quercus virginiana*), and cabbage palm (*Sabal palmetto*). The sub-canopy consists of Brazilian pepper (*Schinus terebinthifolius*), beauty-berry (*Callicarpa americana*), winged sumac (*Rhus copallinum*), and saw palmetto (*Serenoa repens*). The ground cover is dominated by saw palmetto (*Serenoa repens*), with various other opportunistic weedy species. Commonly observed vines include grapevine (*Vitis rotundifolia*) and greenbriar (*Smilax sp.)*. This community would be considered uplands by regulatory agencies.

FLUCFCS 411 Pine Flatwoods – 66.52± Acres

This upland community type occupies approximately 66.52± acres of the property. The canopy vegetation is dominated by slash pine *(Pinus ellotti),* with scattered live oak (*Quercus virginiana*), and melaleuca *(Melaleuca quinquenervia).* The sub-canopy includes cabbage palm *(Sabal palmetto),* rusty lyonia *(Lyonia ferruginea),* tar flower (*Bejaria racemosa*), wax myrtle *(Myrica cerifera),* and buckthorn *(Rhamnus caroliniana).* Ground cover is dominated by saw palmetto *(Serenoa repens),* with bahia grass *(Paspalum notatum),* blue maidencane *(Amphicarpum muhlenbergianum),* cogon grass *(Imperata cylindrica),* beautyberry *(Callicarpa americana),* beakrush *(Rhyncospora spp.),* goldentop *(Euthamia graminifolia),* pennyroyal *(Piloblephis rigida),* chalky bluestem *(Andropogon capilllpes),* white paw paw *(Aslmina trlloba),* paspalum *(Paspalum spp.),* panicum *(Panicum spp.),* gopher apple *(Ucania michauxit),* dog fennel (*Eupatorium capififolium*), ragweed *(Ambrosia artemisifolia),* bracken fern *(Pleridium aquilinum),* wiregrass *(Aristlda stricta),* and broomsedge *(Andropogon glomeratus),* with various other opportunistic weedy species. Commonly observed vines include greenbriar *(Smilax spp.),* grapevine *(Vitis rotundifolia),* and poison ivy *(Toxicodendrori radicans).* This community would be considered uplands by regulatory agencies.

FLUCFCS 420 Mixed Upland Hardwoods – 0.88± Acres

This upland community type occupies approximately 0.88± acres of the property. The canopy is dominated by live oak (*Quercus virginiana*), with slash pine (*Pinus elliottii*), java plum *(Syzygium cumim),* and melaleuca *(Melaleuca quinquenervia).* The sub-canopy contains cabbage palm (*Sabal palmetto*), Brazilian pepper (*Schinus terebinthifolius*), wax myrtle (*Myrica cerifera*), myrsine (*Rapanea guinensis*), wild coffee (*Psychotria nervosa*), cocoplum (*Chrysobalanus icaco*), and beauty-berry (*Callicarpa americana*). The groundcover contained Spanish needle (*Bidens alba*), false buttonweed (*Spermacoce floridan*), cogon grass (*Imperata cylindrica*), caesar weed (*Urena lobata*), dog fennel (*Eupatorium capillifolium*), ragweed (*Ambrosia artemisiifolia*), sandspur (*Cenchrus echinatus*), broomsedge (*Andropogon virginicus*), and bahia grass (*Paspalum notatum*), with various other opportunistic weedy species. Commonly observed vines include air potato (*Dioscorea bulbifera*), greenbriar (*Smilax sp.)*, grapevine (*Vitis rotundifolia)*, Virginia creeper (*Parthenocissus quinquefolia*), peppervine (*Ampelopsis arborea*), and poison ivy (*Toxicodendron radicans*). This community would be considered uplands by the regulatory agencies.

Wetlands

The following community areas have been designated as wetland habitats. Wetlands are any areas that under normal circumstances have hydrophytic vegetation, hydric soils, and wetland hydrology.

FLUCFCS 211H Hydric Improved Pasture – 4.03± Acres

This wetland area occupies approximately 4.03± acres of the property. The canopy is mostly open. The sub-canopy is also mostly open with widely scattered cabbage palm (*Sabal palmetto),* Carolina willow (*Salix caroliniana*), primrose willow (*Ludwigia peruviana*), saltbush (*Baccharis halimifolia*), wax myrtle *(Myrica cerifera),* and Brazilian pepper (*Schinus terebinthifolius*). The ground cover includes torpedo grass (*Panicum repens*), swamp fern *(Blechnum serrulatum),* yellow-eyed grass (*Xyris* floridana), pickerel weed (*Pontederia cordata*), arrowhead (*Sagittaria latifolia*), rosy camphorweed (*Pluchea rosea*), sand cordgrass (*Spartina sp.*), dog fennel (*Eupatorium capillifolium*), mermaid-weed (*Proserpinaca palustris*), tickseed (*Coreopsis floridana*), asiatic pennywort (*Centella asiatica*), dollar weed (*Hydrocotyle umbellata),* frog fruit (*Phyla nodiflora*), maidencane (*Panicum hemitomon*), mock bishop's weed (*Ptilimnium capillaceum*), and white-top sedge (*Rhynchospora colorata*), with other various grasses and sedges. This community does contain some transitional wetland vegetation, advantageous rooting, water line staining, and algal matting, as well as other signs in this community that would be classified as wetlands. This community would be considered wetlands by the regulatory agencies.

FLUCFCS 618 Willow & Wax Myrtle – 2.02± Acres

This wetland community type occupies approximately 2.02± acres of the property. The canopy is dominated by Carolina willow (*Salix caroliniana),* with melaleuca *(Melaleuca quinquenervia),* and scattered bald cypress *(Taxodium distichum).* The sub-canopy contains wax myrtle *(Myrica cerifera),* and buttonbush *(Cephalanthus occidentalis),* with Brazilian pepper *(Schinus terebinthifolius)* along the perimeter of the wetland. The ground cover vegetation includes swamp fern *(Blechnum serrulatum),* yellow-eyed grass (*Xyris* floridana), rosy camphorweed (*Pluchea rosea*), dollar weed (*Hydrocotyle umbellata*), little blue maidencane (*Amphicarpum muhlenbegianum*), frog fruit (*Phyla nodiflora*), false buttonweed *(Spermacoce verticillata),* mock bishop's weed (*Ptilimnium capillaceum*), smart weed (*Polygonum hydropiperoides*), pickerel weed (*Pontederia cordata*), arrowhead (*Sagittaria latifolia*), fire flag *(Thalia geniculata),* and white-top sedge (*Rhynchospora colorata*), with various other grasses and sedges.with various other grasses and sedges. This community does contain some transitional wetland vegetation, advantageous rooting, water line staining, and algal matting, as well as other signs in this community that would be classified as wetlands. This community would be considered wetlands by the regulatory agencies.

FLUCFCS 641 Freshwater Marsh – 2.63± Acres

This wetland area occupies approximately 2.63± acres of the property. The canopy is mostly open with scattered Carolina willow (*Salix caroliniana*), and melaleuca *(Melaleuca quinquenervia).* The sub-canopy contains primrose willow (*Ludwigia peruviana*), with saltbush (*Baccharis halimifolia*), wax myrtle *(Myrica cerifera),* and Brazilian pepper (*Schinus terebinthifolius*) along the edges. The ground cover includes torpedo grass (*Panicum repens*), swamp fern *(Blechnum serrulatum),* fire flag *(Thalia geniculata),* yellow-eyed grass (*Xyris* floridana), cat-tail (*Typha latifolia*), rosy camphorweed (*Pluchea rosea*), sand cordgrass (*Spartina sp.*), dog fennel (*Eupatorium capillifolium*), mermaid-weed (*Proserpinaca palustris*), asiatic pennywort (*Centella asiatica*), dollar weed (*Hydrocotyle umbellata),* frog fruit (*Phyla nodiflora*), maidencane (*Panicum hemitomon*), mock bishop's weed (*Ptilimnium capillaceum*), and white-top sedge (*Rhynchospora colorata*), with other various grasses and sedges. This community does contain some transitional wetland vegetation, advantageous rooting, water line staining, and algal matting, as well as other signs in this community that would be classified as wetlands. This community would be considered wetlands by the regulatory agencies.

Other Surface Waters (OSW)

The following community area has been designated as other surface waters. Surface waters are waters on the surface of the earth, contained in bounds created naturally or artificially.

FLUCFCS 500 Cow Pond – 0.56± Acres

This "other surface water" (OSW) communities occupy approximately 0.56± acres of the property. The canopy and sub-canopy is open. The groundcover contains duckweed (*Lemna minor*), dotted smartweed (*Polygonum punctatum*), mermaid weed (*Proserpinaca palustris*), water hyssop (*Bacopa monnieri*), dollarweed (*Hydrocotyle umbellata*), and torpedo grass (*Panicum repens*). This community would be considered "other surface waters" by the regulatory agencies.

FLUCFCS 510 Ditch/Swale – 1.06± Acres

This habitat type occupies approximately 1.06± acres of the property. The canopy and sub-canopy is open with widely scattered Carolina willow (*Salix caroliniana*) and Brazilian pepper (*Schinus terebinthifolius*) with saltbush (*Baccharis halimifolia),* and wax myrtle *(Myrica cerifera).* along the edges. The ground cover contains scattered cattail (*Typha latifolia*), maidencane (*Panicum hemitomon*), spikerush *(Eleocharis spp.),* dotted smartweed (*Polygonum punctatum*), torpedo grass (*Panicum repens*), water hyssop (*Bacopa monnieri*), and asiatic pennywort (*Centella asiatica).* This community would be considered other surface waters by the regulatory agencies.

Table 1. FLUCFCS Community Table

FLUCFCS Code	Community Description	Habitat Type	Acres
211	Improved Pasture	Upland	67.05± Ac.
211H	Hydric Improved Pasture	Wetland	4.03± Ac.
213	Woodland Pasture	Upland	42.65± Ac.
321	Palmetto Prairie	Upland	3.66± Ac.
411	Pine Flatwoods	Upland	66.52± Ac.
420	Mixed Upland Hardwoods	Upland	0.88± Ac.
500	Cow Pond	OSW	0.56± Ac.
510	Ditch/Swale	OSW	1.06± Ac.
618	Willow & Wax Myrtle Wetland	Wetland	2.02± Ac.
641	Freshwater Marsh	Wetland	2.63± Ac.
Total			**191.06± Ac.**

Species Survey Results

There have been numerous prior environmental assessments and species surveys conducted on-site; the most recent survey was conducted August 2022. During the most recent cursory species survey, there were no nest-like structures or tree cavities were noted. There were no tortoise burrows were identified during the initial survey; however, there was plenty of sufficient habitat. An updated overall species survey within the proposed development portion of the site will be required prior to development.

There were several non-listed species identified while conducting the protected species survey, among those were several mourning doves, pine warblers, Eastern cottontail rabbits, grey squirrels, and a black racer. The various listed species that may occur in the FLUCFCS communities on-site have been tabulated on the attached table below.

Mitigation Discussion

Generally, the ACOE and/or DEP does not regulate isolated wetlands or excavation in wetlands where there is only incidental fall back of fill material; the ACOE or DEP do not have jurisdiction over isolated wetlands. In making the determination on whether the wetlands are isolated, the ACOE and DEP considers if water leaves the site, (i.e. ditches) or whether the wetlands are completely contained on-site or extend off-site. If the wetlands extend off-site, they will more than likely assert jurisdiction. Currently, the ACOE and DEP position on most all wetlands is that one of them has jurisdiction; the ACOE regulates navigable waters whereas the DEP regulates both navigable waters and adjacent wetlands. However, the agencies would not make this determination until a Joint Environmental Resource Permit (ERP) and Dredge & Fill Permit (D&F) application is received.

The SFWMD does not require mitigation for impacts to isolated wetlands not used by listed (protected) species that are less than 0.50± acres in size. Impacts to wetlands greater than 0.50± acres or those utilized by protected species would require mitigation. With the ACOE and DEP, impacts to wetlands that are less than 0.50± acres, the activity can usually be processed as a Nationwide Permit application. For projects with greater than 0.50± acres of impacts, the application will be processed as an Individual Permit application. This involves a public notice process and coordination with other federal agencies such as the EPA and the FWS.

There are three steps that are required to be addressed when requesting an ERP permit with the SFWMD and/or the DEP for impacts to regulated wetlands:

1) Avoidance (i.e. can these wetland impacts be completely avoided)
2) Minimization (i.e. can the amount of wetland impact be reduced while maintaining a feasible project)
3) Mitigation (i.e. the loss of wetland function must be replaced)

It should be noted that avoidance and minimization must first be substantiated, before mitigation will be considered by the agencies. When wetlands are proposed to be impacted, the impacts cannot result in any loss of wetland function. In order to prevent net loss in wetland function, wetland mitigation must be provided. Mitigation is a way to off-set impacts to natural resources such as wetlands and may consist of wetland enhancement, wetland creation, wetland preservation, upland compensation, or off-site mitigation. Mitigation costs usually increase with the quantity of proposed impacts. The actual amount of mitigation required would be finalized during the Environmental Resource Permit review process with the SFWMD, ACOE, and DEP.

There are two main categories of wetland mitigation, onsite or off-site. On-site mitigation would include preserving a portion of the on-site wetlands, treating and removing the exotics, potentially providing supplemental plantings, and placing the preserve areas under a Conservation Easement. Preserve areas are required to be maintained in perpetuity. Off-site mitigation requires the purchase of wetland credits at an approved mitigation bank within the service area of the site.

Summary

In general, this site does not contain much native, undisturbed community types in which protected species would typically inhabit. Due to the disturbed nature of the site, the surrounding land uses, and busy roadways, it is unlikely that this site supports or would provide habitat for protected species. Community locations were drawn using non-rectified aerial images with approximate property boundaries; hence their location, aerial extent, and acreage is approximate. Before any detailed site planning, it is recommended that the wetland lines are flagged, surveyed by professional land surveyor, and approved by the regulatory agencies.

The information contained and the work performed as part of this initial assessment, conforms to the standards and generally accepted practices in the environmental field, and was prepared substantially in accordance with then-current technical guidelines and criteria. The determination of ecological system classifications, functions, values, and boundaries, is an inexact science, and different individuals and agencies may reach different conclusions; therefore, the conclusions of this report are preliminary in nature and would require a full review by the appropriate regulatory agencies.

Table 3: Listed Species by Habitat with Current Status

FLUCFCS Code	FLUCFCS Description	Common Name	Scientific Name	Observed	USDA	FDA&CS	FWS	FWC
211	Improved Pasture	Florida Sandhill crane	*Grus canadensis pratensis*	--	--	--	--	T
213	Woodland Pasture	Florida sandhill crane	*Grus canadensis pratensis*	--	--	--	--	T
321	Palmetto Prairie	Audubon's crested caracara	*Polyborus plancus audubonii*	--	--	--	T	T
		Beautiful paw-paw	*Deeringothamnus pulchellus*	--	E	E	E	--
		Curtis milkweed	*Asclepias curtissii*	--	--	E	--	--
		Fakahatchee burmannia	*Burmannia flava*	--	--	E		
		Florida black bear	*Ursus americanus floridanus*	--	--	--	SAT	T
		Eastern indigo snake	*Drymarchon corais couperi*	--	--	--	T	T
		Gopher frog	*Rana areolata*	--	--	--	--	SSC
		Gopher tortoise	*Gopherus polyphemus*	--	--	--	T	T
		Florida black bear	*Ursus americanus floridanus*	--	--	--	SAT	T
		Florida coontie	*Zamia floridana*	--	--	C	--	--
		Florida sandhill crane	*Grus canadensis pratensis*	--	--	--	--	T
		Southeastern American kestrel	*Falco sparverius paulus*	--	--	--	--	T
411	Pine Flatwoods	Beautiful paw-paw	*Deeringothamnus pulchellus*	--	E	E	E	--
		Big cypress fox squirrel	*Sciurus niger avicennia*	--	--	--	--	SSC
		Eastern indigo snake	*Drymarchon corais couperi*	--	--	--	T	T
		Fakahatchee burmannia	*Burmannia flava*	--	--	E	--	--
		Florida black bear	*Ursus americanus floridanus*	--	--	--	SAT	T
		Florida coontie	*Zamia floridana*	--	--	C	--	--
		Gopher frog	*Rana areolata*	--	--	--	--	SSC
		Gopher tortoise	*Gopherus polyphemus*	--	--	--	T	T
		Red-cockaded woodpecker	*Picoides borealis*	--	--	--	E	SSC
		Satinleaf	*Chrysophyllum olivaeforme*	--	--	T	--	--
		Southeastern American Kestrel	*Falco sparverius paulus*	--	--	--	--	T
420	Mixed Upland Hardwoods	Audubon's crested caracara	*Polyborus plancus audubonii*	--	--	--	T	T
		Eastern indigo snake	*Drymarchon corais couperi*	--	--	--	T	T
		Florida black bear	*Ursus americanus floridanus*	--	--	--	SAT	T
		Hand adder's tongue fern	*Ophioglossum palmatum*	--	--	E	--	--
		Simpson's stopper	*Myrcianthes fragrans var. simpsonii*	--	--	T	--	--
		Gopher tortoise	*Gopherus polyphemus*	--	--	--	T	T
500	Other Surface Water	American alligator	*Alligator mississipiensis*	--	--	--	SAT	SSC
		Everglades mink	*Mustela vison evergladensis*	--	--	--	--	T
		Limpkin	*Aramus guarauna*	--	--	--	--	SSC
		Little blue heron	*Egretta caerulea*	--	--	--	--	SSC
		Reddish egret	*Egretta rufescens*	--	--	--	--	SSC
		Roseate spoonbill	*Ajaia ajaja*	--	--	--	--	SSC
		Snowy egret	*Egretta thula*	--	--	--	--	SSC
		Tricolored heron	*Egretta tricolor*	--	--	--	--	SSC

C = Commercially Exploited, SAT = Similarity of Appearance Threatened, SSC = Species of Special Concern, T = Threatened, E = Endangered

Table designates listed species with potential to occur in each FLUCFCS community.

Table 3 Cont'd: Listed Species by Habitat with Current Status

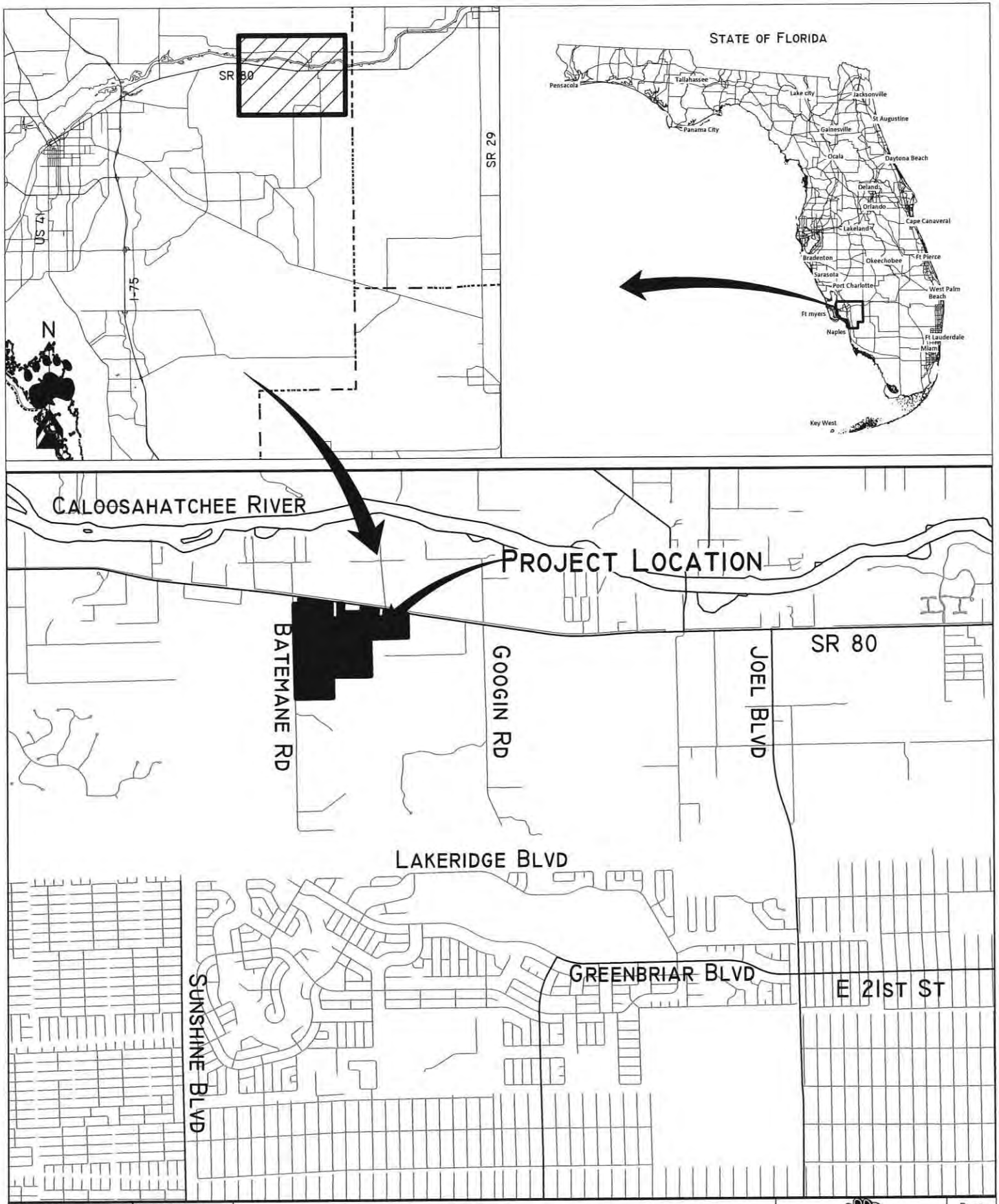
618	Wax Myrtle & Willow	Florida black bear	*Ursus americanus floridanus*	--	--	--	SAT	T
		Limpkin	*Aramus guarauna*	--	--	--	--	SSC
		Little blue heron	*Egretta caerulea*	--	--	--	--	SSC
		Snowy egret	*Egretta thula*	--	--	--	--	SSC
		Tricolored heron	*Egretta tricolor*	--	--	--	--	SSC
641	Freshwater Marsh	American alligator	*Alligator mississipiensis*	--	--	--	SAT	SSC
		Everglades mink	*Mustela vison evergladensis*	--	--	--	--	T
		Florida sandhill crane	*Grus canadensis pratensis*	--	--	--	--	T
		Limpkin	*Aramus guarauna*	--	--	--	--	SSC
		Little blue heron	*Egretta caerulea*	--	--	--	--	SSC
		Snail kite	*Rostrhamus sociabilis*	--	--	--	E	E
		Snowy egret	*Egretta thula*	--	--	--	--	SSC
		Tricolored heron	*Egretta tricolor*	--	--	--	--	SSC

C = Commercially Exploited, SAT = Similarity of Appearance Threatened, SSC = Species of Special Concern, T = Threatened, E = Endangered

Table designates listed species with potential to occur in each FLUCFCS community.

EXHIBIT A

Project Location Map



DRAWN BY:	DATE:	CATEGORY
BWS	8/13/22	LOCATION
JOB NUMBER		SCALE:
		NTS
S/T/R		COUNTY
29-30/43S/27E		LEE

Caloosa 80

Location Map

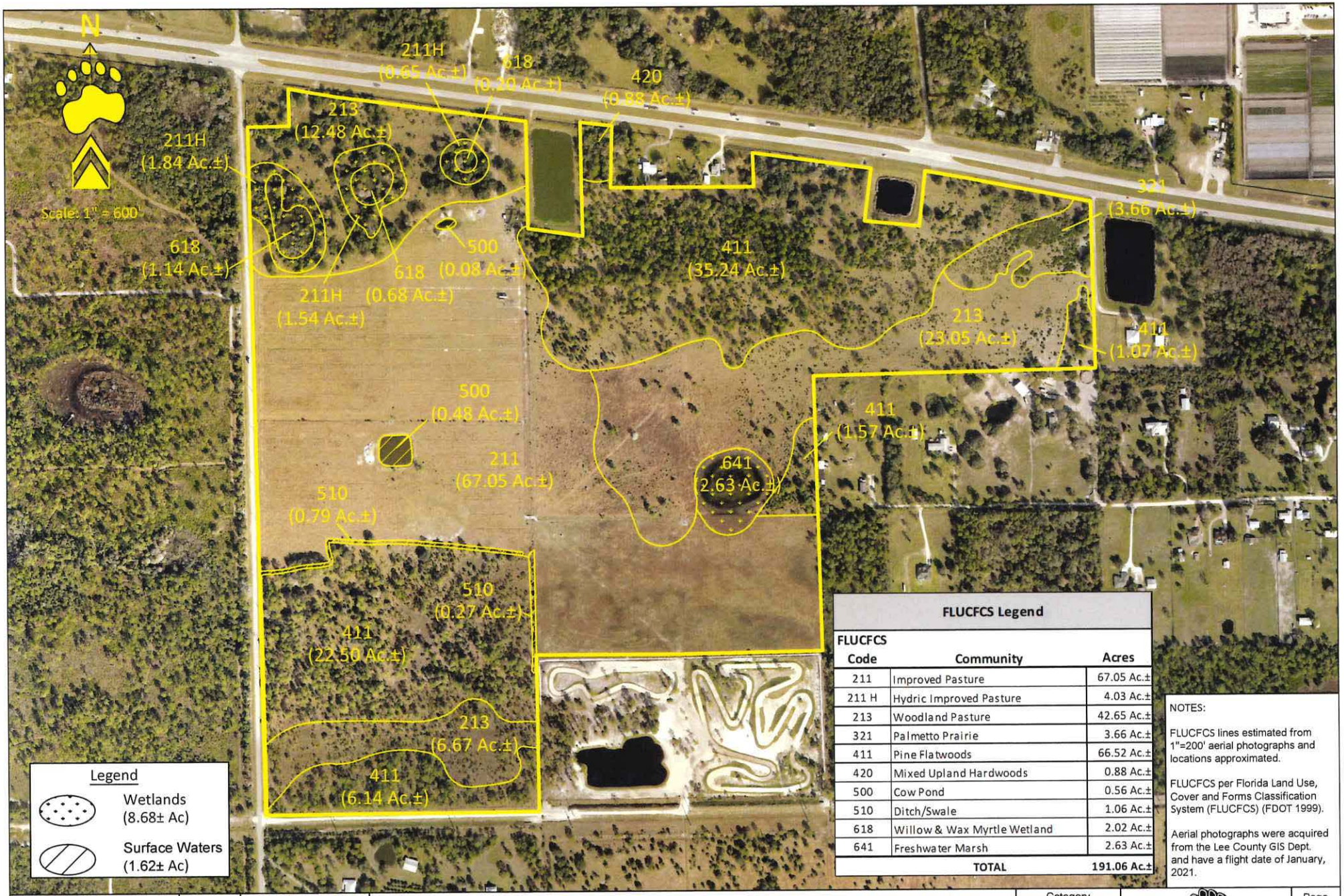
BEARPAWS ENVIRONMENTAL CONSULTING
1599 COVINGTON CIRCLE EAST, FORT MYERS, FL 33919
(239) 340-0678 BEARPAWS.ENV.CONSULTING@GMAIL.COM

PAGE

EXHIBIT

EXHIBIT B

FLUCFCS Map with Aerial



FLUCFCS Legend

FLUCFCS Code	Community	Acres
211	Improved Pasture	67.05 Ac.±
211 H	Hydric Improved Pasture	4.03 Ac.±
213	Woodland Pasture	42.65 Ac.±
321	Palmetto Prairie	3.66 Ac.±
411	Pine Flatwoods	66.52 Ac.±
420	Mixed Upland Hardwoods	0.88 Ac.±
500	Cow Pond	0.56 Ac.±
510	Ditch/Swale	1.06 Ac.±
618	Willow & Wax Myrtle Wetland	2.02 Ac.±
641	Freshwater Marsh	2.63 Ac.±
	TOTAL	191.06 Ac.±

NOTES:

FLUCFCS lines estimated from 1"=200' aerial photographs and locations approximated.

FLUCFCS per Florida Land Use, Cover and Forms Classification System (FLUCFCS) (FDOT 1999).

Aerial photographs were acquired from the Lee County GIS Dept. and have a flight date of January, 2021.

Revisions	Date:

Drawn By: BWS Date: 8/13/22

Job Number

S/T/R 29-30/43S/27E

Caloosa 80

Aerial FLUCFCS Map

Category: FLUCFCS

Scale: 1" = 600'

County: Lee

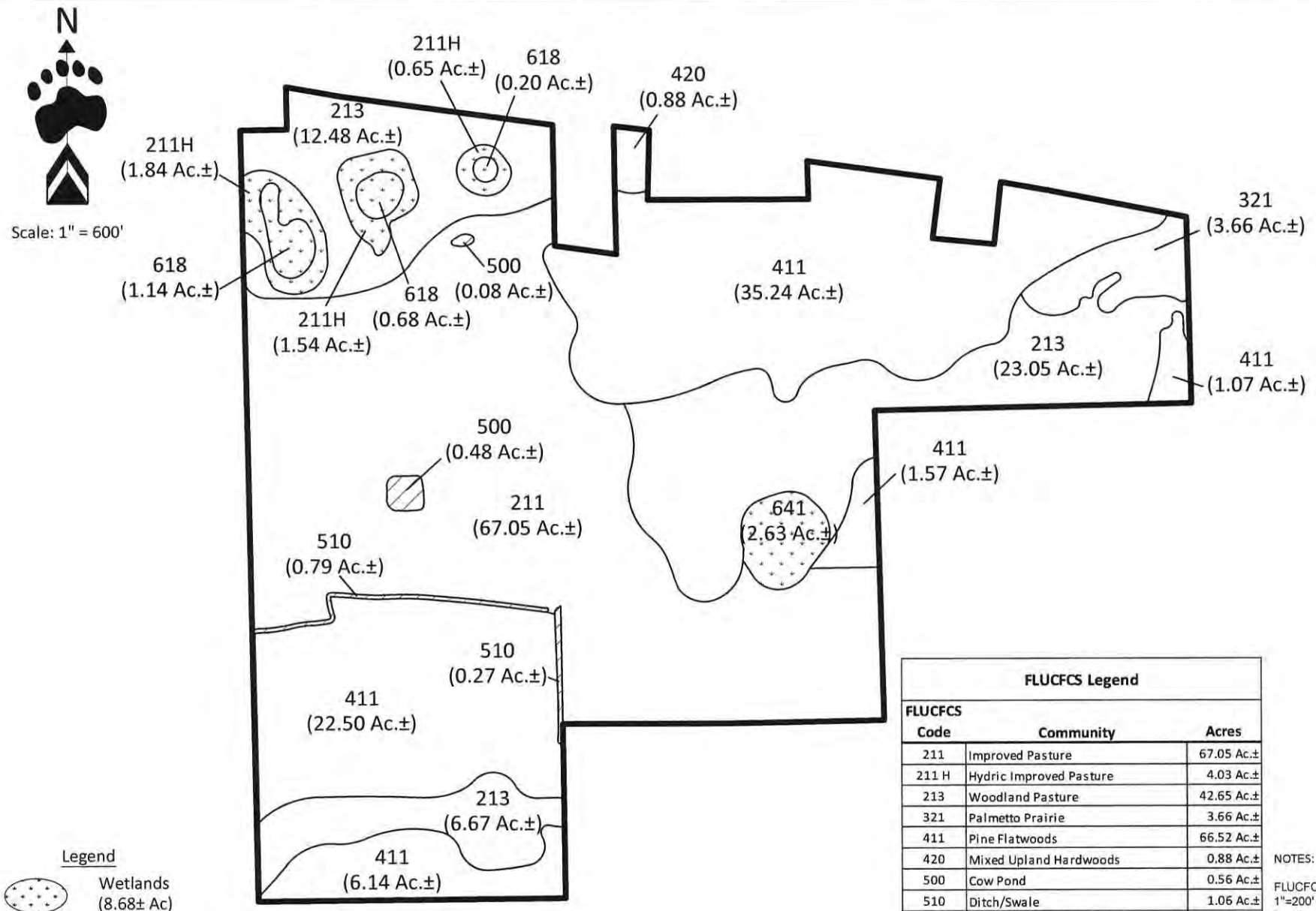
BEARPAWS ENVIRONMENTAL CONSULTING
1599 Covington Circle East, Fort Myers, FL 33919
(239) 340-0678 bearpaws.env.consulting@gmail.com

Page -

Exhibit -

EXHIBIT C

FLUCFCS Map



Legend

- Wetlands (8.68± Ac)
- Surface Waters (1.62± Ac)

FLUCFCS Legend

FLUCFCS Code	Community	Acres
211	Improved Pasture	67.05 Ac.±
211 H	Hydric Improved Pasture	4.03 Ac.±
213	Woodland Pasture	42.65 Ac.±
321	Palmetto Prairie	3.66 Ac.±
411	Pine Flatwoods	66.52 Ac.±
420	Mixed Upland Hardwoods	0.88 Ac.±
500	Cow Pond	0.56 Ac.±
510	Ditch/Swale	1.06 Ac.±
618	Willow & Wax Myrtle Wetland	2.02 Ac.±
641	Freshwater Marsh	2.63 Ac.±
	TOTAL	**191.06 Ac.±**

NOTES:

FLUCFCS lines estimated from 1"=200' aerial photographs and locations approximated.

FLUCFCS per Florida Land Use, Cover and Forms Classification System (FLUCFCS) (FDOT 1999).

Revisions	Date:

Drawn By: BWS Date: 8/13/22

Job Number

S/T/R 29-30/43S/27E

Caloosa 80

FLUCFCS Map

Category: FLUCFCS

Scale: 1" = 600'

County: Lee

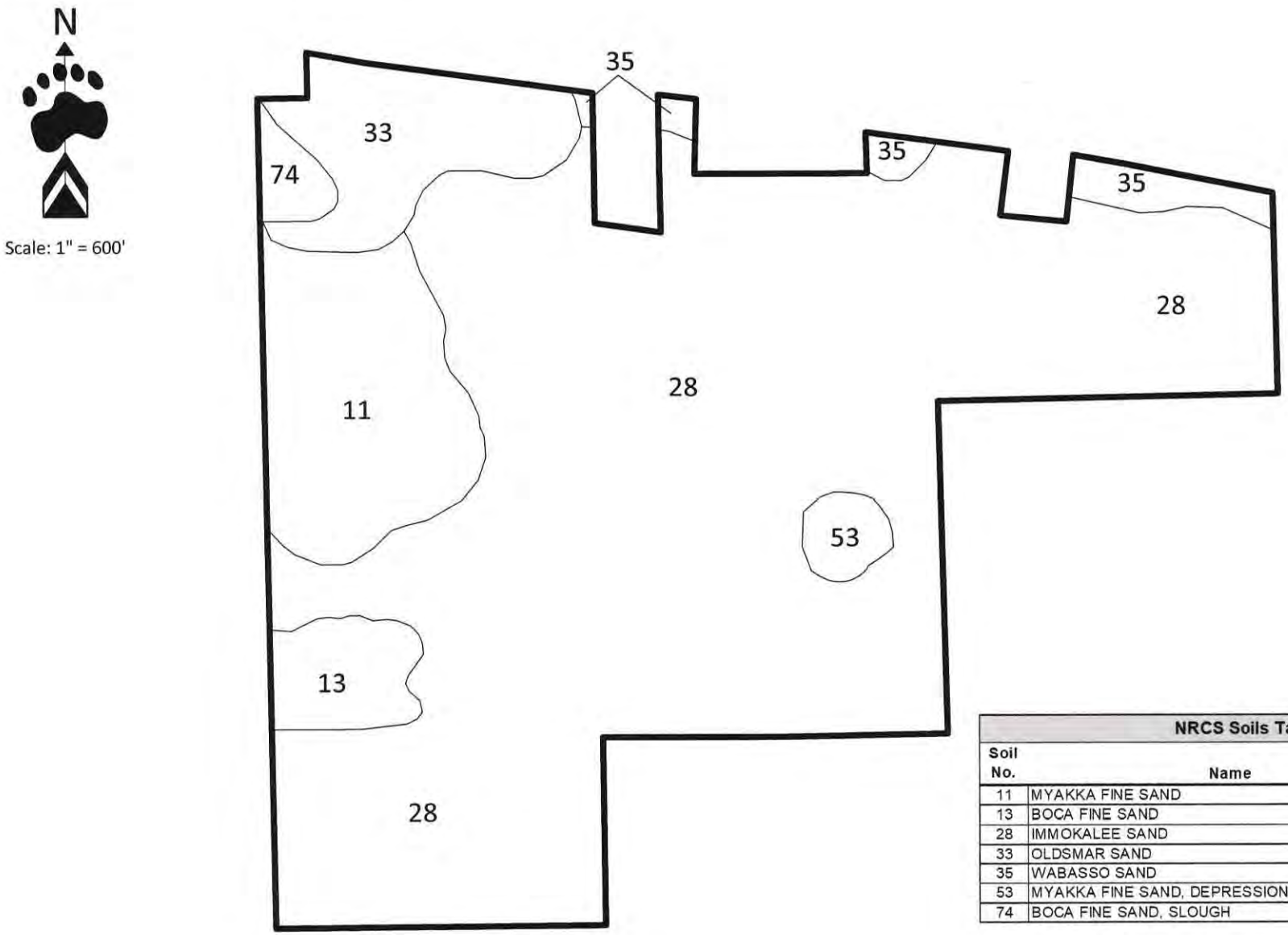
BEARPAWS ENVIRONMENTAL CONSULTING
1599 Covington Circle East Fort Myers, FL 33919
(239) 340-0678 bearpaws.env.consulting@gmail.com

Page -

Exhibit -

EXHIBIT D

NRCS Soils Map



NRCS Soils Table		
Soil No.	Name	Hydric
11	MYAKKA FINE SAND	NO
13	BOCA FINE SAND	NO
28	IMMOKALEE SAND	NO
33	OLDSMAR SAND	NO
35	WABASSO SAND	NO
53	MYAKKA FINE SAND, DEPRESSIONAL	YES
74	BOCA FINE SAND, SLOUGH	YES

NOTES

Soils were acquired from LABINS and are from the NRCS.

Revisions	Date:

Drawn By: BWS Date: 8/13/22

Job Number

S/T/R 29-30/43S/27E

Caloosa 80

Soils Map

Category: Soils

Scale: 1" = 600'

County: Lee

BEARPAWS ENVIRONMENTAL CONSULTING
1599 Covington Circle East, Fort Myers, FL 33919
(239) 340-0678 bearpaws.env.consulting@gmail.com

Page -

Exhibit -

Historic Resources Impact Analysis

Caloosa 80 Comprehensive Plan Amendment

Exhibit M-13 – Historic Resources Impact Analysis

There are no recorded cultural resources listed on the subject parcels, per the Master Site File Letter. Please see the attached letter from the Florida Department of Historical Resources.

The Lee County Archaeological Sensitivity Map indicates a portion of the Property along the northern boundary is in the Level 2 Sensitivity Zone. It is understood that a Certificate to Dig is required prior to issuance of development permits within this sensitivity zone. Any future development on the site will comply with the requirements of Sec. 22-106 of the LDC.

This record search is for informational purposes only and does NOT constitute a project review. This search only identifies resources recorded at the Florida Master Site File and does NOT provide project approval from the Division of Historical Resources. Contact the Compliance and Review Section of the Division of Historical Resources at CompliancePermits@dos.MyFlorida.com for project review information.

April 14, 2022

Lindsey E. W. Craig
Planner
RVi Planning + Landscape Architecture
10401 Highland Manor Dr, Suite 220 • Tampa FL 33610

In response to your request on April 14, 2022, the Florida Master Site File lists no cultural resources recorded at the designated parcels No's 29-43-27-00-00005.0000; 29-43-27-00-00012.0060; 30-43-27-00-00001.0190, within Sections 29 & 30, Township 43S Range 27E.

When interpreting the results of our search, please consider the following information:

- **This search area may contain *unrecorded* archaeological sites, historical structures or other resources even if previously surveyed for cultural resources.**
- **Because vandalism and looting are common at Florida sites, we ask that you limit the distribution of location information on archaeological sites.**
- **While many of our records document historically significant resources, the documentation of a resource at the Florida Master Site File does not necessarily mean the resource is historically significant.**
- **Federal, state and local laws require formal environmental review for most projects. This search DOES NOT constitute such a review. If your project falls under these laws, you should contact the Compliance and Review Section of the Division of Historical Resources at** CompliancePermits@dos.MyFlorida.com**.**

Please do not hesitate to contact us if you have any questions regarding the results of this search.

Sincerely,

Eman M. Vovsi

Eman M. Vovsi, Ph.D.
Florida Master Site File
Eman.Vovsi@DOS.MyFlorida.com


MOUNT ALICE
FOSTER MOUND
STORIC CERAMIC SITE 2
HISTORIC CAMPSITE
CKEY CREEK HONEY HOLE
HICKEY CREEK BOY SCOUT CAMP
SEABOARD AIR LINE RAILROAD GRADE
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN

Existing & Future Conditions Analysis, Public Facilities Impacts Analysis

Caloosa 80 Comprehensive Plan Amendment

Exhibit M-16, Exhibit M14 – Existing and Future Conditions Analysis/Public Facilities Impacts Analysis

I. Sanitary Sewer

LOS Standard = 80 GPD (recreation vehicle residential structures); 0.1 GDP (per square foot of shopping center commercial use)

Existing Land Use – Urban Community & Rural
99.64 ac of Urban Community @ 6 du/ac = 598 du x 80 GPD = 47,840 GPD
92.71 ac of Rural @ 1 du/ac = 93 du x 80 GPD = 7,440 GPD

30,000 SF of Commercial = 30,000 x 0.1 = 3,000 GPD

Total GPD = 58,280 GPD

Proposed Land Use – Urban Community & Sub-Outlying Suburban
99.64 ac of Urban Community @ 6 du/ac = 598 du x 80 GPD = 47,840 GPD
92.71 ac of Sub-Outlying Suburban @ 2 du/ac = 185 du x 80 GPD = 14,800 GPD

30,000 SF of Commercial = 30,000 x 0.1 = 3,000 GPD

Total GPD = 65,640 GPD

The proposed FLUM amendment results in an increased sanitary sewer demand of 7,360 GPD.

The amendment includes a request to add the subject Property to the Lee County Utilities Future Sanitary Sewer Service Areas. Lee County Utilities has indicated adequate capacity to serve the project through the CFM Central Water Reclamation Facility. Please see the enclosed letter of service availability provided by Lee County Utilities.

II. Potable Water

LOS Standard = 100 GPD (recreation vehicle residential structures); 0.1 GDP (per square foot of shopping center commercial use)

Existing Land Use – Urban Community & Rural
99.64 ac of Urban Community @ 6 du/ac = 598 du x 100 GPD = 59,800 GPD
92.71 ac of Rural @ 1 du/ac = 92.71 du x 100 GPD = 9,271 GPD

30,000 SF of Commercial = 30,000 x 0.1 = 3,000 GPD
Total GPD = 72,071 GPD

Proposed Land Use – Urban Community & Sub-Outlying Suburban
99.64 ac of Urban Community @ 6 du/ac = 598 du x 100 GPD = 59,800 GPD
92.71 ac of Sub-Outlying Suburban @ 2 du/ac = 185 du x 100 GPD = 18,500 GPD

30,000 SF of Commercial = 30,000 x 0.1 = 3,000 GPD

Total GPD = 81,300 GPD

The proposed FLUM amendment results in an increased potable water demand of 9,229 GPD.

The amendment includes a request to add the subject Property to the Lee County Utilities Future Water Service Area. Presently, the Lee County Utilities Water Treatment Plant Systems is designed for 50.9 Million Gallons per Day (MGD) of production. According to the 2021 Lee County Public Facilities and Concurrency Report, the projected 2025 demand is 32.6 MGD. Therefore, adequate capacity is available to serve the proposed density in accordance with Lee Plan Policy 95.1.3. Please also refer to the enclosed letter of availability provided by Lee County Utilities.

III. Surface Water Management

The Property is located within the Hickey Creek Watershed and Drainage Basin.

LOS Standard = 25 year, 3-day storm event of 24 hours duration.

The Applicant will obtain an Environmental Resource Permit (ERP) from the South Florida Water Management District (SFWMD) prior to Development Order approval to be deemed concurrent.

IV. Parks and Recreation

LOS Standard: 6 acres of regional park/ 1000 seasonal population and 0.8 acres of community park/1000 permanent population.

(Persons per household 2016-2020: 2.58, per Lee County 2021 Census Data)

Existing Land Use – Urban Community & Rural
99.64 ac of Urban Community @ 6 du/ac = 598 du x 2.58 = 1,543 persons
92.71 ac of Rural @ 1 du/ac = 93 du x 2.58 = 240 persons

Total = 1,783 persons

Proposed Land Use – Urban Community & Sub-Outlying Suburban
99.64 ac of Urban Community @ 6 du/ac = 598 du x 2.58 = 1,543 persons
92.71 of Sub-Outlying Suburban @ 2 du/ac = 185 du x 2.58 = 477 persons

Total = 2,020 persons

The proposed amendment creates a population increase of 237 people. If seasonal or permanent, this would require 1.42 acres of regional parks and 0.19 acres of community parks. According to the 2021 Lee County Public Facilities and Concurrency Report, the existing regional and community parks far exceed the above requirement. There is an excess of 1,748 acres of existing regional parks and 448.1 acres of existing community parks available. Please also refer to the enclosed letter of availability provided by Lee County Parks and Recreation Department.

V. Public Schools

Current Public Schools LOS Standard = 100% of the Permanent Inventory of Public Schools (FISH) capacity.

Existing Land Use – Urban Community & Rural
691 du @ 0 students per household = 0 students

Proposed Land Use – Urban Community & Sub-Outlying Suburban
783 du @ 0 students per household = 0 students

The student generation rate for mobile homes/RVs is 0, so this amendment would not create any additional school capacity needs. Please also refer to the letter of availability provided by The Lee County School District.

Traffic Circulation Analysis

TR TRANSPORTATION CONSULTANTS, INC

2726 OAK RIDGE COURT, SUITE 503
FORT MYERS, FL 33901-9356
OFFICE 239.278.3090
FAX 239.278.1906

TRAFFIC ENGINEERING
TRANSPORTATION PLANNING
SIGNAL SYSTEMS/DESIGN

TRAFFIC IMPACT STATEMENT

FOR

CALOOSA 80
COMPREHENSIVE PLAN AMENDMENT & REZONING

(PROJECT NO. F2204.11)

PREPARED BY:
TR Transportation Consultants, Inc.
Certificate of Authorization Number: 27003
2726 Oak Ridge Court, Suite 503
Fort Myers, Florida 33901-9356
(239) 278-3090

August 17, 2022

TR TRANSPORTATION CONSULTANTS, INC

CONTENTS

I. INTRODUCTION

II. EXISTING CONDITIONS

III. COMPREHENSIVE PLAN AMENDMNET

IV. TRIP GENERATION

V. COMPREHENSIVE PLAN AMENDMENT ANALYSIS

VI. ZONING ANALYSIS

VII. CONCLUSION

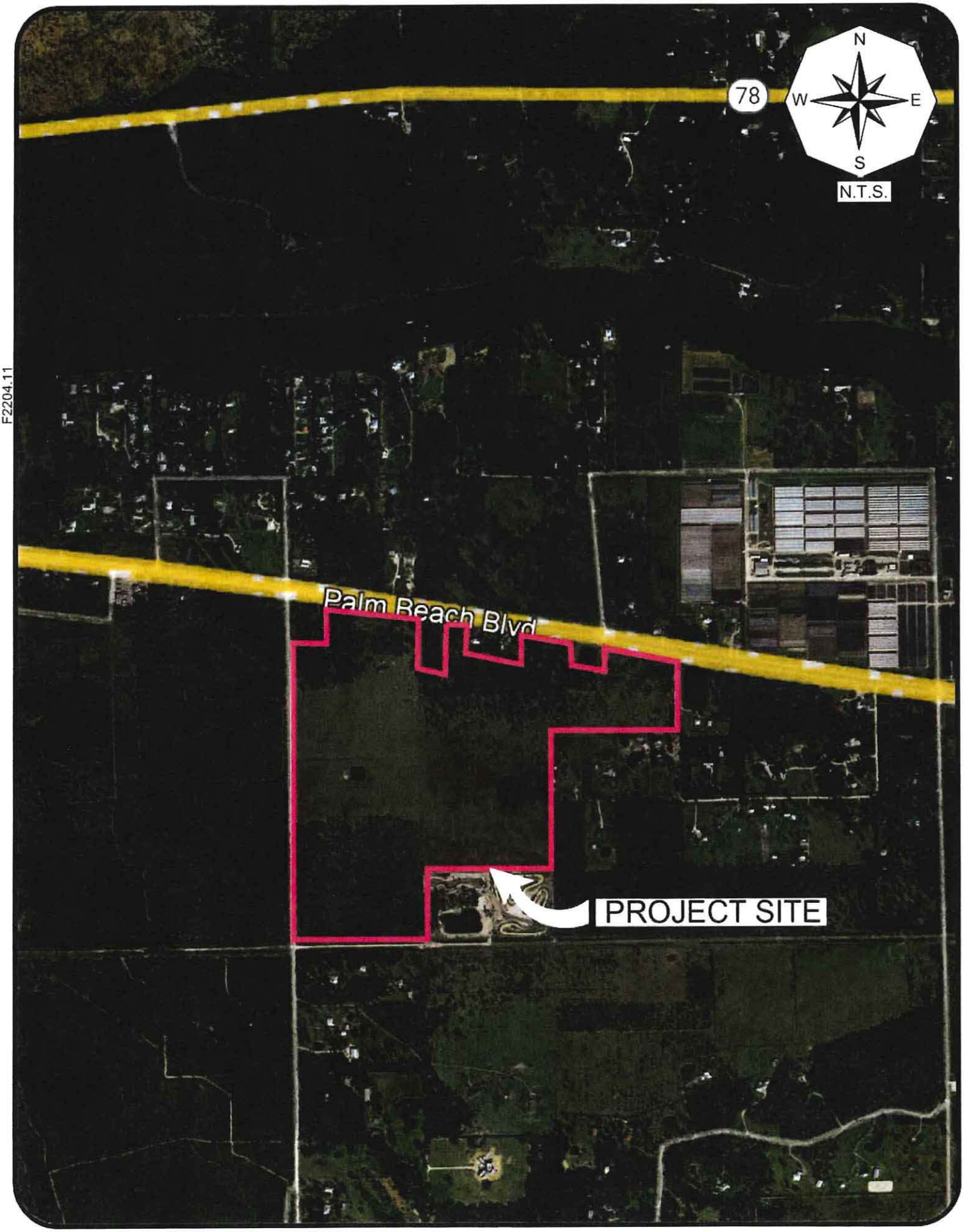
TR TRANSPORTATION CONSULTANTS, INC

I. INTRODUCTION

TR Transportation Consultants, Inc. has conducted a traffic impact statement to fulfill requirements set forth by the Lee County Department of Community Development for projects seeking amendment to the Comprehensive Land Use Plan and re-zoning approval. The subject site is located along the south side of S.R. 80 approximately 4½ miles east of Buckingham Road in Lee County, Florida. **Figure 1** illustrates the approximate location of the subject site.

The analysis in this report will determine the impacts of change in land use designation on approximately 92.71 acres of the parcel (not the entire parcel) from Rural to a Sub-Outlying Suburban land use category to permit the development of the subject site with an RV Park on the overall 192 acre site. The property immediately to the west of the 92 acres subject to the change in land use is already within the Urban Community Future Land Use Category (99.64 acres). With the two land use categories, and the companion rezoning application that is being filed, the overall 192 acre site will be rezoned to permit up to 753 RV units and up to 30,000 square feet of commercial uses or a second option of a total of 783 RV units and no commercial uses.

The transportation related impacts of the proposed Comprehensive Plan Amendment will be assessed based on evaluation of the long range impact (20-year horizon) and short range impact (5-year horizon) the proposed amendment would have on the existing and future roadway infrastructure. The transportation related impacts of the proposed rezoning will be evaluated based on the estimated build-out year of the project and the impacts the proposed rezoning will have on the surrounding roadway infrastructure. Access to the subject site is proposed to S.R. 80 at two locations as shown on the Master Concept Plan.



F2204.11

TR TRANSPORTATION CONSULTANTS, INC

PROJECT LOCATION MAP
CALOOSA 80 MPD

Figure 1

This report examines the impact of the development on the surrounding roadways. Trip generation and assignments to the various roadways within the study area will be completed and analysis conducted to determine the impacts of the development on the surrounding roadways.

II. EXISTING CONDITIONS

The subject site is currently vacant. The site is generally bordered by S.R. 80 to the north, vacant land to the south, Bateman Road to the west, and residential uses to the east.

S.R. 80 is a four lane divided arterial that borders the subject site to the north. S.R. 80 has a posted speed limit of 55 mph and is under the jurisdiction of the Florida Department of Department of Transportation. S.R. 80 in this area has an Access Management Classification of Class 3 with required access spacing at 660 feet, directional median opening spacing at 1,320 feet and full median opening spacing at ½ mile.

Bateman Road is a two lane undivided and unimproved private local roadway that borders the site to west. Bateman Road is located within a private easement and the subject site does not have legal access to this easement. There is no posted speed limit on Bateman Road.

III. COMPREHENSIVE PLAN AMENDMENT

The Comprehensive Plan Amendment would change the future land use designation on approximately 92.71 acres from Rural to Sub-Outlying Suburban land use category. Under the existing Rural land use category, the site could be developed with up to approximately 93 residential dwelling units (1 dwelling unit/acre). **Table 1** summarizes the land uses that could be constructed under the existing land use designations and the intensity of uses under the proposed land use designation.

Table 1
Land Uses
Caloosa 80

Existing/ Proposed	Land Use Category	Intensity
Existing	Rural	93 Dwelling Units (Rural ≈ 92.71 acres @ 1 DU/Acre
Proposed	Sub-Outlying Suburban	186 Dwelling Units (Sub-Outlying Suburban @ 2 DU/Acre

IV. TRIP GENERATION

The trip generation for the permitted and proposed development was determined by referencing the Institute of Transportation Engineer's (ITE) report, titled ***Trip Generation***, 11th Edition. Land Use Code 210 (Single-Family Detached Housing) was utilized for the trip generation purposes of the permitted and proposed residential uses on the subject site. The trip generation equations utilized for this land use are attached to the Appendix of this report for reference. **Table 2** and **Table 3** outline the anticipated weekday AM and PM peak hour trip generation based on the existing and proposed future land use category, respectively.

Table 2
Trip Generation
Based on Existing Land Use Category
Caloosa 80

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour			Daily (2-way)
	In	Out	Total	In	Out	Total	
Single-Family Detached Housing (93 Dwelling Units)	18	52	70	58	35	93	944

Table 3
Trip Generation
Based on Proposed Land Use Category
Caloosa 80

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour			Daily (2-way)
	In	Out	Total	In	Out	Total	
Single-Family Detached Housing (186 Dwelling Units)	34	97	131	112	66	178	1,786

Table 4 indicates the trip generation difference between the proposed and existing land use categories. The long range transportation impact (20-year horizon) and the short range transportation impact (5-year horizon) will be evaluated based on the resultant trip change illustrated in Table 4.

Table 4
Trip Generation – Resultant Trip Change
Caloosa 80

Land Use	A.M. Peak Hour			P.M. Peak Hour			Daily (2-way)
	In	Out	Total	In	Out	Total	
Proposed Land Use Designation (186 Dwelling Units)	34	97	131	112	66	178	1,789
Existing Land Use Designation (93 Dwelling Units)	-18	-52	-70	-58	-35	-93	-944
Resultant Trip Change	**+16**	**+45**	**+61**	**+54**	**+31**	**+85**	**+845**

The resultant trip change in Table 4 indicates that the trip generation will be **increased** in the AM and PM peak hour conditions as a result of this land use change.

V. COMPREHENSIVE PLAN AMENDMENT ANALYSIS

The Comprehensive Plan Amendment would change the future land use designation on the approximately 92.71 acres from Rural to Sub-Outlying Suburban land use category. The transportation related impacts of the proposed Comprehensive Plan Amendment were evaluated pursuant to the criteria in the application document. This included an evaluation of the long range impact (20-year horizon) and short range impact (5-year

horizon) the proposed amendment would have on the existing and future roadway infrastructure.

Long Range Impacts (20-year horizon)

The Lee County Metropolitan Planning Organization's (MPO) 2045 Long Range Transportation Plan was reviewed to determine if any future roadway improvements were planned in the vicinity of the subject site. Based on the review, there were no roadway improvement projects **within a 3-mile radius of the site** shown on the 2045 Cost Feasible Plan.

The Lee County Metropolitan Planning Organization's (MPO) long range transportation plan along with the FDOT District One travel model were also reviewed in order to determine the impacts the amendment would have on the surrounding area. The base 2045 loaded network volumes were determined for the roadways within the study area and then the PM peak hour trips to be generated by additional trips shown in Table 4 were then added to the projected 2045 volumes. The Level of Service for the surrounding roadways was then evaluated. The Level of Service threshold volumes were derived based on the Lee County's *Generalized Peak Hour Directional Service Volumes* table as well as FDOT's *Generalized Peak Hour Directional Volumes*, Table 7.

The results of the analysis indicate that the addition of the trips as a result of the proposed amendment to the projected 2045 volumes will not cause any roadway links to fall below the recommended minimum acceptable Level of Service standards. The only roadway segment in the area that is shown to operate below the recommended minimum Level of Service standard in 2045 is Broadway Avenue between SR 80 and N. River Road, which is shown to operate below the Level of Service standard based on the existing 2045 network and not as result of the requested Land Use Change. All other roadways are shown to operate at or above the minimum recommended Level of Service in 2045 both with and without the project traffic added to the surrounding roadway segments.

A Level of Service analysis for the 2045 Existing plus Committed (E + C) roadway network is attached to this report for reference. **Table 1A** and **Table 2A** reflect the Level of Service analysis based on the 2045 conditions. No changes to the adopted long range transportation plan are required as result of the proposed land use change.

Short Range Impacts (5-year horizon)

The 2022/2023 – 2026/2027 Lee County Five Year Capital Improvement Programs (CIP) as well as the Florida Department of Transportation Adopted Work Programs were reviewed to determine the short term impacts the proposed land use change would have on the surrounding roadways. Based on the review, there were no road improvement planned to the roadways within a 3-mile radius of the subject site on the 5-Year Capital Improvement Program for either FDOT or Lee County.

As can be depicted from Table 4 of this report, the proposed map amendment will increase the overall trip generation potential of the subject site by approximately 61 vehicles during the A.M. peak hour and 85 vehicles during the P.M. peak hour. **Table 3A** and **Table 4A** attached to this report indicate the projected 5-year planning Level of Service on the area roadways based on the additional trips shown in Table 4. The existing peak hour, peak season, peak direction traffic volumes on the various roadway links maintained by Lee County were obtained from the most recent Lee County ***Public Facilities Level of Service and Concurrency Report***. The existing peak hour, peak season, peak direction traffic volumes for state maintained roadways were derived by factoring the latest AADT volumes by appropriate K & D factors. The existing peak hour, peak season, peak direction traffic volumes were then factored by the appropriate annual growth rates in order to obtain the 2026 background traffic conditions on the area roadway network. The growth rates for each roadway were calculated based on historical traffic data obtained from the FDOT's ***Florida Traffic Online*** resource as well as the traffic data from the latest ***Lee County Traffic Count Report***. Based on the projected traffic distribution, the roadway link data was analyzed for the year 2026 without the proposed amendment and year 2026 with the proposed amendment. Traffic data obtained

from the aforementioned Lee County and FDOT resources is attached to the Appendix of this report for reference.

The results of the analysis indicate that the addition of the trips as a result of the proposed amendment to the projected 2026 volumes will not cause any roadway link to fall below the minimum acceptable Level of Service standards. All analyzed roadways were shown operate within their recommended minimum Level of Service standards.

The proposed Comprehensive Plan Amendment is to change the future land use designation on approximately 92.71 acres from Rural to Sub-Outlying Suburban. Based on the analysis, no modifications will be necessary to the Lee County or FDOT short term capital improvement programs.

VI. ZONING ANALYSIS

An analysis was also completed to support the rezoning of the entire 192 acre subject site from RVPD to MPD with two development plan options. The site is currently zoned RPVD under Zoning Resolution Z-09-042, which permits the development of the 192 acre site as a Recreational RV park with up to 417 RV sites and related accessory uses.

Table 5 summarizes the land uses that are being proposed for each of the two scenarios in the rezoning application.

Table 5
Land Uses
Caloosa 80 MPD

Option A	Option B
753 RV Units & 30,000 Sq. Ft. Retail	783 RV Units

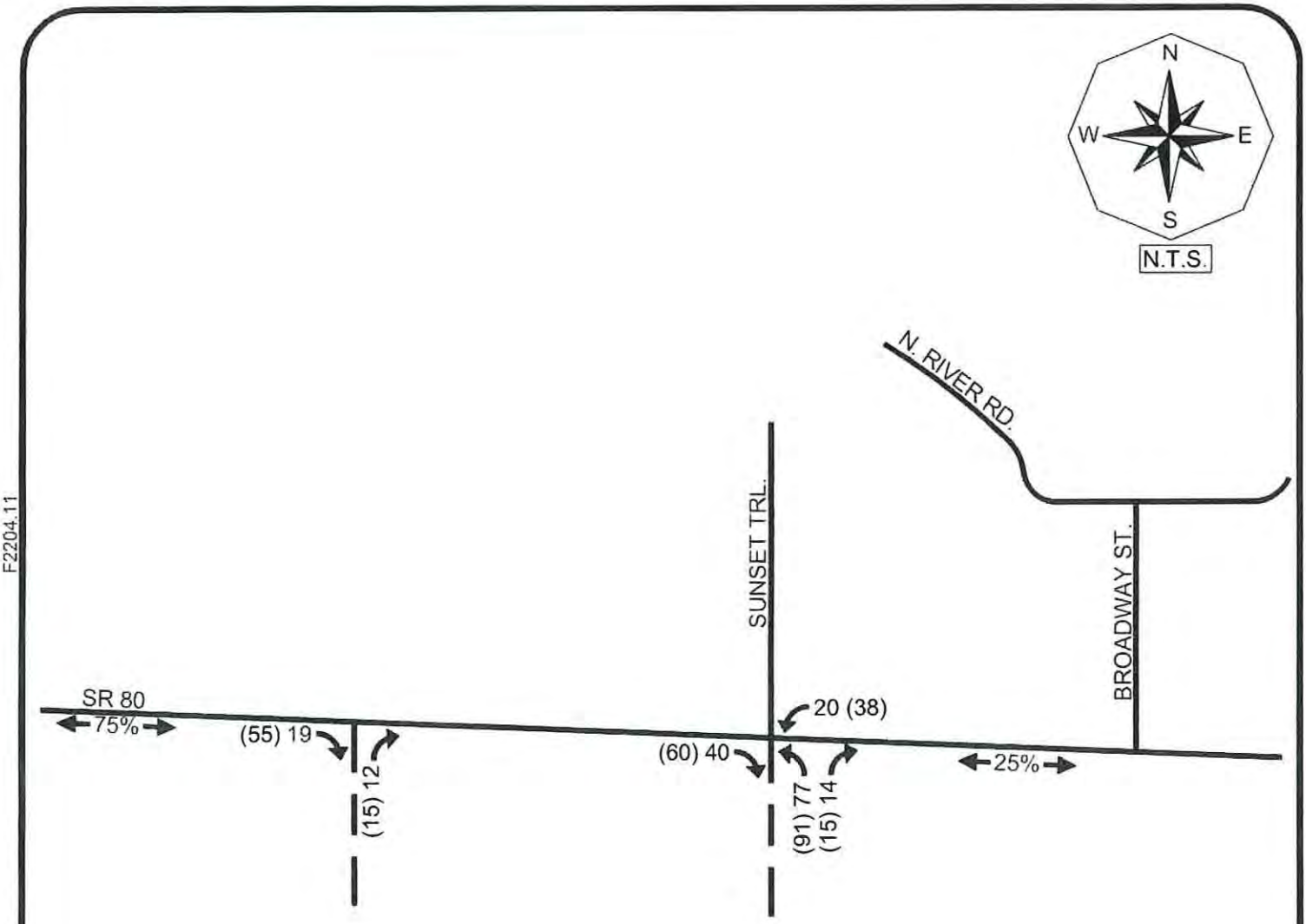
Access to the subject site is proposed to Palm Beach Boulevard (SR 80) via two access connections.

The trip generation for the option that generates the greatest amount of trips was utilized for the remained of this analysis. This would be Option A that includes the Commercial component to the project. The trip generation of the project was determined by referencing the Institute of Transportation Engineer's (ITE) report, titled ***Trip Generation Manual***, 11th Edition. Land Use Code 416 (Recreational Vehicle Park) was utilized for the trip generation purposes of the proposed RV park and Land Use Code 822 (Strip Retail Plaza <40k) was utilized for the retail floor area. The equations used from these land uses are contained in the Appendix of this report for reference. **Table 6** outlines the anticipated weekday A.M. and P.M. peak hour as well as the daily trip generation of the development as proposed.

Table 6
Trip Generation
Caloosa 80 MPD

Land Use	A.M. Peak Hour			P.M. Peak Hour			Daily (2-way)
	In	Out	Total	In	Out	Total	
RV Units (753 Sites)	44	79	123	68	36	104	n/a
Commercial (30,000 Sq. Ft.)	35	24	59	85	85	170	1,496
Total Trips	**79**	**103**	**182**	**153**	**121**	**274**	**1,496**

The trips the proposed development is anticipated to generate were then assigned to the surrounding roadway network. The net new trips anticipated to be added to the surrounding roadway network were assigned based upon the routes drivers are anticipated to utilize to approach the subject site. **Figure 2** illustrates the anticipated trip distribution and assignment of trips to the site access drives along S.R. 80.



F2204.11

LEGEND

← 000 WEEKDAY AM PEAK HOUR SITE TRAFFIC
←(000) WEEKDAY PM PEAK HOUR SITE TRAFFIC
←20%→ PERCENT TRIP DISTRIBUTION

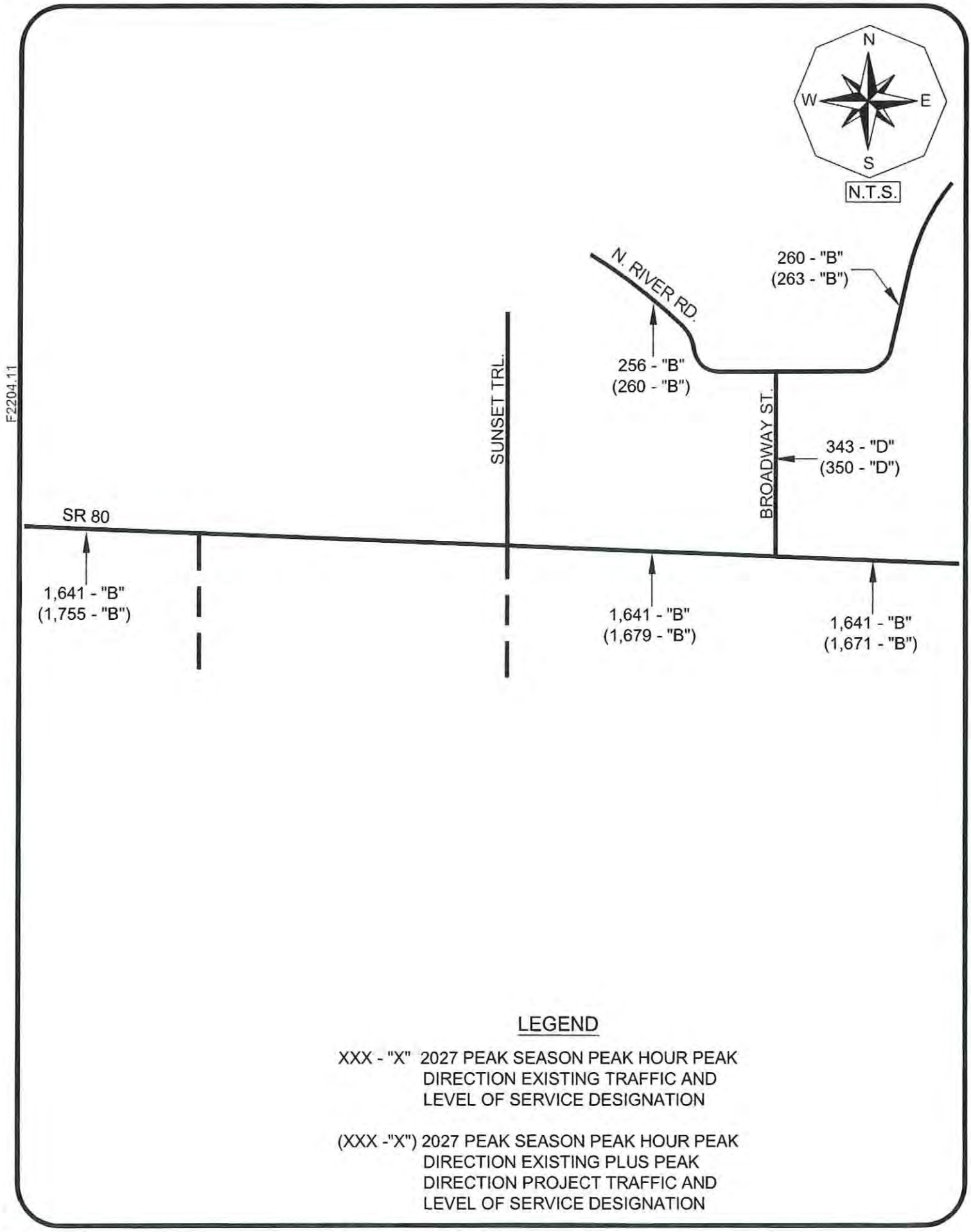
TR TRANSPORTATION CONSULTANTS, INC

TRIP DISTRIBUTION & SITE TRAFFIC ASSIGNMENT CALOOSA 80 MPD

Figure 2

A horizon year analysis of 2027 was selected as the analysis year to evaluate the future impacts this project will have on the surrounding roadway network. Based on this horizon year, a growth rate was applied to the existing traffic conditions for all roadway links in the study area. The growth rates on Palm Beach Boulevard (SR 80) were obtained through comparisons of historical annual traffic data obtained from FDOT's ***Florida Traffic Online*** webpage. The growth rate on Broadway Street was obtained through comparison of historical annual traffic data obtained from Lee County's ***Traffic Count Database System (TCDS)*** webpage. Based on the project distribution illustrated on Figure 2, the link data was analyzed for the year 2027 without the development and year 2027 with the development.

Table 5A in the Appendix of the report indicates the methodology utilized to obtain the year 2027 build-out traffic volumes as well as the growth rate utilized for each roadway segment. **Figure 3** indicates the year 2027 peak hour – peak direction traffic volumes and Level of Service for the various roadway links within the study area. Noted on Figure 3 is the peak hour – peak direction volume and Level of Service of each link should no development occur on the subject site and the peak hour – peak direction volume and Level of Service for the weekday P.M. peak hour with the development traffic added to the roadways. This figure was derived from Table 2A contained in the Appendix.



F2204.11

LEGEND

XXX - "X" 2027 PEAK SEASON PEAK HOUR PEAK DIRECTION EXISTING TRAFFIC AND LEVEL OF SERVICE DESIGNATION

(XXX -"X") 2027 PEAK SEASON PEAK HOUR PEAK DIRECTION EXISTING PLUS PEAK DIRECTION PROJECT TRAFFIC AND LEVEL OF SERVICE DESIGNATION

TR TRANSPORTATION CONSULTANTS, INC

2027 LEVEL OF SERVICE ANALYSIS
CALOOSA 80 MPD

Figure 3

Adverse impacts are defined as a degradation of the Level of Service beyond the adopted Level of Service Thresholds for those links as indicated in Table 1A. In comparing the links' functional classification and calculated 2027 traffic volumes to the Service Volume Tables, it was determined that all analyzed roadways are projected to operate above the minimum adopted Level of Service in 2027 both with and without the proposed development. Therefore, roadway capacity improvements will not be warranted as a result of the additional traffic to be generated by the proposed development.

Intersection analysis was conducted at the two site access drive intersections serving the site along S.R. 80. A summary of the analysis is contained in the Appendix of this report. There are no other intersections within ¼ mile of the subject site that are impacted by the development of the subject site.

Turn lane improvements at the site access drive intersections will be evaluated at the time the project seeks a connection permit from the Florida Department of Transportation.

IX. CONCLUSION

The proposed development is located along the south side of S.R. 80 and approximately 4½ mile to the east of Buckingham Road in Lee County, Florida. Based upon the roadway link Level of Service analysis conducted as a part of this report for both a Comprehensive Plan amendment and rezoning request, the development of the subject site meets the requirements set forth by the Lee County Comprehensive Plan and Land Development Code in that there is sufficient capacity available to accommodate the new trips that will be generated by the proposed development. Therefore, no roadway capacity improvements will be warranted as a result of the additional traffic to be generated by the proposed Comprehensive Plan amendment and rezoning requests.

The 2045 Financially Feasible Roadway network and the short term 5-year Capital Improvement Program currently in place in the Lee County will not require any modification in order to accommodate the proposed Land Use Change. The rezoning analysis also indicates that the subject site will not have an adverse impact on the surrounding roadway network. Therefore, no roadway capacity improvements are necessary to accommodate the proposed development.

K:\2022\04 April\11 Caloosa 80 Rezoning 3.0\8-17-2022 Report.doc

APPENDIX

TABLES 1A & 2A

2045 LOS ANALYSIS

TABLE 1A
LEVEL OF SERVICE THRESHOLDS
2045 LONG RANGE TRANSPORTATION ANALYSIS - CALOOSA 80 CPA

				GENERALIZED SERVICE VOLUMES				
		2045 E + C NETWORK LANES		LOS A	LOS B	LOS C	LOS D	LOS E
ROADWAY	ROADWAY SEGMENT	# Lanes	Roadway Designation	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
N. River Rd	E. of Broadway	2LU	Uninterrupted Flow Highway	130	420	850	1,210	1,640
	W. of Broadway	2LU	Uninterrupted Flow Highway	130	420	850	1,210	1,640
Joel Blvd	S. of SR 80	2LN	Uninterrupted Flow Highway	130	420	850	1,210	1,640
SR 80 (Palm Beach Blvd)	E. of Hickey Creek Rd	4LD	Uninterrupted Flow Highway	0	1,800	2,600	3,280	3,730
	E. of Site	4LD	Uninterrupted Flow Highway	0	1,800	2,600	3,280	3,730
	E. of Broadway	4LD	Uninterrupted Flow Highway	0	1,800	2,600	3,280	3,730
	E. of Joel Blvd.	4LD	Uninterrupted Flow Highway	0	1,800	2,600	3,280	3,730
Broadway Ave.	N. of SR 80	2LU	Collector	0	0	310	660	740

☐ - Denotes the LOS Standard for each roadway segment

* Level of Service Thresholds for Lee County roadways were taken from the Generalized Peak Hour Directional Service Volume tables for Urbanized Areas (dated April 2016)
* Level of Service Thresholds for State mantained roadways were taken from FDOT's Generalized Peak Hour Directional Volumes for Florida's Urbanized Areas Table 7.

TABLE 2A
2045 ROADWAY LINK LEVEL OF SERVICE CALCULATIONS
CALOOSA 80 CPA

TOTAL PM PEAK HOUR PROJECT TRAFFIC = 85 VPH IN= 54 OUT= 31

ROADWAY	ROADWAY SEGMENT	2045 FSUTMS AADT	COUNTY PCS / FDOT SITE #	AADT BACKGROUND TRAFFIC	K-100 FACTOR	100TH HIGHEST HOUR PK DIR 2-WAY VOLUME	D FACTOR	PM PK HR PEAK DIRECTION	2045 PEAK DIRECTION TRAFFIC VOLUMES & LOS VOLUME	LOS	PROJECT TRAFFIC DIST.	PK DIR PM PROJ TRAFFIC	2045 BACKGROUND PLUS PROJ PEAK DIRECTION TRAFFIC VOLUMES & LOS VOLUME	LOS
N River Rd	E. of Broadway	3,864	124654	3,864	0 095	367	0 535	EAST	196	B	2%	1	197	B
	W of Broadway	10,592	124650	10,592	0.095	1,006	0.535	EAST	538	C	3%	1	539	C
Joel Blvd	S of SR 80	22,813	305	22,813	0.100	2,281	0.521	NORTH	1,188	D	5%	2	1,190	D
SR 80 (Palm Beach Blvd)	E. of Hickey Creek Rd.	26,125	120006	26,125	0 095	2,482	0 528	EAST	1,310	B	75%	23	1,333	B
	E. of Site	25,303	120006	25,303	0 095	2,404	0.528	EAST	1,269	B	25%	8	1,277	B
	E of Broadway	33,948	120006	33,948	0 095	3,225	0 528	EAST	1,703	B	20%	6	1,709	B
	E. of Joel Blvd	33,075	120086	33,075	0 095	3,142	0 528	EAST	1,659	B	15%	5	1,664	B
Broadway Ave	N. of SR 80	15,387	124110	15,387	0 095	1,462	0 538	NORTH	787	F	5%	2	789	F

* The K-100 and D factors were obtained from Florida Traffic Online resource and for Joel Blvd , Lee County Traffic County Database System

TABLES 3A & 4A

5-YEAR LOS ANALYSIS

TABLE 3A
LEVEL OF SERVICE THRESHOLDS
CALOOSA 80 CPA

				GENERALIZED SERVICE VOLUMES				
				LOS A	LOS B	LOS C	LOS D	LOS E
ROADWAY	ROADWAY SEGMENT	# LANES	ROADWAY DESIGNATION	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
N. River Rd.	E. of Broadway	2LU	Uninterrupted Flow Highway	130	420	850	1,210	1,640
	W. of Broadway	2LU	Uninterrupted Flow Highway	130	420	850	1,210	1,640
Joel Blvd	S. of SR 80	2LU	Uninterrupted Flow Highway	130	420	850	1,210	1,640
SR 80 (Palm Beach Blvd)	E. of Hickey Creek Rd	4LD	Uninterrupted Flow Highway	0	1,800	2,600	3,280	3,730
	E. of Site	4LD	Uninterrupted Flow Highway	0	1,800	2,600	3,280	3,730
	E. of Broadway		Uninterrupted Flow Highway	0	1,800	2,600	3,280	3,730
	E. of Joel Blvd.		Uninterrupted Flow Highway	0	1,800	2,600	3,280	3,730
Broadway Ave.	N. of SR 80	2LU	Collector	0	0	310	660	740

☐ - Denotes the LOS Standard for each roadway segment

* Level of Service Thresholds for Lee County arterials/collectors taken from the Generalized Peak Hour Directional Service Volume tables for Urbanized Areas (dated April 2016)

* Level of Service Thresholds for State mantained roadways were taken from FDOT's Generalized Peak Hour Directional Volumes for Florida's Urbanized Areas Table 7.

TABLE 4A
LEE COUNTY TRAFFIC COUNTS AND CALCULATIONS
CALOOSA 80 CPA

TOTAL PROJECT TRAFFIC AM =	61	VPH	IN =	16	OUT=	45
TOTAL PROJECT TRAFFIC PM =	85	VPH	IN=	54	OUT=	31

FDOT Sta. #	K	D
120006	0 095	0 528
120086	0 095	0 528
124654	0.095	0 535
124650	0 095	0.535
305	0 095	0 540
231	0 095	0 540

ROADWAY	ROADWAY SEGMENT	LCDOT PCS OR FDOT SITE #	BASE YR ADT	2021 ADT	YRS OF GROWTH. [1]	ANNUAL RATE	2021 PK HR PK SEASON PEAK DIR.[2]	2026 PK HR PK SEASON PEAK DIRECTION VOLUME	LOS	V/C Ratio	PERCENT PROJECT TRAFFIC	AM PROJ TRAFFIC	PM PROJ TRAFFIC	2026 BCKGRND + AM PROJ VOLUME	LOS	V/C Ratio	2026 BCKGRND + PM PROJ VOLUME	LOS	V/C Ratio
N River Rd	E of Broadway	124654	2,500	3,400	6	5.26%	173	247	B	0 20	2%	1	1	248	B	0 21	248	B	0 21
	W of Broadway	124650	2,800	3,600	6	4 28%	183	245	B	0 20	3%	1	2	247	B	0 20	247	B	0 20
Joel Blvd	S of SR 80	305	8,200	11,000	6	5 02%	564	757	C	0 46	5%	2	3	759	C	0 46	760	C	0 46
SR 80 (Palm Beach Blvd)	E of Hickey Creek Rd	120006	17,700	23,500	6	4 84%	1,179	1,565	B	0 42	75%	34	41	1,599	B	0 43	1,606	B	0 43
	E of Site	120006	17,700	23,500	6	4 84%	1,179	1,565	B	0 42	25%	11	14	1,576	B	0 42	1,579	B	0 42
	E of Broadway	120006	17,700	23,500	6	4 84%	1,179	1,565	B	0 42	20%	9	11	1,574	B	0 42	1,576	B	0 42
	E of Joel Blvd	120086	14,600	21,000	6	6 25%	1,053	1,515	B	0 41	15%	7	8	1,522	B	0 41	1,523	B	0 41
Broadway Ave	N of SR 80	231	4,900	5,700	14	2 00%	292	336	D	0 45	5%	2	3	338	D	0 46	339	D	0 46

1 AGR for roadways was calculated based the historical traffic data obtained from Florida Traffic Online webpage and Lee County Traffic Count Report

2 Current peak hour peak season peak direction traffic volumes for all roadways were obtained by adjusting the 2021 AADT by the appropriate K and D factors

TABLES 5A

REZONING LOS ANALYSIS

TABLE 5A
LEE COUNTY TRAFFIC COUNTS AND CALCULATIONS
CALOOSA 80 MPD

TOTAL PROJECT TRAFFIC AM =	182	VPH	IN =	79	OUT=	103
TOTAL PROJECT TRAFFIC PM =	274	VPH	IN=	153	OUT=	121

FDOT Sta. #	K	D
120006	0 095	0 528
120086	0 095	0 528
124654	0 095	0 535
124650	0 095	0 535
305	0 095	0 540
231	0 095	0 540

ROADWAY	ROADWAY SEGMENT	LCDOT PCS OR FDOT SITE #	BASE YR ADT	2021 ADT	YRS OF GROWTH.[1]	ANNUAL RATE	2021 PK HR PK SEASON PEAK DIR.[2]	2027 PK HR PK SEASON PEAK DIRECTION VOLUME	LOS	V/C Ratio	PERCENT PROJECT TRAFFIC	AM PROJ TRAFFIC	PM PROJ TRAFFIC	2027 BCKGRND + AM PROJ VOLUME	LOS	V/C Ratio	2027 BCKGRND + PM PROJ VOLUME	LOS	V/C Ratio
N River Rd	E of Broadway	124654	2,500	3,400	6	5 26%	173	260	B	0 22	2%	2	3	262	B	0 22	263	B	0 22
	W of Broadway	124650	2,800	3,600	6	4 28%	183	256	B	0 21	3%	3	5	259	B	0 21	260	B	0 22
Joel Blvd	S of SR 80	305	8,200	11,000	6	5 02%	564	795	C	0 46	5%	5	8	800	C	0 49	803	C	0 49
SR 80 (Palm Beach Blvd)	E of Hickey Creek Rd	120006	17,700	23,500	6	4 84%	1,179	1,641	B	0 44	75%	77	115	1,718	B	0 46	1,755	B	0 47
	E of Site	120006	17,700	23,500	6	4 84%	1,179	1,641	B	0 44	25%	26	38	1,666	B	0 45	1,679	B	0 45
	E of Broadway	120006	17,700	23,500	6	4 84%	1,179	1,641	B	0 44	20%	21	31	1,661	B	0 45	1,671	B	0 45
	E of Joel Blvd	120086	14,600	21,000	6	6 25%	1,053	1,610	B	0 43	15%	15	23	1,625	B	0 44	1,633	B	0 44
Broadway Ave ,	N of SR 80	231	4,900	5,700	14	2 00%	292	343	D	0 46	5%	5	8	348	D	0 47	350	D	0 47

1 AGR for roadways was calculated based the historical traffic data obtained from Florida Traffic Online webpage and Lee County Traffic Count Report

2 Current peak hour peak season peak direction traffic volumes for all roadways were obtained by adjusting the 2021 AADT by the appropriate K and D factors

LEE COUNTY GENERALIZED PEAK HOUR DIRECTIONAL SERVICE VOLUMES TABLE

Lee County
Generalized Peak Hour Directional Service Volumes
Urbanized Areas

April 2016 c:\input5

Uninterrupted Flow Highway

Level of Service

Lane	Divided	A	B	C	D	E
1	Undivided	130	420	850	1,210	1,640
2	Divided	1,060	1,810	2,560	3,240	3,590
3	Divided	1,600	2,720	3,840	4,860	5,380

Arterials

Class I (40 mph or higher posted speed limit)

Level of Service

Lane	Divided	A	B	C	D	E
1	Undivided	*	140	800	860	860
2	Divided	*	250	1,840	1,960	1,960
3	Divided	*	400	2,840	2,940	2,940
4	Divided	*	540	3,830	3,940	3,940

Class II (35 mph or slower posted speed limit)

Level of Service

Lane	Divided	A	B	C	D	E
1	Undivided	*	*	330	710	780
2	Divided	*	*	710	1,590	1,660
3	Divided	*	*	1,150	2,450	2,500
4	Divided	*	*	1,580	3,310	3,340

Controlled Access Facilities

Level of Service

Lane	Divided	A	B	C	D	E
1	Undivided	*	160	880	940	940
2	Divided	*	270	1,970	2,100	2,100
3	Divided	*	430	3,050	3,180	3,180

Collectors

Level of Service

Lane	Divided	A	B	C	D	E
1	Undivided	*	*	310	660	740
1	Divided	*	*	330	700	780
2	Undivided	*	*	730	1,440	1,520
2	Divided	*	*	770	1,510	1,600

Note: the service volumes for I-75 (freeway), bicycle mode, pedestrian mode, and bus mode should be from FDOT's most current version of LOS Handbook.

FDOT GENERALIZED PEAK HOUR DIRECTIONAL VOLUMES

TABLE 7

TABLE 7 Generalized **Peak Hour Directional** Volumes for Florida's Urbanized Areas

January 2020

INTERRUPTED FLOW FACILITIES

STATE SIGNALIZED ARTERIALS

Class I (40 mph or higher posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	830	880	**
2	Divided	*	1,910	2,000	**
3	Divided	*	2,940	3,020	**
4	Divided	*	3,970	4,040	**

Class II (35 mph or slower posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	370	750	800
2	Divided	*	730	1,630	1,700
3	Divided	*	1,170	2,520	2,560
4	Divided	*	1,610	3,390	3,420

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent)

Non-State Signalized Roadways - 10%

Median & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
1	Divided	Yes	No	+5%
1	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 5%

One-Way Facility Adjustment

Multiply the corresponding directional volumes in this table by 1.2

BICYCLE MODE[2]

(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes)

Paved Shoulder/Bicycle Lane Coverage	B	C	D	E
0-49%	*	150	390	1,000
50-84%	110	340	1,000	>1,000
85-100%	470	1,000	>1,000	**

PEDESTRIAN MODE[2]

(Multiply vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes)

Sidewalk Coverage	B	C	D	E
0-49%	*	*	140	480
50-84%	*	80	440	800
85-100%	200	540	880	>1,000

BUS MODE (Scheduled Fixed Route)[3]

(Buses in peak hour in peak direction)

Sidewalk Coverage	B	C	D	E
0-84%	> 5	≥ 4	≥ 3	≥ 2
85-100%	> 4	≥ 3	≥ 2	≥ 1

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Core Urbanized

Lanes	B	C	D	E
2	2,230	3,100	3,740	4,080
3	3,280	4,570	5,620	6,130
4	4,310	6,030	7,490	8,170
5	5,390	7,430	9,370	10,220
6	6,380	8,990	11,510	12,760

Urbanized

Lanes	B	C	D	E
2	2,270	3,100	3,890	4,230
3	3,410	4,650	5,780	6,340
4	4,550	6,200	7,680	8,460
5	5,690	7,760	9,520	10,570

Freeway Adjustments

Auxiliary Lane	Ramp Metering
+ 1,000	+ 5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
1	Undivided	580	890	1,200	1,610
2	Divided	1,800	2,600	3,280	3,730
3	Divided	2,700	3,900	4,920	5,600

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
1	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

[1]Values shown are presented as peak hour directional volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the HCM and the Transit Capacity and Quality of Service Manual.

[2] Level of service for the bicycle and pedestrian modes in this table is based on number of vehicles, not number of bicyclists or pedestrians using the facility.

[3] Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Implementation Office
https://www.fdot.gov/planning/systems/

TRAFFIC DATA

FDOT FLORIDA TRAFFIC ONLINE

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2021 HISTORICAL AADT REPORT

COUNTY: 12 - LEE

SITE: 0006 - SR 80 W OF HERZOG ROAD

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2021	23500 C	E 12000	W 11500	9.50	52.80	15.00
2020	24000 C	E 12000	W 12000	9.50	53.70	13.00
2019	23000 C	E 11500	W 11500	9.50	54.00	13.10
2018	22000 C	E 11000	W 11000	9.50	55.20	12.40
2017	20000 C	E 10000	W 10000	9.50	54.40	14.00
2016	20000 C	E 10000	W 10000	9.00	57.70	12.40
2015	17700 C	E 8900	W 8800	9.00	57.50	13.30
2014	15600 S	E 7800	W 7800	9.00	56.80	10.90
2013	15200 F	E 7600	W 7600	9.00	56.50	10.90
2012	15200 C	E 7600	W 7600	9.00	54.20	10.90
2011	15200 F	E 7500	W 7700	9.00	56.20	14.10
2010	15200 C	E 7500	W 7700	9.91	56.34	14.10
2009	15600 C	E 7600	W 8000	9.98	55.90	15.90
2008	15500 C	E 7700	W 7800	10.16	57.01	13.40
2007	18000 C	E 8900	W 9100	10.16	54.76	17.50
2006	18600 C	E 9300	W 9300	10.23	54.38	19.40

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2021 HISTORICAL AADT REPORT

COUNTY: 12 - LEE

SITE: 0086 - SR-80/PALM BEACH BLVD, W OF HENDRY COUNTY LC358

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2021	21000 C	E 10500	W 10500	9.50	52.80	15.80
2020	20000 C	E 10000	W 10000	9.50	53.70	14.70
2019	18600 C	E 9300	W 9300	9.50	54.00	15.60
2018	17300 C	E 8600	W 8700	9.50	55.20	15.90
2017	16900 C	E 8400	W 8500	9.50	54.40	13.70
2016	15700 C	E 7800	W 7900	9.00	57.70	12.60
2015	14600 C	E 7300	W 7300	9.00	52.00	13.00
2014	13100 S	E 6600	W 6500	9.00	52.30	13.60
2013	12700 F	E 6400	W 6300	9.00	56.30	13.60
2012	12500 C	E 6300	W 6200	9.00	59.60	13.60
2011	13700 C	E 7000	W 6700	9.00	56.40	12.40
2010	12700 C	E 6200	W 6500	11.06	64.00	13.90

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2021 HISTORICAL AADT REPORT

COUNTY: 12 - LEE

SITE: 4654 - C.R. 78, EAST OF BROADWAY STREET

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2021	3400 F	E 1700	W 1700	9.50	53.50	13.50
2020	3200 C	E 1600	W 1600	9.50	53.80	13.50
2019	2900 F	E 1400	W 1500	9.50	54.90	15.00
2018	2700 C	E 1300	W 1400	9.50	55.20	15.00
2017	2900 T	E 1400	W 1500	9.50	54.90	12.20
2016	2700 S	E 1300	W 1400	9.50	54.80	10.80
2015	2500 F	E 1200	W 1300	9.50	55.50	10.80
2014	2300 C	E 1100	W 1200	9.50	55.20	10.80
2013	2100 S	0	0	9.50	55.00	12.20
2012	2100 F	0	0	9.50	55.30	11.50
2011	2100 C	E 0	W 0	9.50	55.20	11.70

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2021 HISTORICAL AADT REPORT

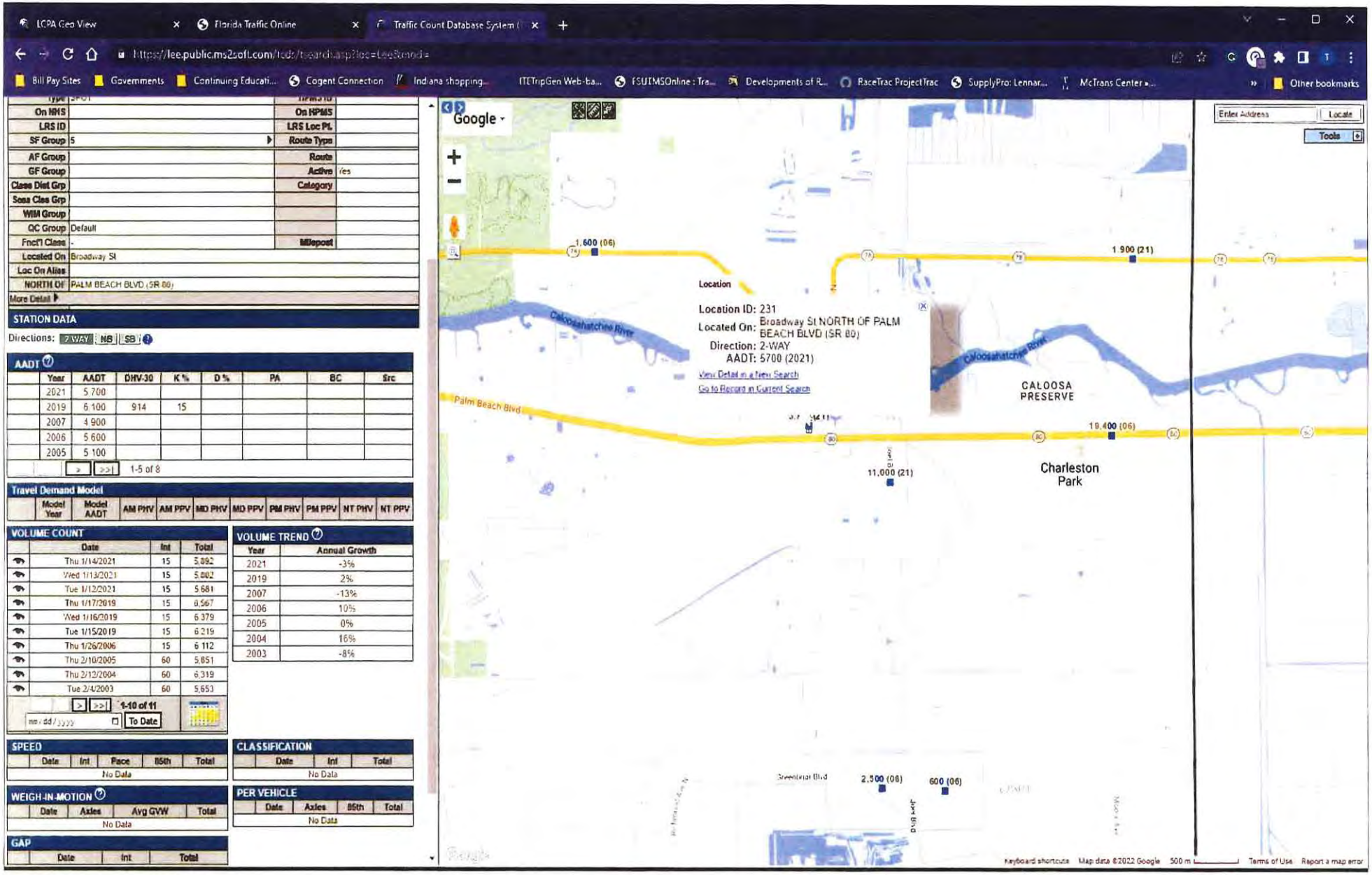
COUNTY: 12 - LEE

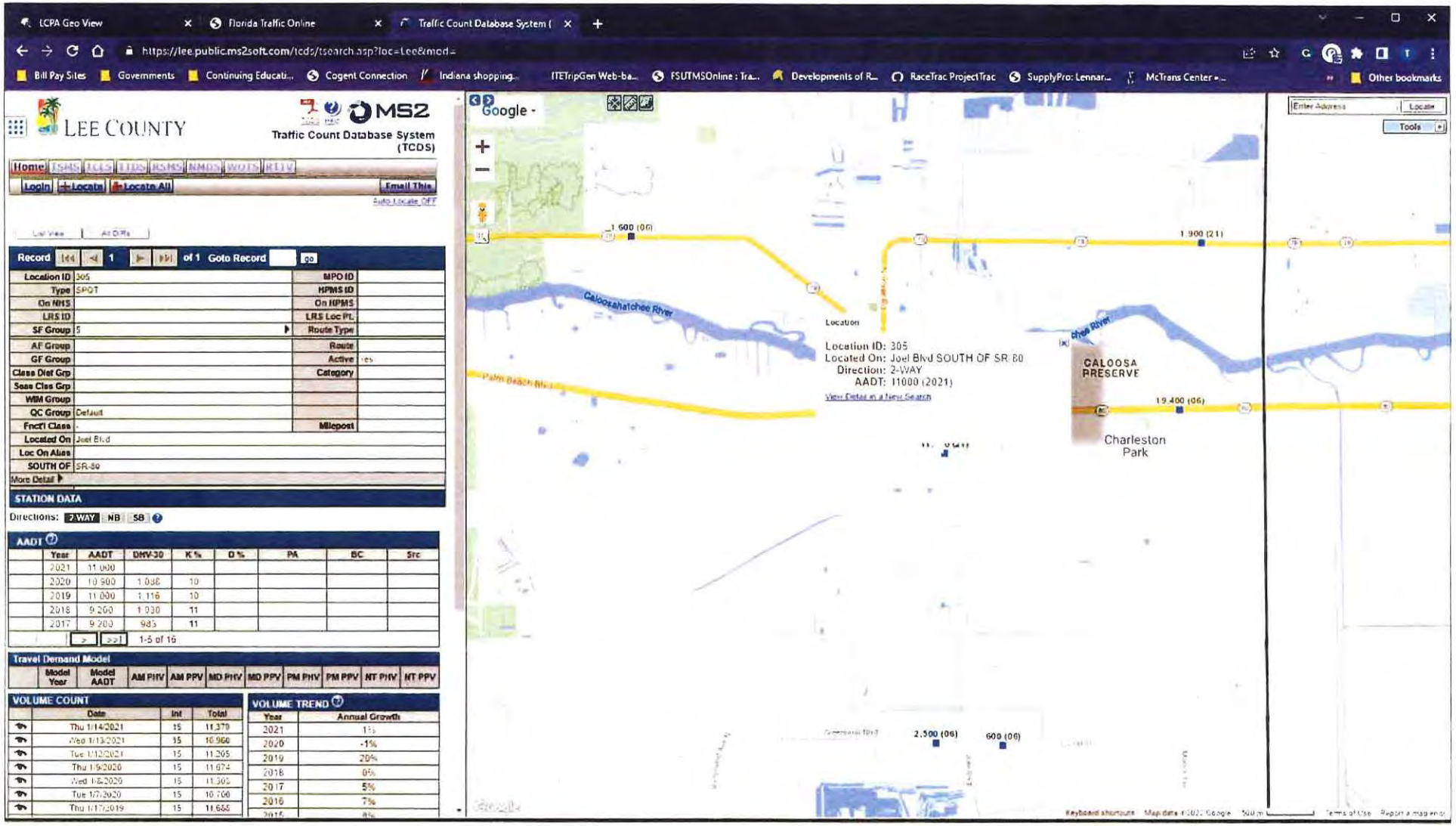
SITE: 4650 - NORTH RIVER ROAD, EAST OF S.R. 31

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2021	3600 T	E 1800	W 1800	9.50	53.50	13.60
2020	3400 S	E 1700	W 1700	9.50	53.80	12.50
2019	3400 F	E 1700	W 1700	9.50	54.90	12.50
2018	3200 C	E 1600	W 1600	9.50	55.20	12.50
2017	3200 T	E 1600	W 1600	9.50	54.90	12.20
2016	3000 S	E 1500	W 1500	9.50	54.80	15.00
2015	2800 F	E 1400	W 1400	9.50	55.50	15.00
2014	2600 C	E 1300	W 1300	9.50	55.20	15.00
2013	1000 S	0	0	9.50	55.00	12.20
2012	1000 F	0	0	9.50	55.30	11.50
2011	1000 C	E 0	W 0	9.50	55.20	11.70

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

TRAFFIC DATA FROM LEE COUNTY TRANSPORTATION DATA MANAGEMENT SYSTEM

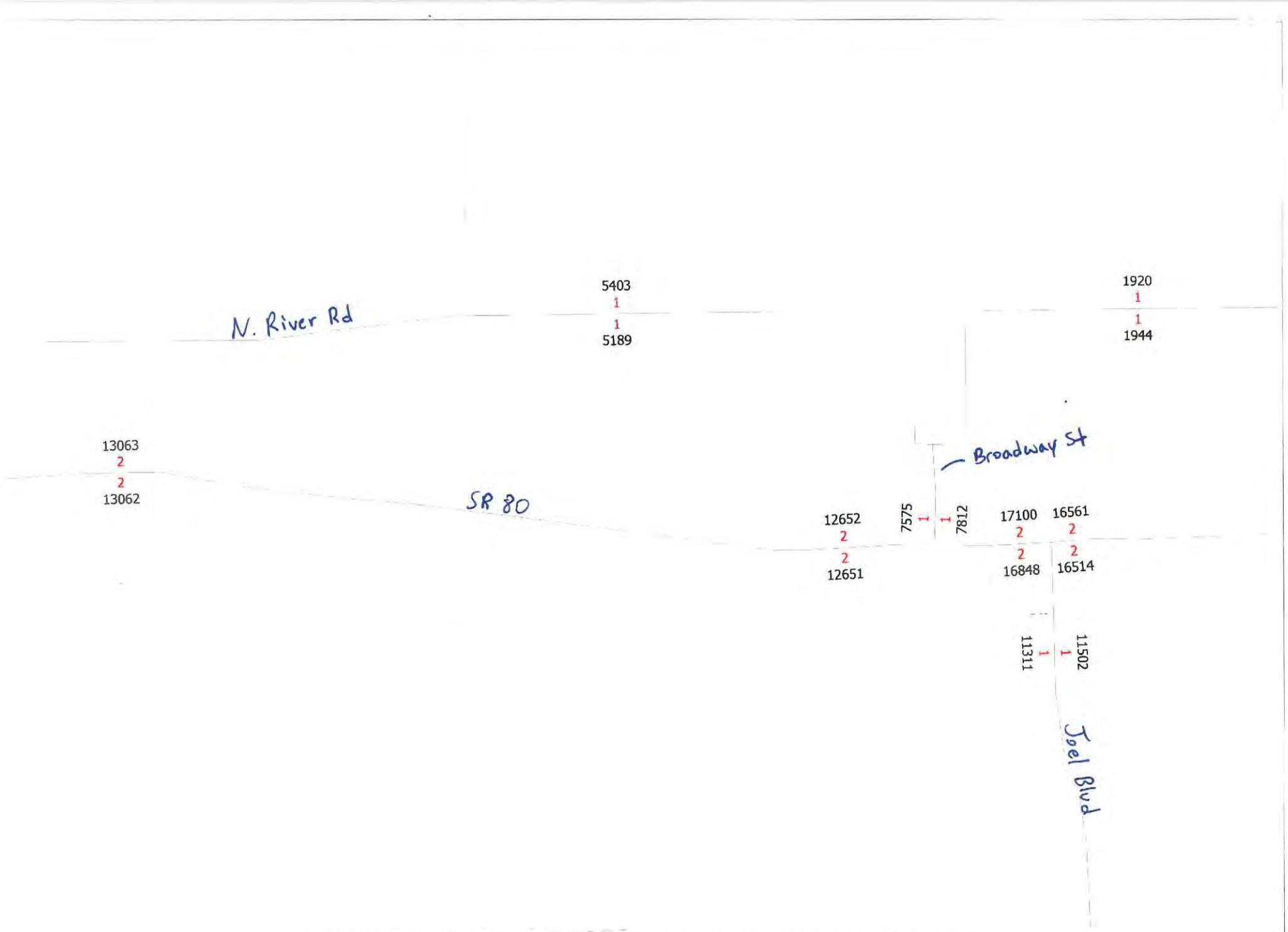

LCPA Geo View
Florida Traffic Online
Traffic Count Database System (
Bill Pay Sites
Governments
Continuing Educati...
Cogent Connection
Indiana shopping...
ITETripGen Web-ba...
FSUTMSOnline : Tra...
Developments of R...
RaceTrac ProjectTrac
SupplyPro: Lennar...
McTrans Center »...
Other bookmarks
On NHS
LRS ID
SF Group 5
AF Group
GF Group
Class Dist Grp
Sess Clss Grp
WIM Group
QC Group Default
Fnctl Class -
Located On Broadway St
Loc On Alias
NORTH OF PALM BEACH BLVD (SR 80)
More Detail
On HPMS
LRS Loc Pt.
Route Type
Route
Active Yes
Category
Milepost
STATION DATA
Directions: 2-WAY NB SB
AADT
Year AADT DHV-30 K % D % PA BC Src
2021 5,700
2019 6,100 914 15
2007 4,900
2006 5,600
2005 5,100
1-5 of 8
Travel Demand Model
Model Year Model AADT AM PHV AM PPV MD PHV MD PPV PM PHV PM PPV NT PHV NT PPV
VOLUME COUNT
Date Int Total
Thu 1/14/2021 15 5,892
Wed 1/13/2021 15 5,802
Tue 1/12/2021 15 5,681
Thu 1/17/2019 15 6,567
Wed 1/16/2019 15 6,379
Tue 1/15/2019 15 6,219
Thu 1/26/2006 15 6,112
Thu 2/10/2005 60 5,851
Thu 2/12/2004 60 6,319
Tue 2/4/2003 60 5,653
1-10 of 11
mm/dd/yyyy
To Date
VOLUME TREND
Year Annual Growth
2021 -3%
2019 2%
2007 -13%
2006 10%
2005 0%
2004 16%
2003 -8%
SPEED
Date Int Pace 85th Total
No Data
CLASSIFICATION
Date Int Total
No Data
WEIGH-IN-MOTION
Date Axles Avg GVW Total
No Data
PER VEHICLE
Date Axles 85th Total
No Data
GAP
Date Int Total
Google
Location
Location ID: 231
Located On: Broadway St NORTH OF PALM BEACH BLVD (SR 80)
Direction: 2-WAY
AADT: 5700 (2021)
View Detail in a New Search
Go to Report in Current Search
1,600 (06)
1,900 (21)
Caloosahatchee River
Palm Beach Blvd
CALOOSA PRESERVE
19,400 (06)
11,000 (21)
Charleston Park
2,500 (06)
600 (06)
Enter Address
Locate
Tools
Keyboard shortcuts
Map data ©2022 Google
500 m
Terms of Use
Report a map error


LCPA Geo View
Florida Traffic Online
Traffic Count Database System (
https://lee.public.ms2soft.com/tcds/tsearch.asp?loc=Lee&mod=
LEE COUNTY
MS2
Traffic Count Database System (TCDS)
Home
Login
Locate
Locate All
Email This
Auto Locate OFF
Record 1 of 1 Goto Record
Location ID 305
Type SPOT
On NHS
LRS ID
SF Group 5
AF Group
GF Group
Class Dist Grp
Sess Class Grp
WIM Group
QC Group Default
Fnct'l Class
Located On Joel Blvd
Loc On Alias
SOUTH OF SR-80
More Detail
MPO ID
HPMS ID
On HPMS
LRS Loc Pt.
Route Type
Route
Active
Category
Milepost
STATION DATA
Directions: 2-WAY NB SB
AADT
Year AADT DHV-30 K % D % PA BC Src
2021 11,000
2020 10,500 1,038 10
2019 11,000 1,116 10
2018 9,200 1,030 11
2017 9,200 985 11
1-5 of 16
Travel Demand Model
Model Year Model AADT AM PHV AM PPV MD PHV MD PPV PM PHV PM PPV NT PHV NT PPV
VOLUME COUNT
Date Int Total
Thu 1/14/2021 15 11,379
Wed 1/13/2021 15 10,966
Tue 1/12/2021 15 11,205
Thu 1/9/2020 15 11,674
Wed 1/8/2020 15 11,305
Tue 1/7/2020 15 10,700
Thu 1/17/2019 15 11,665
VOLUME TREND
Year Annual Growth
2021 1%
2020 -1%
2019 20%
2018 0%
2017 5%
2016 7%
Google
1,600 (06)
1,900 (21)
Caloosahatchee River
Location
Location ID: 305
Located On: Joel Blvd SOUTH OF SR 80
Direction: 2-WAY
AADT: 11000 (2021)
View Detail in a New Search
CALOOSA PRESERVE
19,400 (06)
Charleston Park
2,500 (06)
600 (06)
Enter Address
Locate
Tools

2045 E+C NETWORK LANES

&

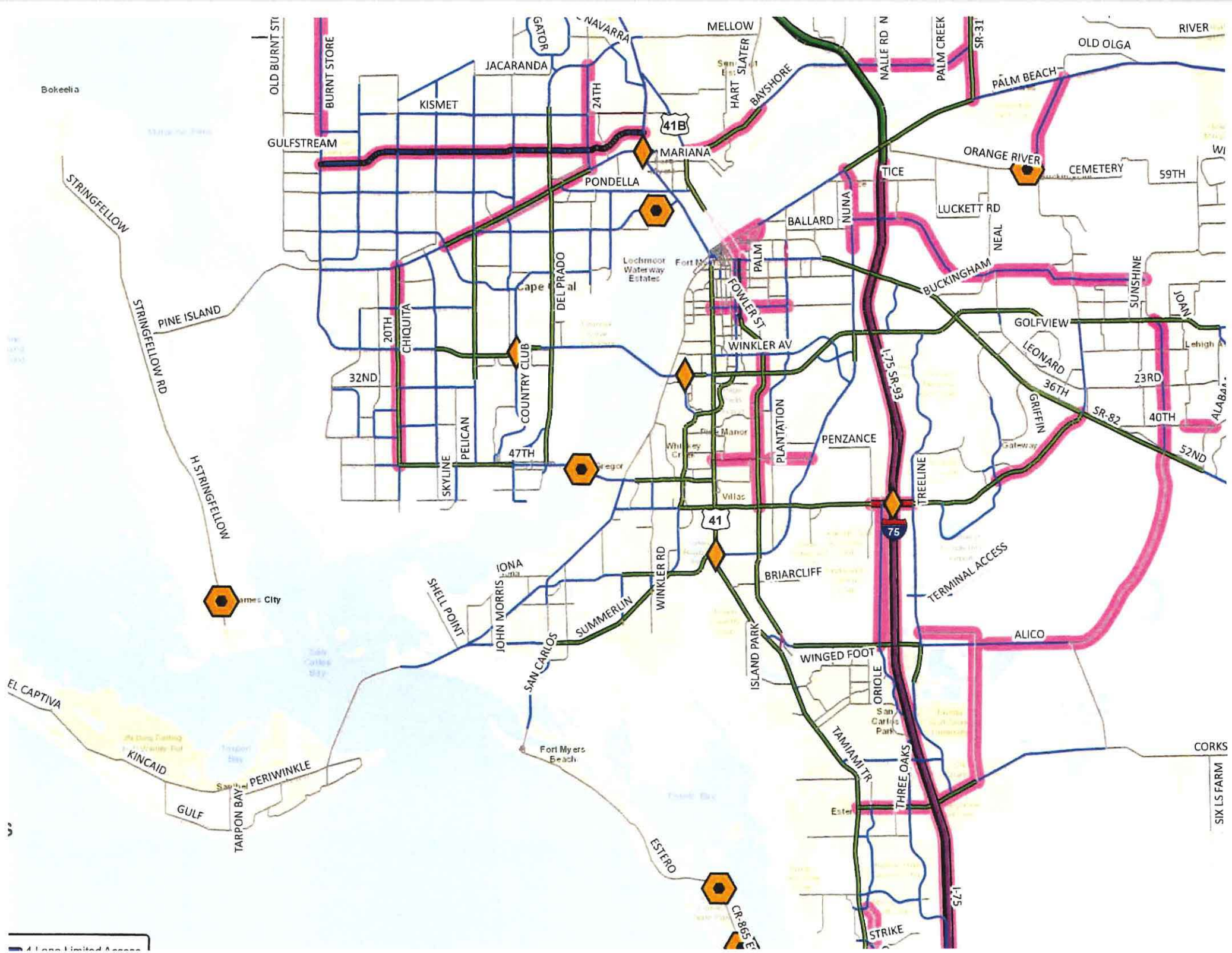
VOLUMES



2045 LRTP COST FEASIBLE ROADWAY NETWORK LANES AND VOLUMES

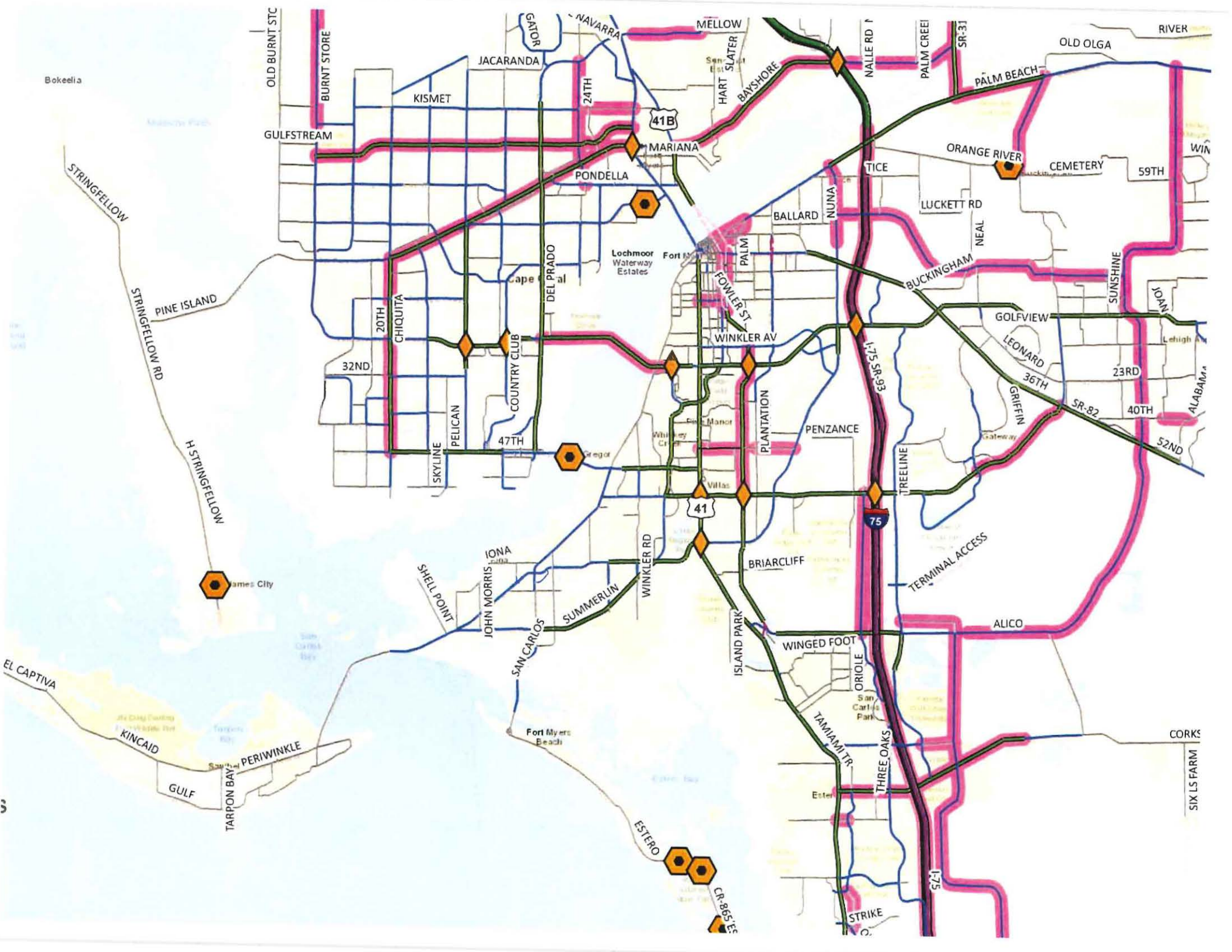
cube
(Licensed to TR Transportation Consultants Inc.)

LEE COUNTY MPO 2045 COST FEASIBLE HIGHWAY PLAN


Bokeelia
OLD BURNT ST
BURNT STORE
KISMET
JACARANDA
NAVARRA
MELLOW
HART
SLATER
BAYSHORE
24TH
41B
GULFSTREAM
MARIANA
PONDELLA
STRINGFELLOW
PINE ISLAND
STRINGFELLOW RD
H STRINGFELLOW
20TH
CHIQUITA
DEL PRADO
COUNTRY CLUB
32ND
SKYLINE
PELICAN
47TH
Lochmoor Waterway Estates
FOWLER ST
PALM
WINKLER AV
PLANTATION
PENZANCE
TREELINE
Villas
41
75
I-75 SR-93
BALLARD
NUNA
TICE
LUCKETT RD
NEAL
NALLE RD
PALM CREEK
SR-31
OLD OLGA
PALM BEACH
ORANGE RIVER
CEMETERY
59TH
BUCKINGHAM
SUNSHINE
GOLFVIEW
LEONARD
36TH
GRIFFIN
SR-82
23RD
40TH
52ND
IONA
SHELL POINT
JOHN MORRIS
SUMMERLIN
WINKLER RD
BRIARCLIFF
TERMINAL ACCESS
ALICO
WINGED FOOT
ORIOLE
ISLAND PARK
SAN CARLOS
TAMIAMI TR
THREE OAKS
CORKS
SIX LS FARM
EL CAPTIVA
KINCAID
PERIWINKLE
GULF
TARPON BAY
Fort Myers Beach
ESTERO
CR-865
STRIKE
I-75

LEE COUNTY MPO

2045 NEEDS PLAN


Bokeelia
OLD BURNT STC
BURNT STORE
JACARANDA
KISMET
GULFSTREAM
NAVARRA
MELLOW
24TH
HART
SLATER
BAYSHORE
41B
MARIANA
PONDELLA
STRINGFELLOW
PINE ISLAND
STRINGFELLOW RD
H STRINGFELLOW
James City
20TH
CHIQUITA
32ND
SKYLINE
PELICAN
COUNTRY CLUB
DEL PRADO
47TH
Lochmoor
Waterway
Estates
Cape Coral
FOWLER ST
PALM
BALLARD
NUNA
NALLE RD
PALM CREEK
SR-31
OLD OLGA
RIVER
PALM BEACH
ORANGE RIVER
CEMETERY
TICE
59TH
LUCKETT RD
NEAL
BUCKINGHAM
SUNSHINE
JOAN
GOLFVIEW
WINKLER AV
LEONARD
36TH
23RD
40TH
SR-82
52ND
ALABAMA
GRIFFIN
PLANTATION
PENZANCE
TREELINE
I-75 SR-93
41
75
BRIARCLIFF
TERMINAL ACCESS
ALICO
WINGED FOOT
ORIOLE
ISLAND PARK
IONA
JOHN MORRIS
SHELL POINT
SUMMERLIN
WINKLER RD
SAN CARLOS
Fort Myers Beach
EL CAPTIVA
KINCAID
PERIWINKLE
GULF
TARPON BAY
ESTERO
CR-865
TAMIAMI TR
THREE OAKS
I-75
STRIKE
CORKS
SIX LS FARM

HCS RESULTS

W. ACCESS @ S.R. 80

HCS Two-Way Stop-Control Report

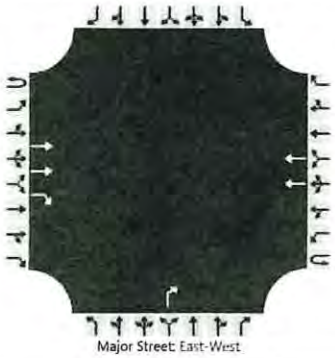
General Information

Analyst	tbt
Agency/Co.	TR Transportation
Date Performed	8/17/2022
Analysis Year	2027
Time Analyzed	AM Peak W/Project
Intersection Orientation	East-West
Project Description	Caloosa 80 RVPD

Site Information

Intersection	SR 80/W. Site Access
Jurisdiction	FDOT
East/West Street	SR 80
North/South Street	W. Site Access
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	1	0	0	2	0		0	0	1		0	0	0
Configuration			T	R			T					R				
Volume (veh/h)			1569	19			1755					12				
Percent Heavy Vehicles (%)												4				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized		No								No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)												6.9				
Critical Headway (sec)												6.98				
Base Follow-Up Headway (sec)												3.3				
Follow-Up Headway (sec)												3.34				

Delay, Queue Length, and Level of Service

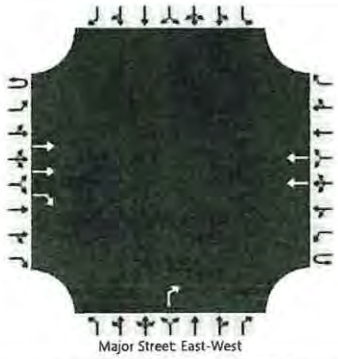
Flow Rate, v (veh/h)												13				
Capacity, c (veh/h)												299				
v/c Ratio												0.04				
95% Queue Length, Q_{95} (veh)												0.1				
Control Delay (s/veh)												17.6				
Level of Service (LOS)												C				
Approach Delay (s/veh)										17.6						
Approach LOS										C						

Copyright © 2022 University of Florida. All Rights Reserved.

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	tbt	Intersection	SR 80/W. Site Access
Agency/Co.	TR Transportation	Jurisdiction	FDOT
Date Performed	8/17/2022	East/West Street	SR 80
Analysis Year	2027	North/South Street	W. Site Access
Time Analyzed	PM Peak W/Project	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Caloosa 80 RVPD		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	1	0	0	2	0		0	0	1		0	0	0
Configuration			T	R			T					R				
Volume (veh/h)			1755	55			1569					15				
Percent Heavy Vehicles (%)												4				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized		No								No						
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)												6.9				
Critical Headway (sec)												6.98				
Base Follow-Up Headway (sec)												3.3				
Follow-Up Headway (sec)												3.34				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)												16				
Capacity, c (veh/h)												256				
v/c Ratio												0.06				
95% Queue Length, Q_{95} (veh)												0.2				
Control Delay (s/veh)												20.0				
Level of Service (LOS)												C				
Approach Delay (s/veh)										20.0						
Approach LOS										C						

Copyright © 2022 University of Florida. All Rights Reserved.

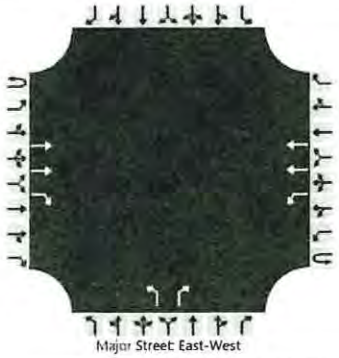
HCS RESULTS

E. ACCESS @ S.R. 80

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	tbt	Intersection	SR 80/E. Site Access
Agency/Co.	TR Transportation	Jurisdiction	FDOT
Date Performed	8/17/2022	East/West Street	SR 80
Analysis Year	2027	North/South Street	East Site Access
Time Analyzed	AM Peak W/Project	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Caloosa 80 RVPD		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	1	0	1	2	0		1	0	1		0	0	0
Configuration			T	R		L	T			L		R				
Volume (veh/h)			1541	40	0	20	1678			77		14				
Percent Heavy Vehicles (%)					1	2				2		2				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized			No							No						
Median Type | Storage			Left Only							2						

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.14				6.84		6.94				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.22				3.52		3.32				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						22				84		15				
Capacity, c (veh/h)						364				119		310				
v/c Ratio						0.06				0.71		0.05				
95% Queue Length, Q_{95} (veh)						0.2				3.8		0.2				
Control Delay (s/veh)						15.5				87.5		17.2				
Level of Service (LOS)						C				F		C				
Approach Delay (s/veh)						0.2				76.7						
Approach LOS						A				F						

Copyright © 2022 University of Florida. All Rights Reserved

HCS Two-Way Stop-Control Report

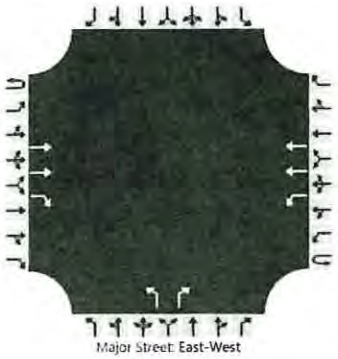
General Information

Analyst	tbt
Agency/Co.	TR Transportation
Date Performed	8/17/2022
Analysis Year	2027
Time Analyzed	PM Peak W/Project
Intersection Orientation	East-West
Project Description	Caloosa 80 RVPD

Site Information

Intersection	SR 80/E. Site Access
Jurisdiction	FDOT
East/West Street	SR 80
North/South Street	East Site Access
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	1	0	1	2	0		1	0	1		0	0	0
Configuration			T	R		L	T			L		R				
Volume (veh/h)			1710	60	0	38	1478			91		15				
Percent Heavy Vehicles (%)					1	2				2		2				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized			No							No						
Median Type | Storage			Left Only							2						

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.14				6.84		6.94				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.22				3.52		3.32				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						41				99		16				
Capacity, c (veh/h)						303				97		269				
v/c Ratio						0.14				1.02		0.06				
95% Queue Length, Q_{95} (veh)						0.5				6.2		0.2				
Control Delay (s/veh)						18.7				177.5		19.2				
Level of Service (LOS)						C				F		C				
Approach Delay (s/veh)						0.5				155.1						
Approach LOS						A				F						

Copyright © 2022 University of Florida. All Rights Reserved.

TRIP GENERATION EQUATIONS

Single-Family Detached Housing
(210)

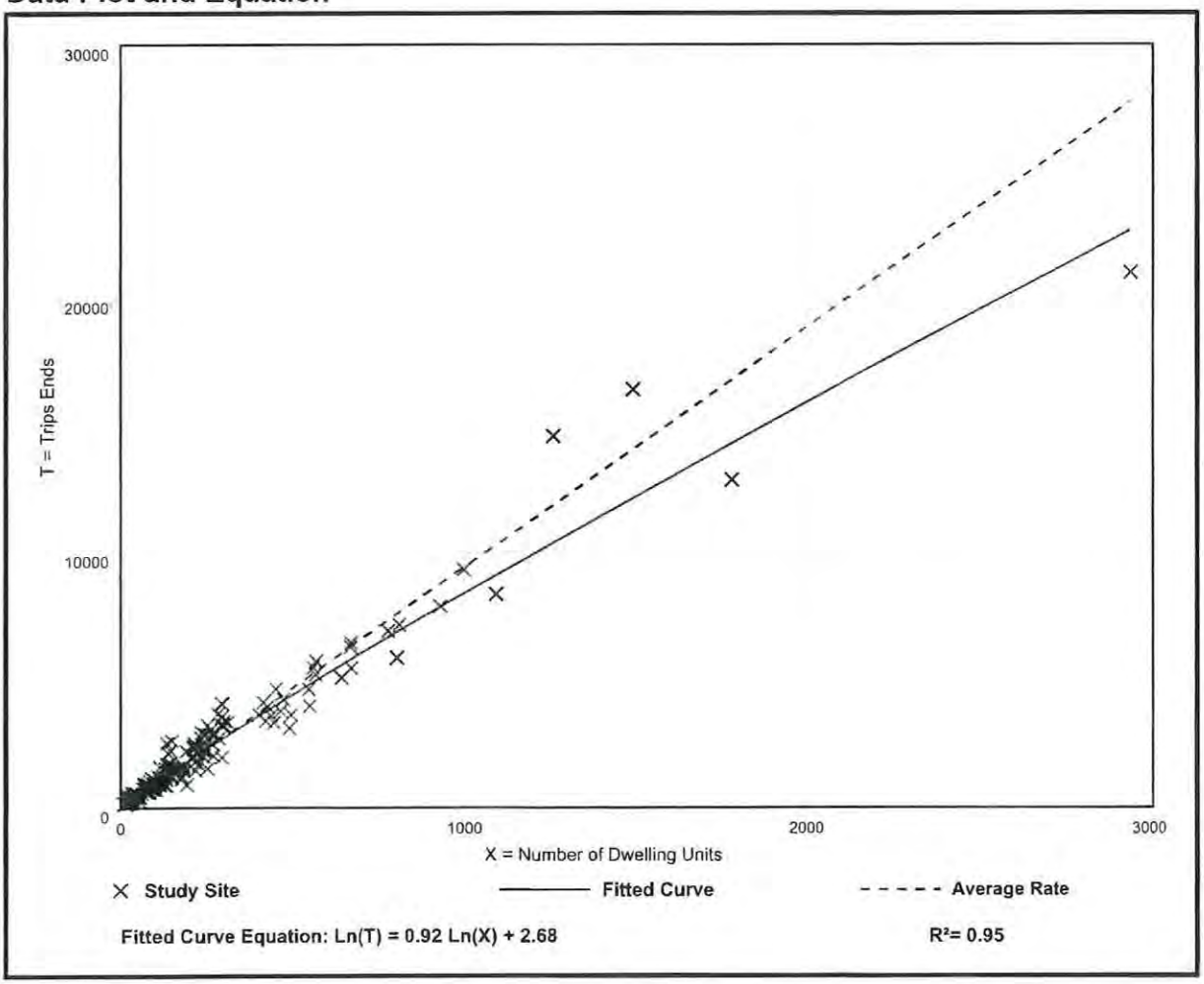
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 174
Avg. Num. of Dwelling Units: 246
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.43	4.45 - 22.61	2.13

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.92 Ln(X) + 2.68

R^2= 0.95

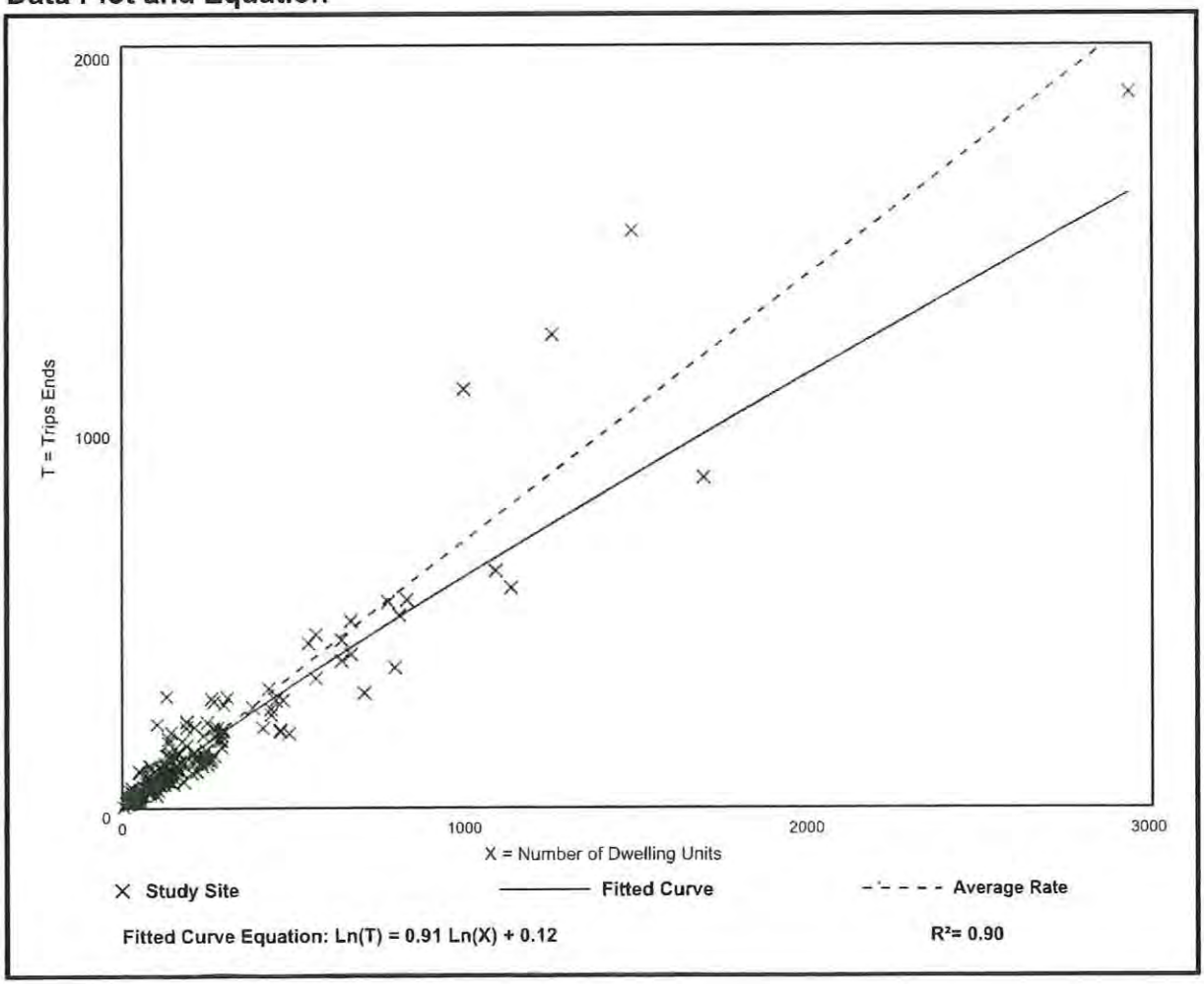
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 192
Avg. Num. of Dwelling Units: 226
Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.27 - 2.27	0.24

Data Plot and Equation



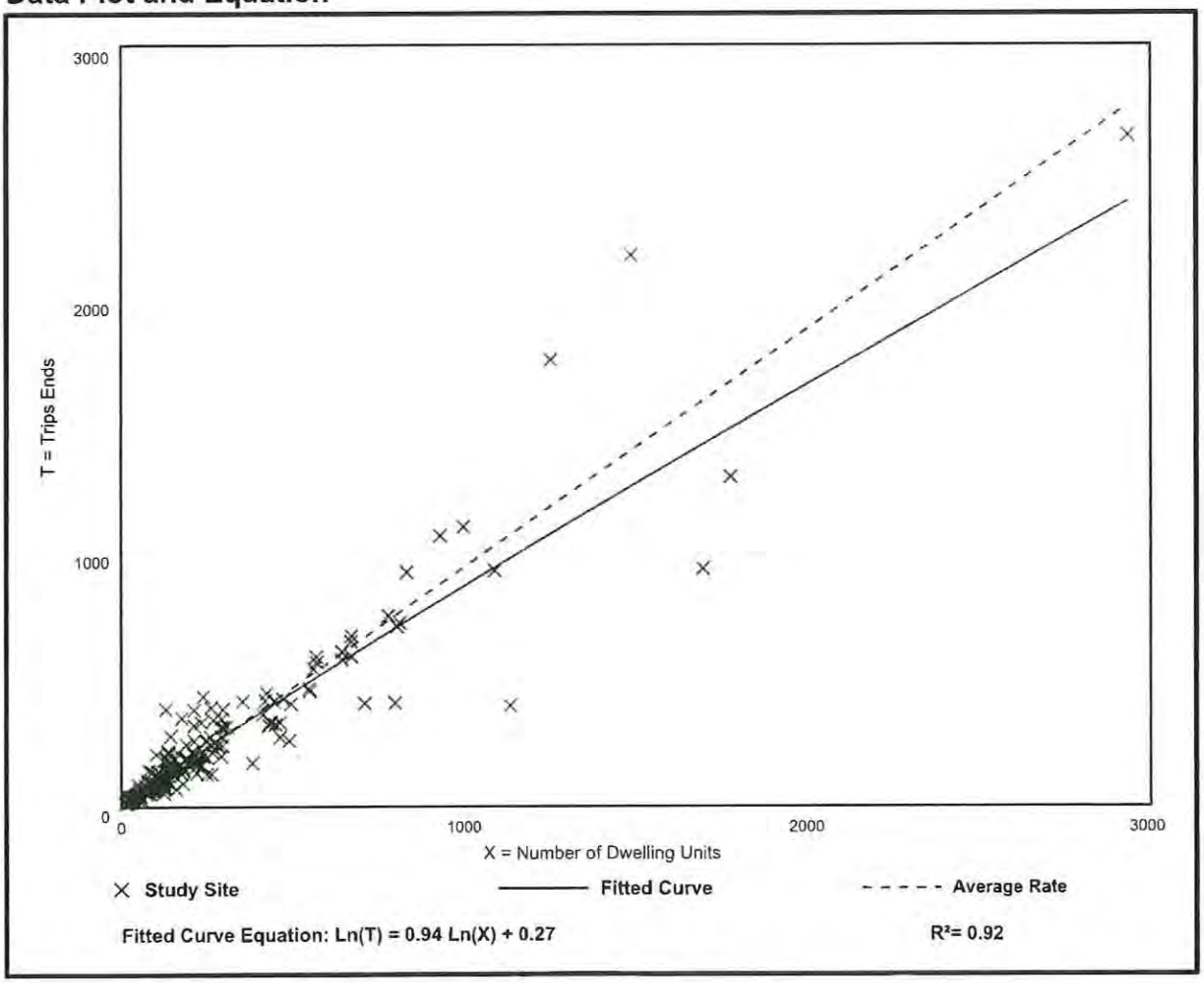
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 208
Avg. Num. of Dwelling Units: 248
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.94	0.35 - 2.98	0.31

Data Plot and Equation



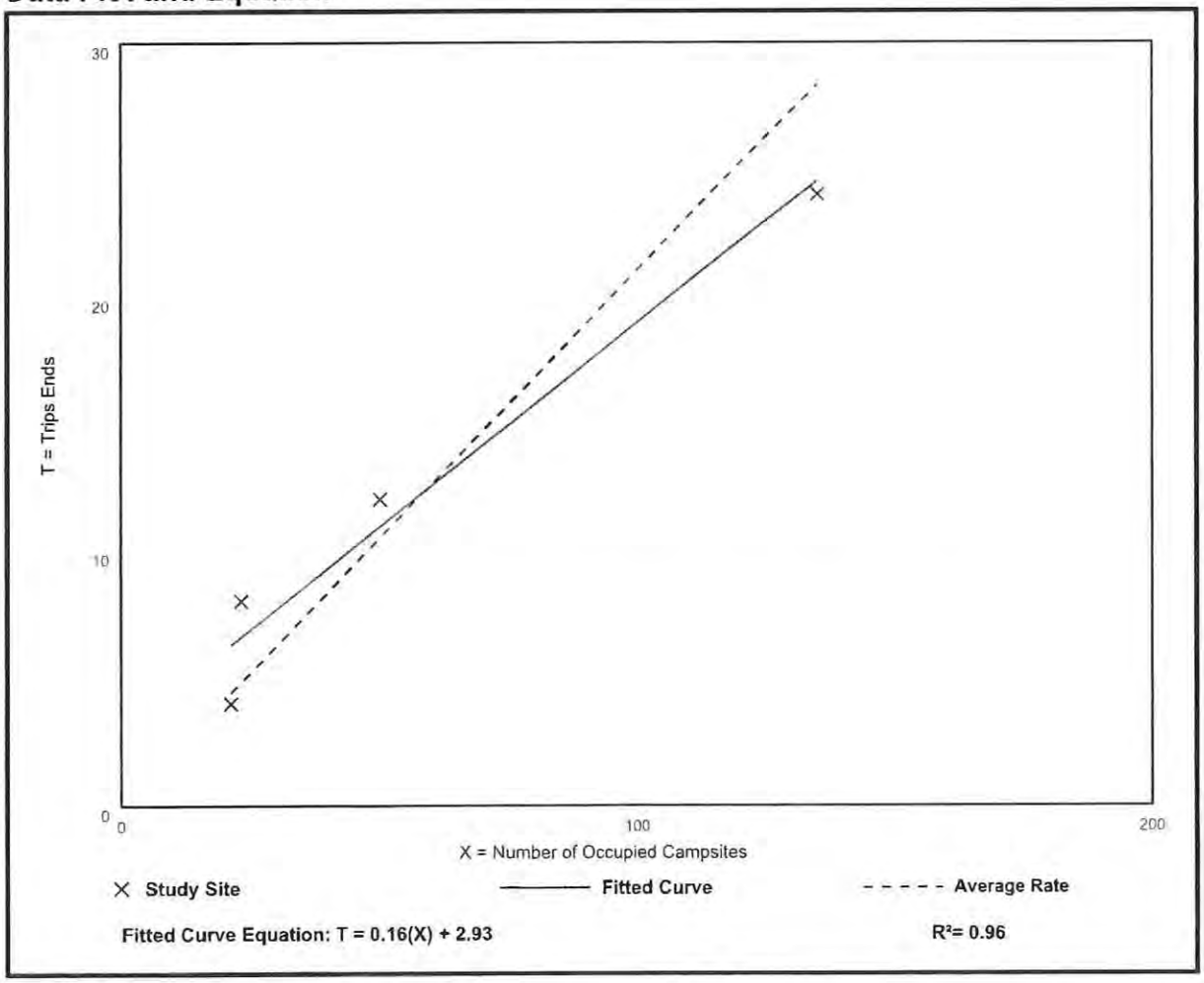
Campground/Recreational Vehicle Park
(416)

Vehicle Trip Ends vs: Occupied Campsites
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 4
Avg. Num. of Occupied Campsites: 57
Directional Distribution: 36% entering, 64% exiting

Vehicle Trip Generation per Occupied Campsite

Average Rate	Range of Rates	Standard Deviation
0.21	0.18 - 0.35	0.06

Data Plot and Equation



Fitted Curve Equation: T = 0.16(X) + 2.93

R^2= 0.96

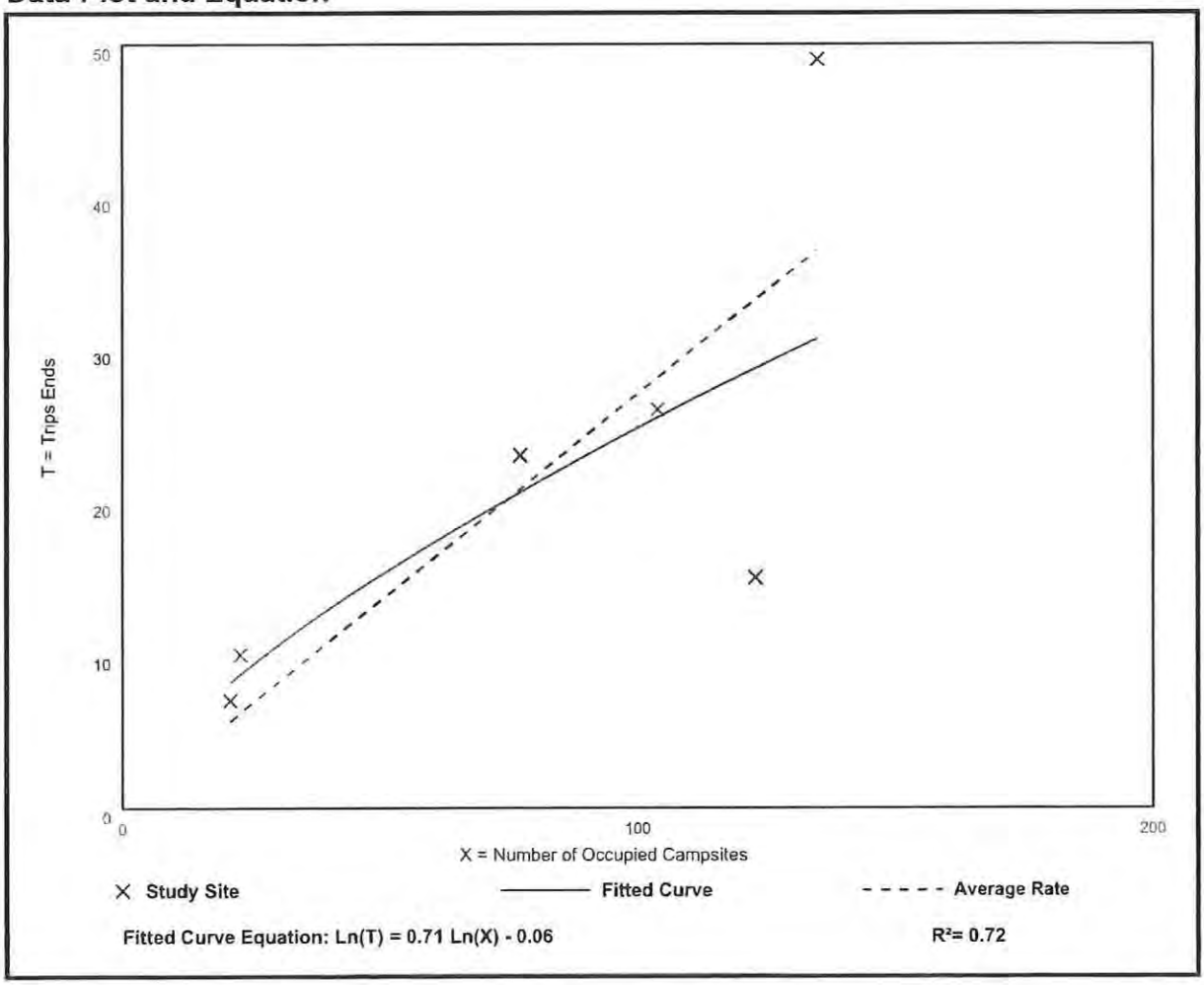
Campground/Recreational Vehicle Park
(416)

Vehicle Trip Ends vs: Occupied Campsites
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. Num. of Occupied Campsites: 81
Directional Distribution: 65% entering, 35% exiting

Vehicle Trip Generation per Occupied Campsite

Average Rate	Range of Rates	Standard Deviation
0.27	0.12 - 0.43	0.11

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.71 Ln(X) - 0.06

R^2= 0.72

Campground/Recreational Vehicle Park
(416)

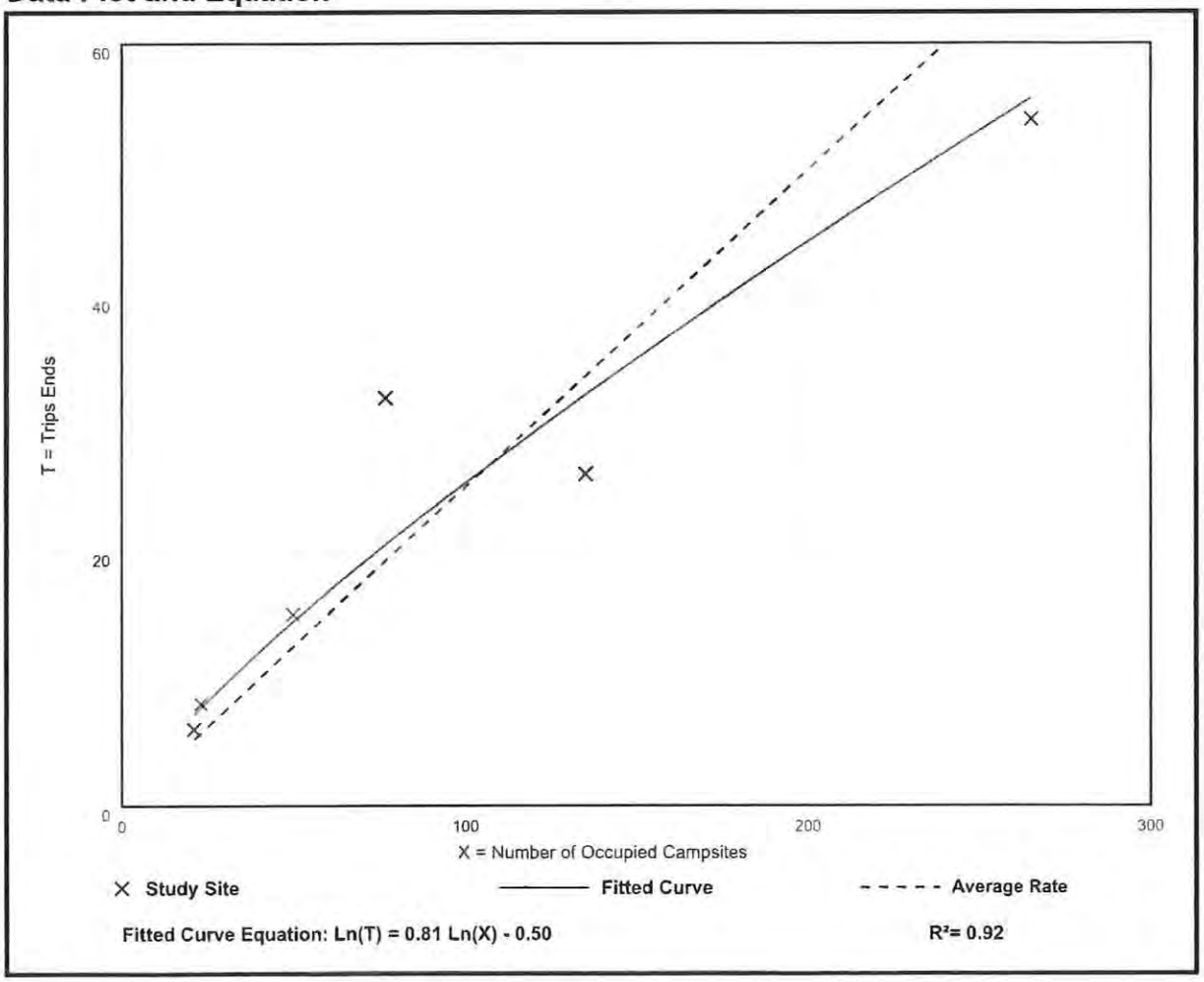
Vehicle Trip Ends vs: Occupied Campsites
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. Num. of Occupied Campsites: 95
Directional Distribution: 36% entering, 64% exiting

Vehicle Trip Generation per Occupied Campsite

Average Rate	Range of Rates	Standard Deviation
0.25	0.19 - 0.42	0.09

Data Plot and Equation



Strip Retail Plaza (<40k)
(822)

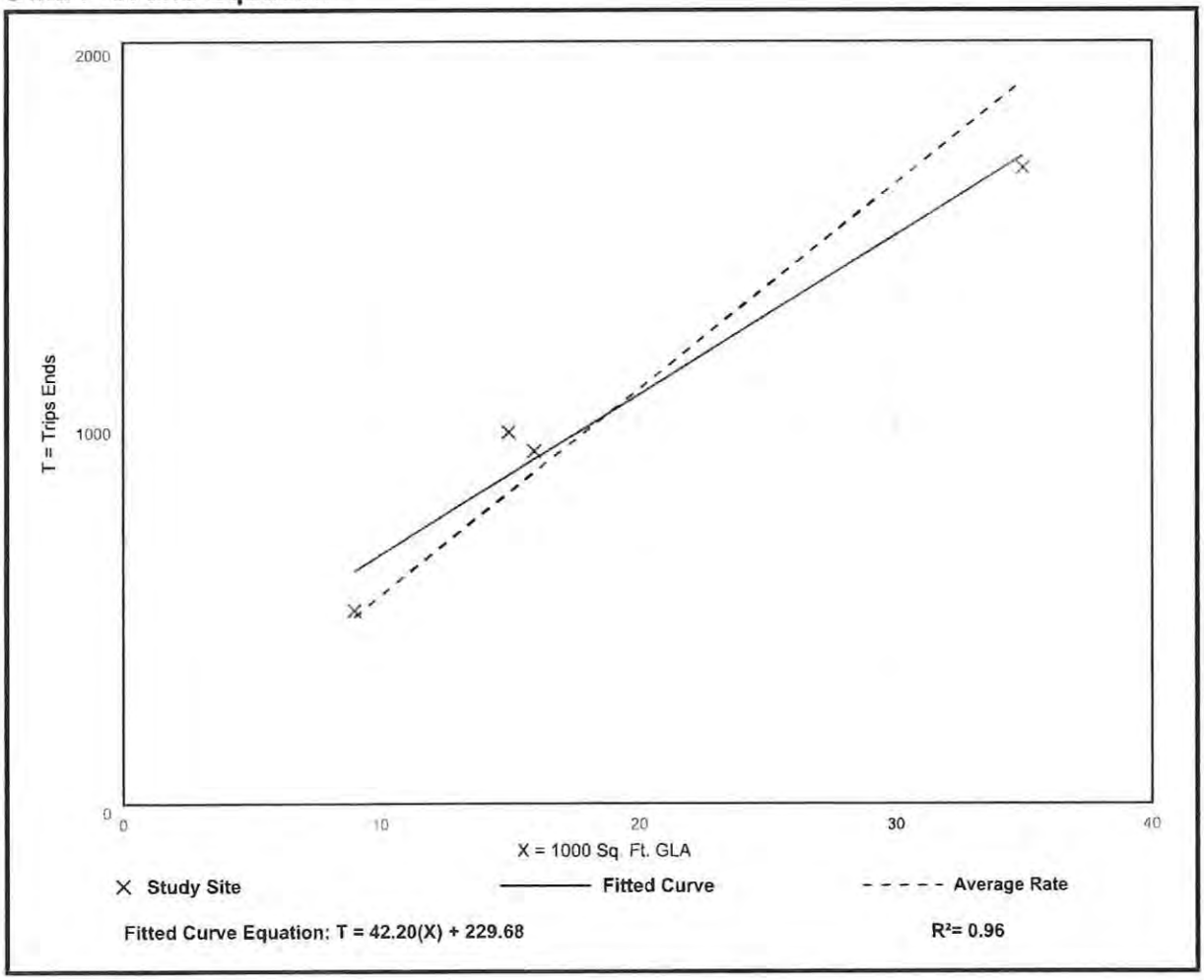
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 4
Avg. 1000 Sq. Ft. GLA: 19
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
54.45	47.86 - 65.07	7.81

Data Plot and Equation



Fitted Curve Equation: T = 42.20(X) + 229.68

R^2= 0.96

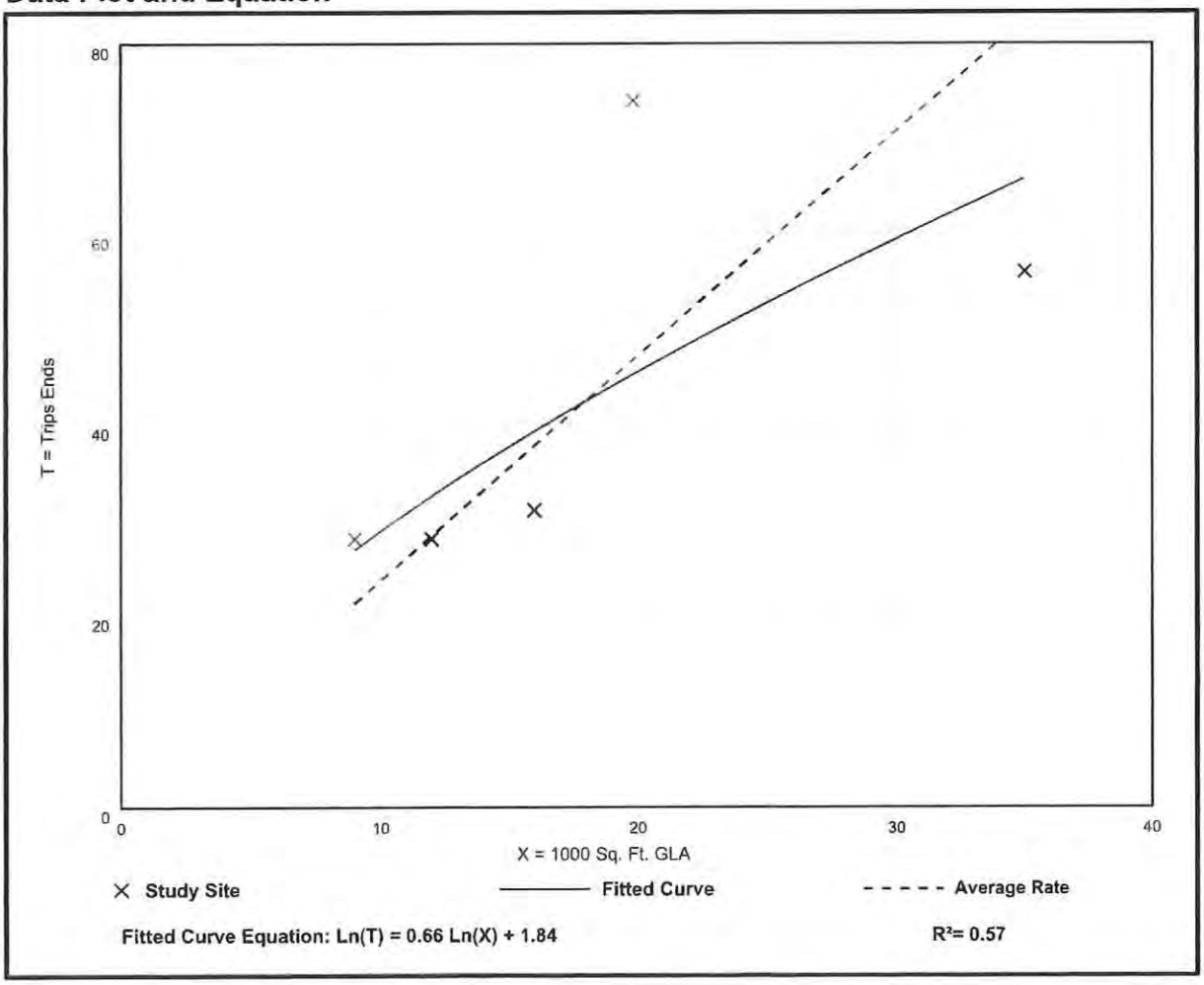
Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. 1000 Sq. Ft. GLA: 18
Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
2.36	1.60 - 3.73	0.94

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.66 Ln(X) + 1.84

R^2= 0.57

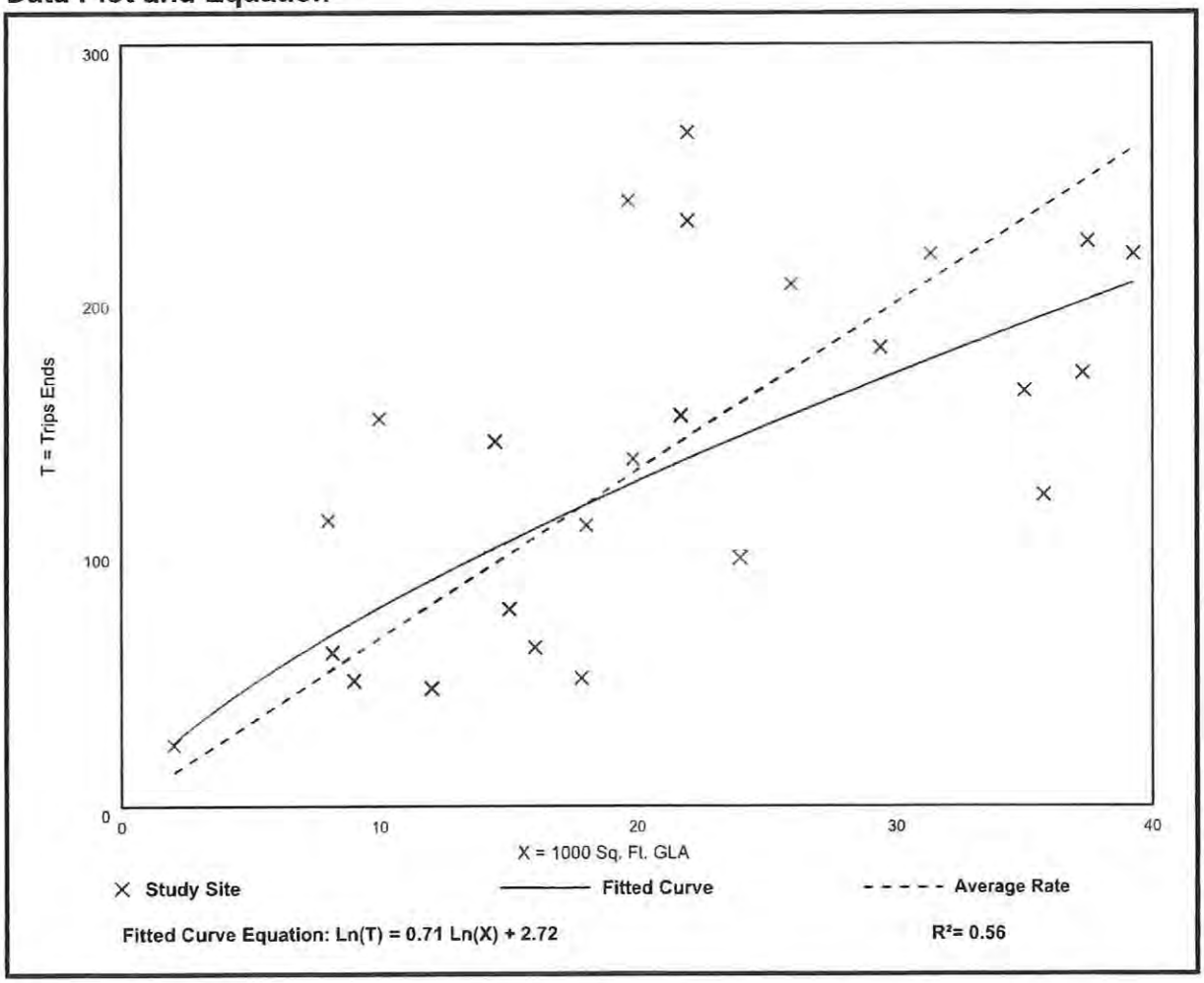
Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 25
Avg. 1000 Sq. Ft. GLA: 21
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.59	2.81 - 15.20	2.94

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.71 Ln(X) + 2.72

R^2= 0.56

TR TRANSPORTATION CONSULTANTS, INC

2726 OAK RIDGE COURT, SUITE 503
FORT MYERS, FL 33901-9356
OFFICE 239.278.3090
FAX 239.278.1906

TRAFFIC ENGINEERING
TRANSPORTATION PLANNING
SIGNAL SYSTEMS/DESIGN

March 13, 2023

Ms. Rhea Lopes
RVi Planning
10150 Highland Manor Drive, Suite 450
Tampa, FL 33408

RE: Caloosa 80 Map & Text Amendments
CPA2022-00017 & CPA2022-00018

Dear Ms. Lopes:

TR Transportation Consultants, Inc. has reviewed the Traffic Impact Statement (TIS) comments issued by the Lee County Department of Community Development regarding the Comprehensive Plan Amendment traffic analysis prepared for the above application. The comments and TR Transportation's response to those comments are listed below for reference.

Transportation Comments:

7. *Bateman Road is a County maintained local road with a posted speed limit of 25 mph. Please update the information in TIS regarding Bateman Road.*

Bateman Road is not located in any right-of-way based on the Lee County Property Appraisers website. Regardless, the report was changed to reflect maintenance by Lee County. There is no posted speed limit on Bateman Road.

8. *Table 1A & 3A must be updated to reflect the following: North River Road is an arterial with a posted speed limit of 30 mph. Joel Boulevard is an arterial with a posted speed limit of 45 mph. Please use "Lee County Generalized Peak Hour Directional Service Volume" table to get the corresponding LOS volume data for these facilities. Similarly, the area type for SR 80 (Palm Beach Blvd.) is "Rural Developed". So, follow the "Uninterrupted Flow Highway – Developed Areas" section of the table titled "Generalized Peak Hour Directional Volumes for Florida's Rural Undeveloped Areas and Developed Areas Less than 5,000 Population" (Table 9) for SR 80 LOS volume data.*

For North River Road, the data for Station 124654 – E. of Broadway, was collected in the 30 mph section and Table 3A and 4A have been revised to reflect this change. For the segment of North River Road west of Broadway, traffic data at Station 124650 was collected just east of Cemetery Road, where the posted speed limit is 45 mph. Both North

River Road from SR 31 to the Parkinson Road, a distance of approximately 9.6 miles, functions as a "Uninterrupted Flow Highway" per the definition contained in the Q/LOS Manual published by the Florida Department of Transportation. Similarly, Joel Boulevard, from SR 80 south to Alex Bell Boulevard, a distance of approximately 7.7 miles, also functions as an "Uninterrupted Flow Highway" per the definitions of the Q/LOS Manual. These are not arterials with signals at intersections disrupting the capacity of the corridor. No change to these two segments were made based on this information.

9. *Table 2A must be updated: "PK DIR PM PROJ TRAFFIC" appears to be incorrect as the highest one way trip count was not used.*

Acknowledged. Table 2A was revised to reflect the peak direction trips. See attached revised Table 2A.

10. *To analyze the short range impacts (5-year horizon), 2026 was considered as the projected year instead of 2027. It is advised to consider 2027 as the projected year.*

Acknowledged. The short range analysis in Table 4A was revised to reflect the year 2027.

11. *Please provide the 2045 FSUTMS model input file.*

The input file is the same input file the County has that can obtained from the FDOT FSUTMS webpage. No modifications to the input file have been made. It can be obtained by going to the FDOT FSUTMS online webpage:

https://www.fsutmsonline.net/DownloadLogin.aspx?module=6&entryId=1067

If you have any additional questions, please do not hesitate to contact us.

Sincerely,

Ted Treesh, PTP
President

Attachments

K:\2022\04 April\11 Caloosa 80 Rezoning 3 0\Sufficiency\1-17-2023 CPA Sufficiency doc

TABLE 2A
2045 ROADWAY LINK LEVEL OF SERVICE CALCULATIONS
CALOOSA 80 CPA

Revised 1-17-2023

TOTAL PM PEAK HOUR PROJECT TRAFFIC = 85 VPH IN= 54 OUT= 31

ROADWAY	ROADWAY SEGMENT	2045 FSUTMS AADT	COUNTY PCS / FDOT SITE #	AADT BACKGROUND TRAFFIC	K-100 FACTOR	100TH HIGHEST HOUR PK DIR 2-WAY VOLUME	D FACTOR	PM PK HR PEAK DIRECTION	2045 PEAK DIRECTION TRAFFIC VOLUMES & LOS VOLUME	LOS	PROJECT TRAFFIC DIST.	PK DIR PM PROJ TRAFFIC	2045 BACKGROUND PLUS PROJ PEAK DIRECTION TRAFFIC VOLUMES & LOS VOLUME	LOS
N River Rd	E. of Broadway	3,864	124654	3,864	0.095	367	0.535	EAST	196	C	2%	1	197	C
	W of Broadway	10,592	124650	10,592	0.095	1,006	0.535	EAST	538	C	3%	2	540	C
Joel Blvd	S. of SR 80	22,813	305	22,813	0.100	2,281	0.521	NORTH	1,188	D	5%	3	1,191	D
SR 80 (Palm Beach Blvd)	E. of Hickey Creek Rd	26,125	120006	26,125	0.095	2,482	0.528	EAST	1,310	B	75%	41	1,351	B
	E. of Site	25,303	120006	25,303	0.095	2,404	0.528	EAST	1,269	B	25%	14	1,283	B
	E of Broadway	33,948	120006	33,948	0.095	3,225	0.528	EAST	1,703	C	20%	11	1,714	C
	E. of Joel Blvd	33,075	120086	33,075	0.095	3,142	0.528	EAST	1,659	C	15%	8	1,667	C
Broadway Ave.	N. of SR 80	15,387	124110	15,387	0.095	1,462	0.538	NORTH	787	F	5%	3	790	F

* The K-100 and D factors were obtained from Florida Traffic Online resource and for Joel Blvd., Lee County Traffic County Database System

TABLE 1A
LEVEL OF SERVICE THRESHOLDS
2045 LONG RANGE TRANSPORTATION ANALYSIS - CALOOSA 80 CPA

Revised 1-17-2023

		2045 E + C NETWORK LANES		GENERALIZED SERVICE VOLUMES				
				LOS A	LOS B	LOS C	LOS D	LOS E
ROADWAY	ROADWAY SEGMENT	# Lanes	Roadway Designation	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
N. River Rd	E. of Broadway	2LU	Arterial	0	0	330	710	780
	W. of Broadway	2LU	Uninterrupted Flow Highway	130	420	850	1,210	1,640
Joel Blvd	S. of SR 80	2LN	Uninterrupted Flow Highway	130	420	850	1,210	1,640
SR 80 (Palm Beach Blvd)	E. of Hickey Creek Rd	4LD	Uninterrupted Flow Highway	0	1,530	2,210	2,820	3,220
	E. of Site	4LD	Uninterrupted Flow Highway	0	1,530	2,210	2,820	3,220
	E. of Broadway	4LD	Uninterrupted Flow Highway	0	1,530	2,210	2,820	3,220
	E. of Joel Blvd.	4LD	Uninterrupted Flow Highway	0	1,530	2,210	2,820	3,220
Broadway Ave	N. of SR 80	2LU	Collector	0	0	310	660	740

[ ] - Denotes the LOS Standard for each roadway segment

* Level of Service Thresholds for Lee County roadways were taken from the Generalized Peak Hour Directional Service Volume tables for Urbanized Areas (dated April 2016)
* Level of Service Thresholds for State mantained roadways were taken from FDOT's Generalized Peak Hour Directional Volumes for Florida's Rural Undeveloped Areas Table 9.

TABLE 3A
LEVEL OF SERVICE THRESHOLDS
CALOOSA 80 CPA

Revised 1-17-2023

				GENERALIZED SERVICE VOLUMES				
				LOS A	LOS B	LOS C	LOS D	LOS E
ROADWAY	ROADWAY SEGMENT	# LANES	ROADWAY DESIGNATION	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
N. River Rd.	E. of Broadway	2LU	Arterial	0	0	330	710	780
	E. of Cemetery Rd.	2LU	Uninterrupted Flow Highway	130	420	850	1,210	1,640
Joel Blvd.	S. of SR 80	2LU	Uninterrupted Flow Highway	130	420	850	1,210	1,640
SR 80 (Palm Beach Blvd)	E. of Hickey Creek Rd	4LD	Uninterrupted Flow Highway	0	1,530	2,210	2,820	3,220
	E. of Site	4LD	Uninterrupted Flow Highway	0	1,530	3,310	3,820	3,730
	E. of Broadway	4LD	Uninterrupted Flow Highway	0	1,530	3,310	3,820	3,730
	E. of Joel Blvd.	4LD	Uninterrupted Flow Highway	0	1,530	3,310	3,820	3,730
Broadway Ave.	N. of SR 80	2LU	Collector	0	0	310	660	740

☐ - Denotes the LOS Standard for each roadway segment

* Level of Service Thresholds for Lee County arterials/collectors taken from the Generalized Peak Hour Directional Service Volume tables for Urbanized Areas (dated April 2016)
* Level of Service Thresholds for State mantained roadways were taken from FDOT's Generalized Peak Hour Directional Volumes for Florida's Rural Undeveloped Areas Table 9.

TABLE 4A
LEE COUNTY TRAFFIC COUNTS AND CALCULATIONS
CALOOSA 80 CPA

TOTAL PROJECT TRAFFIC AM = 61 VPH IN = 16 OUT= 45

TOTAL PROJECT TRAFFIC PM = 85 VPH IN= 54 OUT= 31

FDOT Sta. #	K	D
120006	0 095	0 528
120086	0 095	0 528
124654	0 095	0 535
124650	0 095	0 535
305	0 095	0 540
231	0 095	0 540

Revised 1-17-2023

ROADWAY	ROADWAY SEGMENT	LCDOT PCS OR FDOT SITE #	BASE YR ADT	2021 ADT	YRS OF GROWTH.[1]	ANNUAL RATE	2021 PK HR PK SEASON PEAK DIR.[2]	2027 PK HR PK SEASON PEAK DIRECTION VOLUME	LOS	V/C Ratio	PERCENT PROJECT TRAFFIC	AM PROJ TRAFFIC	PM PROJ TRAFFIC	2027 BCKGRND + AM PROJ VOLUME	LOS	V/C Ratio	2027 BCKGRND + PM PROJ VOLUME	LOS	V/C Ratio
N River Rd	E of Broadway	124654	2,500	3,400	6	5 26%	173	260	C	0 37	2%	1	1	261	C	0 37	261	C	0 37
	E of Cemetery Rd	124650	2,800	3,600	6	4 28%	183	256	B	0 21	3%	1	2	257	B	0 21	257	B	0 21
Joel Blvd	S of SR 80	305	8,200	11,000	6	5 02%	564	795	C	0 48	5%	2	3	797	C	0 49	798	C	0 49
SR 80 (Palm Beach Blvd)	E of Hickey Creek Rd	120006	17,700	23,500	6	4 84%	1,179	1,641	C	0 51	75%	34	41	1,674	C	0 52	1,681	C	0 52
	E of Site	120006	17,700	23,500	6	4 84%	1,179	1,641	C	0 44	25%	11	14	1,652	C	0 44	1,654	C	0 44
	E of Broadway	120006	17,700	23,500	6	4 84%	1,179	1,641	C	0 44	20%	9	11	1,650	C	0 44	1,652	C	0 44
	E of Joel Blvd	120086	14,600	21,000	6	6 25%	1,053	1,610	C	0 43	15%	7	8	1,616	C	0 43	1,618	C	0 43
Broadway Ave ,	N of SR 80	231	4,900	5,700	14	2 00%	292	343	D	0 46	5%	2	3	345	D	0 47	345	D	0 47

1 AGR for roadways was calculated based the historical traffic data obtained from Florida Traffic Online webpage and Lee County Traffic Count Report

2 Current peak hour peak season peak direction traffic volumes for all roadways were obtained by adjusting the 2021 AADT by the appropriate K and D factors

TR TRANSPORTATION CONSULTANTS, INC

2726 OAK RIDGE COURT, SUITE 503
FORT MYERS, FL 33901-9356
OFFICE 239.278.3090
FAX 239.278.1906

TRAFFIC ENGINEERING
TRANSPORTATION PLANNING
SIGNAL SYSTEMS/DESIGN

July 10, 2023

Ms. Rhea Lopes
RVi Planning
10150 Highland Manor Drive, Suite 450
Tampa, FL 33408

RE: Caloosa 80 Map & Text Amendments
CPA2022-00017 & CPA2022-00018

Dear Ms. Lopes:

TR Transportation Consultants, Inc. has reviewed the Traffic Impact Statement (TIS) comments issued by the Lee County Department of Community Development regarding the Comprehensive Plan Amendment traffic analysis prepared for the above application. The comments and TR Transportation's response to those comments are listed below for reference.

Transportation Comments:

1. *Please provide the source for the response, "For the segment of North River Road west of Broadway, traffic data at Station 124650 was collected just east of Cemetery Road." As per the FDOT Traffic data sheet, Station 124650 pertains to the North River Road (any segment) from East of SR 31 to Broadway Street. However, in accordance with Lee County AC 11-1 and Lee County's GIS data, North River Road (East or West of Broadway Street) is a County Maintained Minor Arterial (not an Uninterrupted Flow Highway) with a posted speed limit of 30 mph. Similarly, Joel Blvd. is a principal arterial with a posted speed limit of 45 mph as per Lee County AC 11-1 and Lee County's GIS data. The applicant is required to update tables 1A, 2A, 3A, and 4A using the corresponding LOS volume data for these facilities from 'Lee County Generalized Peak Hour Directional Service Volumes.'*

Attached is an aerial photo illustrating the location of County Station 124650, which is approximately 3,000 west of the 30 mph speed limit zone on Broadway Avenue. The Level of Service analysis on North River Road west of Broadway Avenue is not intended for the short 3,000 foot segment that is posted at 30 mph between Broadway Avenue and the 45 mph speed limit sign but the approximately 9.6 mile segment that operates as a Uninterrupted Flow Highway to S.R.31. Similarly, Joel Boulevard south of S.R 80 operates as an Uninterrupted Flow Highway from a Level of Service perspective, even though it is designated as Principal Arterial. There are no traffic signals that disrupt

traffic flow that would require the use of any other service volumes. The definitions are clear and are not dependent on the classification of the roadway.

2. *SR 80 (Palm Beach Blvd) is a state-maintained principal arterial (signalized) located in the 'Rural Developed' area. The applicant must update tables 1A, 2A, 3A, and 4A by utilizing the corresponding LOS volume data for this facility from the 'State Signalized Arterials' section of table 9 from 'FDOT 2020 Quality/ level of Service Handbook*

The Level of Service Thresholds for SR 80 are taken from Table 9 from the FDOT Q/LOS Manual. The volumes utilized for the SR 80 segments are for Uninterrupted flow Highways as there are no traffic signals on these segments along SR 80 for more than 2 miles, meeting the clear definition as defined by FDOT for a Uninterrupted Flow Highway. This is NOT a signalized arterial.

3 . *As the project site is vacant, to evaluate short-range impacts (5-year horizon), the trips generated from table 3 (for proposed land use) must be employed to calculate the AM/PM project traffic. Consequently, table 4A must be updated accordingly.*

This is an analysis of the impacts of the CHANGE in the Comprehensive Land Use Plan. The analysis examines the CHANGE of the land use, therefore, the traffic analysis also analyzes the CHANGE in the traffic. The Short Term analysis analyzes the CHANGE that will occur as a result of the requested land use change, which is the trip generation illustrated in Table 4 of the TIS, not Table 3. No changes were made to the Short Term analysis.

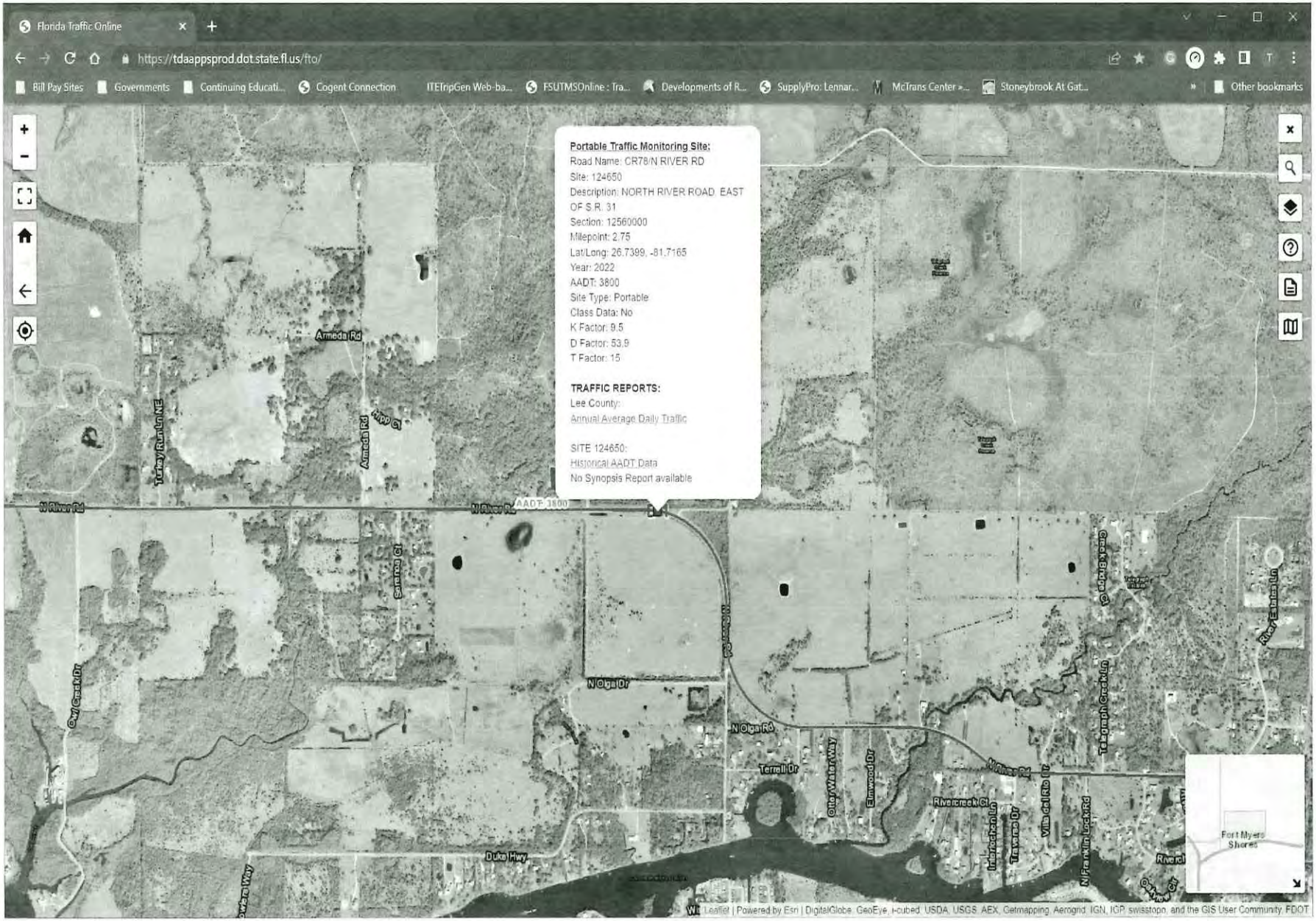
If you have any additional questions, please do not hesitate to contact us.

Sincerely,

Ted Treesh, PTP
President

Attachments

K:\2022\04 April\11 Caloosa 80 Rezoning 3.0\Sufficiency\Round 2\7-10-2023 CPA Sufficiency.doc


Florida Traffic Online
https://tdaappsprod.dot.state.fl.us/fto/
Bill Pay Sites
Governments
Continuing Educati...
Cogent Connection
ITETripGen Web-ba...
FSUTMSOnline : Tra...
Developments of R...
SupplyPro: Lennar...
McTrans Center »...
Stoneybrook At Gat...
Other bookmarks
Portable Traffic Monitoring Site:
Road Name: CR78/N RIVER RD
Site: 124650
Description: NORTH RIVER ROAD EAST OF S.R. 31
Section: 12560000
Milepoint: 2.75
Lat/Long: 26.7399, -81.7165
Year: 2022
AADT: 3800
Site Type: Portable
Class Data: No
K Factor: 9.5
D Factor: 53.9
T Factor: 15
TRAFFIC REPORTS:
Lee County:
Annual Average Daily Traffic
SITE 124650:
Historical AADT Data
No Synopsis Report available
AADT 3800
N River Rd
Armeda Rd
Turkey Run Ln NE
Armeda Ct
Sabrina Ct
N Olga Dr
N Olga Rd
Otter Creek Dr
Terrell Dr
Otter Water Way
Elmwood Dr
Riverside Dr
Riverside Ln
Riverside Ct
Riverside Cir
Duke Hwy
Fort Myers Shores
Leaflet | Powered by Esri | DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community FDOT

Letters of Service Availability

Lee County
Southwest Florida

Board of County Commissioners

Kevin Ruane
District One

Cecil L Pendergrass
District Two

Ray Sandelli
District Three

Brian Hamman
District Four

Mike Greenwell
District Five

Roger Desjarlais
County Manager

Richard Wm. Wesch
County Attorney

Donna Marie Collins
County Hearing Examiner

September 12, 2022

Rhea Lopes
RVi Planning + Landscape Architecture
10401 Highland Manor Dr, Ste 220
Tampa FL 33610

Re: Letter of Service Availability – Caloosa 80

Ms. Lopes,

I am in receipt of your letter requesting a Letter of Service Availability for a group of parcels called Caloosa 80. The property consists of 3 STRAP numbers south of State Road 80 near the intersection of Bateman Road. The project is proposed to include 783 RV units and 30,000 square feet of commercial uses, with a proposed residential population of 2,020.

Lee County Emergency Medical Services is the primary EMS transport agency responsible for coverage at the location you have provided. Because we currently serve this area and have a sufficient response data sample, we evaluated response times in this vicinity to simulate the anticipated demand and response.

The primary ambulance for this location is Medic 11, located 8.4 miles west. This location is not able to meet existing service standards for the proposed development, as required in County Ordinance 08-16. The paramedic stationed at the Alva Fire Department does not change this calculation, as the measurement in ordinance is arrival of an ambulance.

It is our opinion that the service availability for the proposed development of this property is not adequate at this time. Should the plans change, a new analysis of this impact would be required.

Sincerely,

Benjamin Abes
Director, Public Safety

Alva Fire & Rescue District

Brandon S. Kuhn, Fire Chief

September 1, 2022

Rhea Lopes
Project Manager
RVi Planning + Landscape Architecture
10401 Highland Manor Dr, Suite 220
Tampa, FL 33610

RE: Caloosa 80 - Comprehensive Plan Amendment
Letter of Service Available

Dear Rhea Lopes,

Please accept this correspondence as documentation that the Alva Fire Control & Rescue Service District can provide fire protection and EMS non-transport services to the parcels listed below which falls within the boundaries of our Fire District.

The following three parcels (STRAP numbers) are within the geographical boundaries of the Alva Fire Control & Rescue Service District:

1. 29-43-27-00-00005.0000
2. 29-43-27-00-00012.0060
3. 30-43-27-00-00001.0190

The district may request a Fire Department Service Delivery Concurrency Evaluation, Ch. 15 of the Florida Fire Prevention Code, NFPA 1. Also, a pressurized water supply for fire protection.

Please feel free to contact me if you have any questions or concerns.

Respectfully,

Brandon Kuhn, Fire Chief

2660 Styles Road Alva, Florida 33920

Office: (239) 728-2223 Fax: (239) 728-2231

Carmine Marceno
Sheriff

"Proud to Serve"

State of Florida
County of Lee

May 11, 2022

Rhea Lopes
RVi Planning + Landscape Architecture
10401 Highland Manor Drive, Suite 220
Tampa, FL 33610

Ms. Lopes,

The Lee County Sheriff's Office has reviewed your Comprehensive Plan Amendment request to change the Future Land Use designation of three parcels totaling 192.3+/- acres along Palm Beach Boulevard at its intersection with Bateman Road.

The proposed Large-Scale Comprehensive Plan Map and Text Amendments would change the properties' Future Land Use designation from Urban Community and Rural to Urban Community and Sub-Outlying Suburban. It also would allow for a maximum of 794 dwelling units and 30,000 SF of commercial. The property would be added to the Lee County Utilities, Future Water Service Areas.

This proposed change will not impact our Agency's ability to provide law enforcement services to this community. Services will be provided from our East District offices in Lehigh Acres. As this development builds out, we will factor its impact into our annual manpower review and make adjustments accordingly. At the time of application for a Development Order or building permit, we request that the applicant provide a Crime Prevention Through Environmental Design (CPTED) report done by the applicant and given to the Lee County Sheriff's Office for review and comment.

Please contact Community Response Unit Crime Prevention Practitioner Beth Schell at (239) 477-1677 with any questions regarding the CPTED study.

Respectfully,

Stan Nelson

Stan Nelson
Director, Planning and Research

Lee County
Southwest Florida
BOARD OF COUNTY COMMISSIONERS

3401 Metro Parkway
Fort Myers, FL 33901
Phone: (239) 533-0340

Kevin Ruane
District One

Cecil L. Pendergrass
District Two

Ray Sandelli
District Three

Brian Hamman
District Four

Frank Mann
District Five

Roger Desjarlais
County Manager

Richard Wesch
County Attorney

Donna Marie Collins
County Hearing Examiner

May 18, 2022

Rhea Lopes
RVI Planning + Landscape Architecture
10401 Highland Manor Drive, Suite 220
Tampa, FL 33610

RE: **Caloosa 80**
Request for Letter of Service Availability

Ms. Lopes,

LeeTran has reviewed your request for service availability in regards to the proposed Comprehensive Plan Amendments. After reviewing the site and comparing the location with our existing and planned route locations according to the 2020 Transit Development Plan (TDP), the following has been determined:

- Subject area is not within one-quarter mile of a fixed-route corridor
- Closest bus stop is not within one-quarter mile of a bus stop
- The 2020 TDP does not identify the need for enhanced or additional transit services in the area

Proposed future development does not currently meet applicability outlined in Sec. 10-442 and Sec. 10-443. Developer will not be required to connect to and improve transit facilities because planning action does not trigger relevant Lee County Land Development Code.

If transit services have been modified within one-quarter mile of the subject parcels at time of a DO or LDO type D submittal, necessary improvements will be determined at that time.

If you have any questions or require further information, please do not hesitate to contact me at (239) 533-0340 or jpuente@leegov.com.

Sincerely,

Jorge J Puente

Jorge J Puente, Transit Service Planner
Lee County Transit

Lee County
Southwest Florida

Board of County Commissioners

Kevin Ruane
District One

Cecil L Pendergrass
District Two

Ray Sandelli
District Three

Brian Hamman
District Four

Frank Mann
District Five

Roger Desjarlais
County Manager

Richard Wm. Wesch
County Attorney

Donna Marie Collins
County Hearing Examiner

May 12, 2022

Rhea Lopes
Project Manager
RVI Planning + Landscape Architecture
10401 Highland Manor Drive, Suite 220
Tampa, FL 33610

Re: Caloosa 80 – Comprehensive Plan Amendment
Letter of Service Availability

Dear Miss Lopes,

In April 2014, the Lee County Board of County Commissioners adopted a comprehensive plan amendment eliminating concurrency requirements for transportation and parks, and moved both from regulatory to non-regulatory standards. In light of this, we do not have the authority to deny your request based on parks service availability.

That being said, the below numbers represent the current required and available acreages for regional and community park land as set forth by the requirements of Policy 95.1.3 in *The Lee Plan*. The Department's available capacity meets the current adopted level-of-service standard, and is projected to meet the adopted level-of-service standard for at least the next five years.

Required Capacity – 5,316 acres of regional parks and 295 acres of community parks
Available Capacity – 7,064 acres of regional parks and 832 acres of community parks

Please feel free to contact me directly at (239) 533-7428 or ARegnaert@leegov.com if you have further questions.

Sincerely,

Armand Regnaert
Senior Planner
Lee County Parks & Recreation
3410 Palm Beach Blvd
Fort Myers, FL 33916

THE SCHOOL DISTRICT OF LEE COUNTY

Jacqueline Heredia
District Planning Specialist
2855 Colonial Boulevard, Fort Myers, FL 33966 | **O:** 239.335.1494

May 18, 2022

Rhea Lopes

RE: Caloosa 80

Dear Rhea Lopes:

This letter is in response to your request for concurrency review dated March 31, 2022 for the subject property in Caloosa 80 in regard to educational impact. This project is located in South choice Zone.

This development is a request for 794 mobile housing units. With regard to the inter-local agreement for school concurrency the generation rates are created from the type of dwelling unit and further broken down by grade level.

For multi-family homes, the generation rate is .116 and further broken down by grade level into the following, .149 for elementary, .0071 for middle and .077 for high. A total of 0 school-aged children would be generated and utilized for the purpose of determining sufficient capacity to serve the development.

The Concurrency Analysis attached, displays the impact of this development. Capacity is an issue within the Concurrency Service Area (CSA) at the elementary school level, however, capacity is available in the adjacent CSA.

Thank you and if I may be of further assistance, please contact me at 239-335-1494

Sincerely,

Jacqueline Heredia, District Planning Specialist

BOARD MEMBERS **MARY FISCHER,** Chair, District 1 | **DEBBIE JORDAN,** Vice Chair, District 4 | **GWYNETTA S. GITTENS,** District 5
CHRIS N. PATRICCA, District 3 | **MELISA W. GIOVANNELLI,** District 2 | **BETSY VAUGHN,** District 6 | **CATHLEEN O'DANIEL MORGAN,** District 7
GREGORY K. ADKINS, Ed.D., Superintendent | **ALAN L. GABRIEL, ESQ.,** Board Attorney

LEE COUNTY SCHOOL DISTRICT'S SCHOOL CONCURRENCY ANALYSIS

REVIEWING AUTHORITY	Lee County School District
NAME/CASE NUMBER	
OWNER/AGENT	RVI Planning + Landscape Architecture
ITEM DESCRIPTION	Rezoning
LOCATION	Caloosa 80
ACRES	192.00
CURRENT FLU	
CURRENT ZONING	MPD

PROPOSED DWELLING UNITS BY TYPE

Single Family	Multi Family	Mobile Home
		794

	Student Generation Rates			
STUDENT GENERATION	**SF**	**MF**	**MH**	**Projected Students**
Elementary School	0.149	0.058		0.00
Middle School	0.071	0.028		0.00
High School	0.077	0.03		0.00

Source: Lee County School District, September 8, 2018 letter

CSA SCHOOL NAME 2022/23	**CSA Capacity (1)**	**CSA Projected Enrollment (2)**	**CSA Available Capacity**	**Projected Impact of Project**	**Available Capacity W/Impact**	**LOS is 100% Perm FISH Capacity**	**Adjacent CSA Available Capacity w/Impact**
South CSA, Elementary	14,234	14,026	208	0	208	99%	
South CSA, Middle	7,293	6,912	381	0	381	95%	
South CSA, High	9,536	8,492	1,044	0	1044	89%	

(1) Permanent Capacity as defined in the Interlocal Agreement and adopted in the five (5) years of the School District's Five Year Plan

(2) Projected Enrollment per the five (5) years of the School District's Five Year Plan plus any reserved capacity (development has a valid finding of capacity)

(3) Available Adjacent CSA capacity is subject to adjacency criteria as outlined in the Interlocal Agreement and the School District's School Concurrency Manual

Prepared by: Jacqueline Heredia, District Planning Specialist

Lee County
Southwest Florida

Board of County Commissioners

Kevin Ruane
District One

Cecil L Pendergrass
District Two

Ray Sandelli
District Three

Brian Hamman
District Four

Frank Mann
District Five

Roger Desjarlais
County Manager

Richard Wm. Wesch
County Attorney

Donna Marie Collins
County Hearing Examiner

May 12, 2022

RVI Planning + Landscape Architecture
Attn: Rhea Lopes, Project Manager
10401 Highland Manor Dr, Suite 220
Tampa, FL 33610

Subject: Caloosa 80 – Comprehensive Plan Amendment

Letter of Service Availability (Revised Request)

Dear Ms. Lopes:

The Lee County Solid Waste Department is capable of providing solid waste collection service for the planned 794 dwelling units for Caloosa 80 LLP located along Palm Beach Boulevard (SR 80), at its intersection with Bateman Road through our franchised hauling contractors. Disposal of the solid waste from this development will be accomplished at the Lee County Resource Recovery Facility and the Lee-Hendry Regional Landfill. Plans have been made, allowing for growth, to maintain long-term disposal capacity at these facilities.

Please review Lee County Land Development Code, Chapter 10, Section 261, with requirements for on-site space for placement and servicing of solid waste containers. Solid Waste Ordinance (11-27) defines those residential dwelling units that are eligible to receive curbside residential collection service and requirements for those as multi-family and/or commercial dwellings. It further establishes that Property Owners will be responsible for all future applicable solid waste assessments and fees.

If you have any questions, please call me at (239) 533-8007.

Sincerely,

Justin Lighthall

Justin Lighthall
Manager, Public Utilities
Lee County Solid Waste Department

Lee County
Southwest Florida

BOARD OF COUNTY COMMISSIONERS

Kevin Ruane
District One

Cecil L Pendergrass
District Two

Ray Sandelli
District Three

Brian Hamman
District Four

Frank Mann
District Five

Roger Desjarlais
County Manager

Richard Wesch
County Attorney

Donna Marie Collins
Chief Hearing Examiner

April 15, 2022

Via E-Mail

Rhea Lopes
RVi Planning + Landscape Architecture
10401 Highland Manor Dr., Suite 220
Tampa, FL 33610

RE: WATER AND SANITARY SEWER AVAILABILITY
Caloosa 80
Strap #s: 29-43-27-00-00005.0000, 29-43-27-00-00012.0060, and 30-43-27-00-00001.0190

Dear Ms. Lopes:

The subject parcels are not located within Lee County Utilities Future Water and Sewer Service Areas as depicted on Maps 4A and 4B of the Lee County Comprehensive Land Use Plan. Sanitary Sewer mains are about 3.5 miles west of the parcel on Palm Beach Blvd. Water mains are available about 2.25 miles west on Palm Beach Blvd. In order to provide service to the parcel, developer funded system enhancements such as line extensions are required.

Lee County Utilities presently has sufficient capacity to provide water and sewer service. Availability of water and sewer service is contingent upon final acceptance of the infrastructure constructed by the developer. Upon completion and final acceptance of this project, sewer service is provided by the CFM Central Water Reclamation Facility. Water service is provided by the North Lee County and Olga Water Treatment Plants.

This letter is not a commitment to serve, but only an availability of service. Lee County Utilities will commit to serve only upon receipt of all appropriate connection fees, a signed request for service, and the approval of all State and local regulatory agencies.

Further, this letter of availability of water and sewer service is for comprehensive plan amendment purposes only.

Sincerely,

Nathan Beals, PMP
Senior Manager
(239) 533-8157
LEE COUNTY UTILITIES

Rhea Lopes

From: Beals, Nathan <NBeals@leegov.com>
Sent: Wednesday, May 18, 2022 10:19 AM
To: Rhea Lopes
Subject: RE: Caloosa 80 - Utilities Letter of Service Availability

Rhea,

I was just going to draft a new letter but the letter I provided in April doesn't specify flows. I don't think an update is needed unless you want today's date on it.

Let me know.

Thanks,

Lee County Utilities

Nathan Beals | Planning and New Development Manager
Lee County Utilities
1500 Monroe St., First Floor, Fort Myers, FL 33901
office: (239) 533-8157
cell: (239) 822-3050
email: nbeals@leegov.com
web: www.leegov.com
Connect With Us On Social Media

From: Rhea Lopes <rlopes@rviplanning.com>
Sent: Wednesday, May 18, 2022 9:32 AM
To: Beals, Nathan <NBeals@leegov.com>
Subject: [EXTERNAL] RE: Caloosa 80 - Utilities Letter of Service Availability
Importance: High

Good morning Nathan,

Hope you are doing well. I was writing to follow up regarding this request. We are looking to submit our application to the County soon and would appreciate receiving your response as soon as possible.

Please let me know if you need any further information.

I greatly appreciate your time.

Thank you,
Rhea Lopes
Project Manager

RVi Planning + Landscape Architecture
10401 Highland Manor Dr, Suite 220 • Tampa FL 33610
607.216.2390 Mobile • 813.443.8282 Main
www.rviplanning.com

From: Rhea Lopes
Sent: Wednesday, May 11, 2022 3:55 PM
To: Beals, Nathan <NBeals@leegov.com>
Subject: RE: Caloosa 80 - Utilities Letter of Service Availability

Good afternoon Nathan,

Hope you are doing well. I am writing to request for an updated Letter of Service Availability for this project. We have made minor updates to the proposed project based on discussions with Lee County staff and updated information available for the site. The details are included in the attached request.

The main changes to the request include:

- Update to the project area from 194.86 to 192.3 acres.
- Update to the maximum number of dwelling units from 798 to 794 based on the change in acreage and corresponding population estimate change.
- Increase commercial entitlements from 20,000 SF to 30,000 SF, to submit a rezoning request to Mixed Use Planned Development (MPD).

Please let me know if any questions or if you need any additional information. I appreciate your time and look forward to hearing from you.

Thank you,
Rhea Lopes
Project Manager

RVi Planning + Landscape Architecture
10401 Highland Manor Dr, Suite 220 • Tampa FL 33610
607.216.2390 Mobile • 813.443.8282 Main
www.rviplanning.com

From: Beals, Nathan <NBeals@leegov.com>
Sent: Friday, April 15, 2022 1:37 PM
To: Rhea Lopes <rlopes@rviplanning.com>
Cc: Alexis Crespo <acrespo@rviplanning.com>
Subject: RE: Caloosa 80 - Utilities Letter of Service Availability

Rhea,

Sorry for the delay, yesterday got away from me.

Let me know if you have any questions.

Thanks,



Lee County
Utilities

Nathan Beals | Planning and New Development Manager
Lee County Utilities
1500 Monroe St., First Floor, Fort Myers, FL 33901
office: (239) 533-8157
cell: (239) 822-3050
email: nbeals@leegov.com
web: www.leegov.com
Connect With Us On Social Media



From: Rhea Lopes <rlopes@rviplanning.com>
Sent: Thursday, April 14, 2022 12:45 PM
To: Beals, Nathan <NBeals@leegov.com>
Cc: Alexis Crespo <acrespo@rviplanning.com>
Subject: [EXTERNAL] RE: Caloosa 80 - Utilities Letter of Service Availability

Thank you Nate, I appreciate it.

Rhea Lopes
Project Manager

RVi Planning + Landscape Architecture
10401 Highland Manor Dr, Suite 220 • Tampa FL 33610
607.216.2390 Mobile • 813.443.8282 Main
www.rviplanning.com

From: Beals, Nathan <NBeals@leegov.com>
Sent: Thursday, April 14, 2022 12:43 PM
To: Rhea Lopes <rlopes@rviplanning.com>
Cc: Alexis Crespo <acrespo@rviplanning.com>
Subject: RE: Caloosa 80 - Utilities Letter of Service Availability

Rhea,

Thank you for the reminder, I'll get this done this afternoon.

Thanks,

Lee County Utilities

Nathan Beals | Planning and New Development Manager
Lee County Utilities
1500 Monroe St., First Floor, Fort Myers, FL 33901
office: (239) 533-8157
cell: (239) 822-3050
email: nbeals@leegov.com
web: www.leegov.com
Connect With Us On Social Media

From: Rhea Lopes <rlopes@rviplanning.com>
Sent: Wednesday, April 13, 2022 5:00 PM
To: Beals, Nathan <NBeals@leegov.com>
Cc: Alexis Crespo <acrespo@rviplanning.com>
Subject: [EXTERNAL] RE: Caloosa 80 - Utilities Letter of Service Availability

Good afternoon Nate,

Hope you are doing well. I am writing to follow up on this letter of service availability request. Please let me know if you need any further information.

Thank you,
Rhea Lopes
Project Manager

RVi Planning + Landscape Architecture
10401 Highland Manor Dr, Suite 220 • Tampa FL 33610
607.216.2390 Mobile • 813.443.8282 Main
www.rviplanning.com

From: Keyes, Pamela <PKeyes@leegov.com>
Sent: Thursday, March 31, 2022 10:17 AM
To: Beals, Nathan <NBeals@leegov.com>; Rhea Lopes <rlopes@rviplanning.com>
Cc: Alexis Crespo <acrespo@rviplanning.com>
Subject: FW: Caloosa 80 - Utilities Letter of Service Availability

Good morning,

I've copied Nate Beals on this email for his review.

Pam

Pam Keyes, P.E.
Lee County Utilities | p: 239-533-8544

From: Rhea Lopes <rlopes@rviplanning.com>
Sent: Thursday, March 31, 2022 9:53 AM
To: Keyes, Pamela <PKeyes@leegov.com>
Cc: Alexis Crespo <acrespo@rviplanning.com>
Subject: [EXTERNAL] Caloosa 80 - Utilities Letter of Service Availability

Good morning Ms. Keyes,

Please find attached a request for Lee County Utilities Letter of Service Availability. This is in reference to a project, Caloosa 80, located along SR 80 in Lee County. The Property Owner is filing a Comprehensive Plan Map Amendment. Specific details are included in the attached request.

Please let me know if you need any additional information. I appreciate your time.

Thank you,
Rhea Lopes
Project Manager

RVi Planning + Landscape Architecture
10401 Highland Manor Dr, Suite 220 • Tampa FL 33610
607.216.2390 Mobile • 813.443.8282 Main
www.rviplanning.com

External Email: Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Receive updates from Lee County Government by subscribing to our newsletter

Please note: Florida has a very broad public records law. Most written communications to or from County Employees and officials regarding County business are public records available to the public and media upon request. Your email communication may be subject to public disclosure.

Under Florida law, email addresses are public records. If you do not want your email address released in response to a public records request, do not send electronic mail to this entity. Instead, contact this office by phone or in writing.

Links contained in this email have been replaced. If you click on a link in the email above, the link will be analyzed for known threats. If a known threat is found, you will not be able to proceed to the destination. If suspicious content is detected, you will see a warning.
External Email: Do not click any links or open any attachments unless you trust the sender and know the content is safe.

External Email: Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Links contained in this email have been replaced. If you click on a link in the email above, the link will be analyzed for known threats. If a known threat is found, you will not be able to proceed to the destination. If suspicious content is detected, you will see a warning.
External Email: Do not click any links or open any attachments unless you trust the sender and know the content is safe.

External Email: Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Links contained in this email have been replaced. If you click on a link in the email above, the link will be analyzed for known threats. If a known threat is found, you will not be able to proceed to the destination. If suspicious content is detected, you will see a warning.
External Email: Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Links contained in this email have been replaced. If you click on a link in the email above, the link will be analyzed for known threats. If a known threat is found, you will not be able to proceed to the destination. If suspicious content is detected, you will see a warning.

Proposed Text Changes

TABLE 1(b)
YEAR 2045 ALLOCATIONS

Future Land Use Category		Unincorporated County	Planning District									
			District 1 Northeast Lee County	District 2 Boca Grande	District 3 Bonita	District 4 Fort Myers Shores	District 5 Burnt Store	District 6 Cape Coral	District 7 Captiva	District 8 Fort Myers	District 9 Fort Myers Beach	District 10 Gateway / Airport
Residential By Future Land Use Category	Intensive Development	1,483	-	-	-	17	-	21	-	238	-	-
	Central Urban	13,838	-	-	-	207	-	-	-	230	-	25
	Urban Community	22,739	813	453	-	475	-	-	-	-	-	150
	Suburban	14,913	-	-	-	1,950	-	-	-	80	-	-
	Outlying Suburban	3,648	25	-	-	490	13	3	429	-	-	-
	Sub-Outlying Suburban	1,731	93 -	-	-	330	-	-	-	-	-	227
	Commercial	-	-	-	-	-	-	-	-	-	-	-
	Industrial	15	-	-	-	-	-	-	-	-	-	6
	Public Facilities	-	-	-	-	-	-	-	-	-	-	-
	University Community	503	-	-	-	-	-	-	-	-	-	-
	Destination Resort Mixed Use Water Dependent	8	-	-	-	-	-	-	-	-	-	-
	Burnt Store Marina Village	2	-	-	-	-	2	-	-	-	-	-
	Industrial Interchange	-	-	-	-	-	-	-	-	-	-	-
	General Interchange	114	-	-	-	-	-	-	-	-	-	15
	General Commercial Interchange	-	-	-	-	-	-	-	-	-	-	-
	Industrial Commercial Interchange	-	-	-	-	-	-	-	-	-	-	-
	University Village Interchange	-	-	-	-	-	-	-	-	-	-	-
	New Community	2,104	1,115	-	-	-	-	-	-	-	-	989
	Airport	-	-	-	-	-	-	-	-	-	-	-
	Tradeport	3	-	-	-	-	-	-	-	-	-	3
	Rural	7,764	2338 ~~2,431~~	-	-	800	730	-	-	-	-	-
	Rural Community Preserve	3,517	-	-	-	-	-	-	-	-	-	-
	Coastal Rural	1,338	-	-	-	-	-	-	-	-	-	-
	Outer Island	233	2	4	-	1	-	-	169	-	-	-
	Open Lands	2,186	153	-	-	-	257	-	-	-	-	-
	Density Reduction/ Groundwater Resource	6,974	131	-	-	-	-	-	-	-	-	-
	Conservation Lands Upland	-	-	-	-	-	-	-	-	-	-	-
	Wetlands	-	-	-	-	-	-	-	-	-	-	-
	Conservation Lands Wetland	-	-	-	-	-	-	-	-	-	-	-
Unincorporated County Total Residential		**83,113**	**4,669**	**457**	**-**	**4,270**	**1,002**	**24**	**598**	**548**	**-**	**1,415**
Commercial		**8,916**	**300**	**53**	**-**	**450**	**27**	**9**	**125**	**150**	**-**	**1,216**
Industrial		**4,787**	**30**	**3**	**-**	**300**	**10**	**15**	**70**	**315**	**-**	**2,134**
Non Regulatory Allocations												
Public		**120,211**	**14,191**	**622**	**-**	**4,864**	**7,323**	**6**	**2,340**	**583**	**-**	**9,660**
Active AG		**21,944**	**5,500**	**-**	**-**	**240**	**90**	**-**	**-**	**-**	**-**	**2**
Passive AG		**13,685**	**5,500**	**-**	**-**	**615**	**100**	**-**	**-**	**-**	**-**	**485**
Conservation		**87,746**	**2,458**	**297**	**-**	**1,163**	**3,186**	**67**	**1,595**	**926**	**-**	**2,206**
Vacant		**26,118**	**1,145**	**28**	**-**	**733**	**766**	**8**	**103**	**17**	**-**	**88**
Total		**366,520**	**33,793**	**1,460**	**-**	**12,634**	**12,505**	**129**	**4,831**	**2,538**	**-**	**17,205**
Population Distribution (unincorporated Lee County)		**584,331**	**8,235**	**1,470**	**-**	**35,253**	**2,179**	**152**	**725**	**5,273**	**-**	**22,281**

November 2021 (Ord. No. 02-02, 03-19, 05-19, 07-13, 09-15, 09-16, 10-15, 10-16, 10-40, 10-43, 14-14, 15-10, 16-02, 16-17, 17-12, 17-23, 18-06, 19-13, 19-14, 19-16, 20-05, 21-03, 21-09)
Printed 11/06/2021

TABLE 1(b)
YEAR 2045 ALLOCATIONS

	Future Land Use Category	Planning District											
		District 11 Daniels Parkway	District 12 Iona / McGregor	District 13 San Carlos	District 14 Sanibel	District 15 South Fort Myers	District 16 Pine Island	District 17 Lehigh Acres	District 18 Southeast Lee County	District 19 North Fort Myers	District 20 Buckingham	District 21 Estero	District 22 Bashore
Residential By Future Land Use Category	Intensive Development	-	-	-	-	801	1	30	-	376	-	-	-
	Central Urban	-	656	20	-	3,113	-	7,362	-	2,225	-	-	-
	Urban Community	-	978	1,318	-	863	540	17,034	-	-	115	-	-
	Suburban	-	2,566	2,069	-	1,202	659	-	-	6,387	-	-	-
	Outlying Suburban	1,253	438	-	-	-	502	-	-	406	-	90	-
	Sub-Outlying Suburban	-	-	13	-	-	-	-	-	145	66	-	950
	Commercial	-	-	-	-	-	-	-	-	-	-	-	-
	Industrial	-	3	3	-	3	-	-	-	-	-	-	-
	Public Facilities	-	-	-	-	-	-	-	-	-	-	-	-
	University Community	-	-	503	-	-	-	-	-	-	-	-	-
	Destination Resort Mixed Use Water Dependent	-	8	-	-	-	-	-	-	-	-	-	-
	Burnt Store Marina Village	-	-	-	-	-	-	-	-	-	-	-	-
	Industrial Interchange	-	-	-	-	-	-	-	-	-	-	-	-
	General Interchange	58	-	-	-	-	-	-	8	14	-	-	20
	General Commercial Interchange	-	-	-	-	-	-	-	-	-	-	-	-
	Industrial Commercial Interchange	-	-	-	-	-	-	-	-	-	-	-	-
	University Village Interchange	-	-	-	-	-	-	-	-	-	-	-	-
	New Community	-	-	-	-	-	-	-	-	-	-	-	-
	Airport	-	-	-	-	-	-	-	-	-	-	-	-
	Tradeport	-	-	-	-	-	-	-	-	-	-	-	-
	Rural	1,573	-	99	-	-	227	14	-	454	50	-	1,387
	Rural Community Preserve	-	-	-	-	-	-	-	-	-	3,517	-	-
	Coastal Rural	-	-	-	-	-	1,338	-	-	-	-	-	-
	Outer Island	-	2	-	-	-	55	-	-	-	-	-	-
	Open Lands	80	-	-	-	-	-	-	-	30	-	-	1,667
	Density Reduction/ Groundwater Resource	-	-	-	-	-	-	-	4,742	-	-	-	2,101
	Conservation Lands Upland	-	-	-	-	-	-	-	-	-	-	-	-
	Wetlands	-	-	-	-	-	-	-	-	-	-	-	-
	Conservation Lands Wetland	-	-	-	-	-	-	-	-	-	-	-	-
	Unincorporated County Total Residential	**2,964**	**4,650**	**4,024**	**-**	**5,982**	**3,322**	**24,440**	**4,750**	**10,035**	**3,748**	**90**	**6,125**
	Commercial	**326**	**774**	**938**	**-**	**2,012**	**288**	**900**	**118**	**1,121**	**19**	**18**	**72**
	Industrial	**5**	**198**	**387**	**-**	**566**	**67**	**218**	**215**	**244**	**4**	**2**	**4**
Non Regulatory Allocations													
	Public	**3,214**	**4,898**	**6,364**	**-**	**5,883**	**4,831**	**20,267**	**17,992**	**10,117**	**3,052**	**653**	**3,351**
	Active AG	**5**	**13**	**5**	**-**	**-**	**2,780**	**35**	**12,000**	**90**	**630**	**4**	**550**
	Passive AG	**10**	**-**	**5**	**-**	**-**	**70**	**50**	**2,500**	**250**	**2,000**	**-**	**2,100**
	Conservation	**1,677**	**9,786**	**2,232**	**-**	**211**	**15,489**	**1,077**	**41,028**	**1,607**	**382**	**1,465**	**895**
	Vacant	**20**	**55**	**158**	**-**	**4**	**2,200**	**14,804**	**2,400**	**1,183**	**850**	**130**	**1,425**
	Total	**8,221**	**20,374**	**14,114**	**-**	**14,658**	**29,047**	**61,791**	**81,003**	**24,649**	**10,684**	**2,362**	**14,523**
	Population Distribution (unincorporated Lee County)	**14,322**	**44,132**	**54,615**	**-**	**76,582**	**13,431**	**162,245**	**17,369**	**110,722**	**5,951**	**741**	**8,653**

Caloosa 80 CPA & MPD Rezone
Community Meeting Summary

Caloosa 80, LLP (Applicant) and their consultant team hosted a public information meeting at the Alva Community Center, 21471 N River Rd., Alva, FL 33920, at 7:00 p.m., on Tuesday, December 13, 2022, and a follow up meeting on Tuesday, February 14, 2023, as part of the Alva, Inc. monthly meeting. The meetings wer held for the proposed Comprehensive Plan Amendment and Mixed Use Planned Development rezone applications, CPA2022-00018 and DCI2022-00062, respectively.

Alexis Crespo (Agent) and Stan Whitcomb (Applicant) welcomed attendees, introduced the project, and, together with the Applicant and consultant team, presented a PowerPoint presentation attached as Exhibit "D".

The Applicant explained the proposed development will include 783 RV units and 30,000 SF of neighborhood commercial uses with a maximum height of 35 feet. The Master Concept Plan was also displayed and proposed uses, access, preserve areas. The proposed accessory "casitas" were explained. It was noted the preserve areas were strategically placed along the perimeter of the project to maintain the views of native vegetation from SR 80 and adjacent lands. It was also noted that access to Bateman Road would remain emergency access only. After the presentation the Applicant opened the floor for attendees to ask questions and make comments.

Comments raised from attendees included the following topics:

- Concern regarding increased density of RVs and the number of RV projects in the vicinity
- Questions regarding the "class" of RVs to ensure the project would not be low-income.
- Concern regarding park models or trailers within the project, to which the Applicant confirmed park models are not requested
- Concern regarding traffic generated by the proposed increase in RVs
- Concern that extending Lee County Utilities to the site will open the door to more intense development in Alva.
- The request was made to consider preservation in the SW corner of the site adjacent to the 20/20 preserve.
- Concern regarding protection of rural character and commercial uses located outside of the Alva core at SR 80 and Broadway.

At the following meeting on February 14th, the Applicant provided a more detailed PowerPoint presentation outlining the proposed project. It was noted that the RV lot count was reduced down to 700 RVs. More details were provided relating to the proposed neighborhood commercial component. Attendees were provided contact information and it was noted that multiple opportunities for public input remained through the public hearing process.

Caloosa 80
CPA2022-00017 & DCI2022-00062
North Olga Community Meeting Summary

Caloosa 80, LLP (Applicant) and their consultant team hosted a public information meeting at the corner of North River Road and North Olga Drive in Alva, FL 33920 (within the boundaries of the North Olga Community Planning Area boundaries), at 10:00 a.m., on Friday, January 19, 2024. The meeting was held for the proposed Comprehensive Plan Amendment and Mixed Use Planned Development rezone applications, CPA2022-00018 and DCI2022-00062, respectively. The meeting was advertised in the News Press as Exhibit A. Approximately 9 people were in attendance per the Sign In Sheet, Exhibit B.

Alexis Crespo (Agent) and Stan Whitcomb (Applicant) welcomed attendees, introduced the project, and presented the proposed Master Concept Plan and Comprehensive Plan Amendment attached as Exhibit C.

The Applicant explained the proposed development will include a maximum of 700 RV units and 30,000 SF of neighborhood commercial uses with a maximum height of 35 feet. The Master Concept Plan was also displayed and proposed uses, access, preserve areas. The proposed accessory "casitas" were explained. It was noted the preserve areas were strategically placed along the perimeter of the project to maintain the views of native vegetation from SR 80 and adjacent lands. It was also noted that access to Bateman Road would remain emergency access only. After the presentation the Applicant opened the floor for attendees to ask questions and make comments.

Comments raised from attendees included the following topics:

- Concern regarding increased density of RVs and the number of RV projects in the vicinity
- Questions regarding the "class" of RVs to ensure the project would not be low-income.
- Concern regarding traffic generated by the proposed increase in RVs
- Concern that extending Lee County Utilities to the site will open the door to more intense development in Alva.
- The request was made to consider preservation in the SW corner of the site adjacent to the 20/20 preserve.
- Concern regarding protection of rural character and commercial uses located outside of the Alva core at SR 80 and Broadway.

Attendees were provided contact information and it was noted that the Applicant will examine ways to address the comments in the plan.

LocaliQ
Florida
GANNETT

PO Box 631244 Cincinnati, OH 45263-1244

PROOF OF PUBLICATION

_ DEFAULT
RVI Planning, Inc
28100 Bonita Grande DR # 305
Bonita Springs FL 34135-6221

STATE OF WISCONSIN, COUNTY OF BROWN

Before the undersigned authority personally appeared, who on oath says that he or she is the Legal Advertising Representative of the News-Press, a daily newspaper published at Fort Myers in Lee County, Florida; that the attached copy of advertisement, being a Legal Ad in the matter of Public Notices, was published on the publicly accessible website of Lee County, Florida, or in a newspaper by print in the issues of, on:

01/11/2024

Affiant further says that the website or newspaper complies with all legal requirements for publication in chapter 50, Florida Statutes.
Subscribed and sworn to before me, by the legal clerk, who is personally known to me, on 01/11/2024

Legal Clerk

Notary, State of WI, County of Brown

1-7-25
My commision expires

Publication Cost:	$143.96		
Order No:	9725641	# of Copies:	
Customer No:	1126761	1	
PO #:			

THIS IS NOT AN INVOICE!

Please do not use this form for payment remittance.

KATHLEEN ALLEN
Notary Public
State of Wisconsin

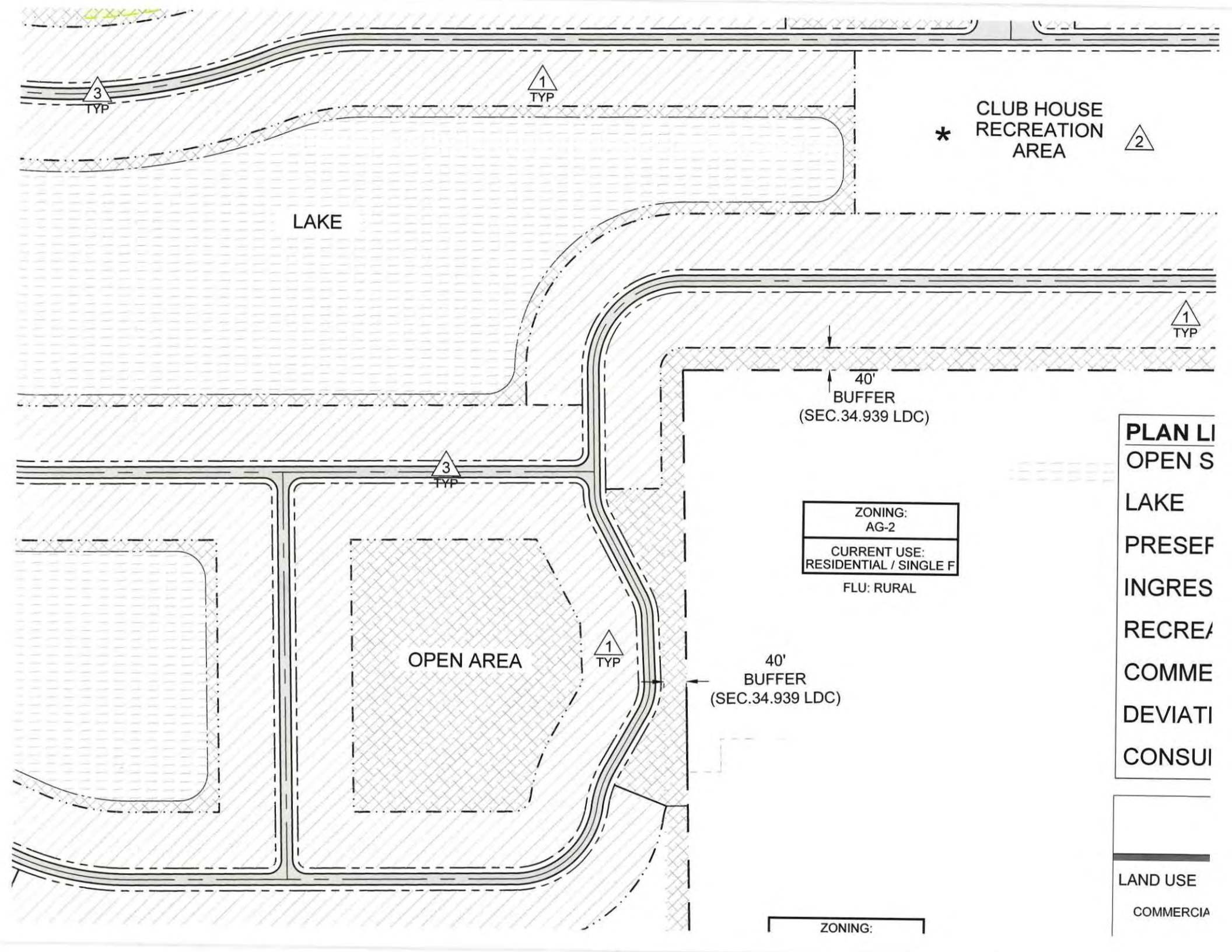
NOTICE OF PUBLIC INFORMATION MEETING

DATE: Friday, January 19, 2024
TIME: 10:00 AM
ADDRESS: Intersection of River Road/N. Olga Drive, Alva, FL 33920
In accordance with the Northeast Lee County Community Requirements of the Lee County Land Development Code, the Applicant, Caloosa 80, LLP will be presenting information to the public on the following request:
The request is to rezone the 192+/- acre Property from Recreational Vehicle Planned Development (RVPD) to Mixed Use Planned Development (MPD) to allow for a maximum of 700 RV lots, 30,000 SF of commercial retail, private on-site recreational uses, and supportive infrastructure. The maximum building height is 35 feet. The site will connect to centralized water and sewer services. A companion Comprehensive Plan Amendment will include 93+/-acre of the subject Property in the Sub-Outlying Suburban future land use category, and include the site on the Lee County Future Water Services Area Map (Map 4A) and the Future Sewer Service Area Map (Map 4B).
For questions, please contact:
Alexis Crespo, AICP
RVi Planning + Landscape Architecture
28100 Bonita Grande Drive, Suite 305, Bonita Springs, FL 34135
(239) 850-8525 or acrespo@rviplanning.com
Jan. 11, 2024 #9725641

CALOOSA 80

NEIGHBORHOOD WORKSHOP
JANUARY 19, 2024

Name	Address	E-Mail Address (PLEASE PRINT CLEARLY)
Tom Mulling		
Cheri Mulling		cherim1476@aol.com
Steve Shattler		steven.shattler@myfwci.com
Derek Felder		
Denise Eberle		EENJsouth@aol.com
Duane Howdeshalat		Interlochen care
J Tanks Whitesel		JTANW@WHITEGROUP.NET


3 TYP
1 TYP
CLUB HOUSE
RECREATION
AREA
2
LAKE
1 TYP
40'
BUFFER
(SEC.34.939 LDC)
3 TYP
ZONING:
AG-2
CURRENT USE:
RESIDENTIAL / SINGLE F
FLU: RURAL
OPEN AREA
1 TYP
40'
BUFFER
(SEC.34.939 LDC)
PLAN LI
OPEN S
LAKE
PRESEF
INGRES
RECREA
COMME
DEVIATI
CONSUI
LAND USE
COMMERCIA
ZONING:

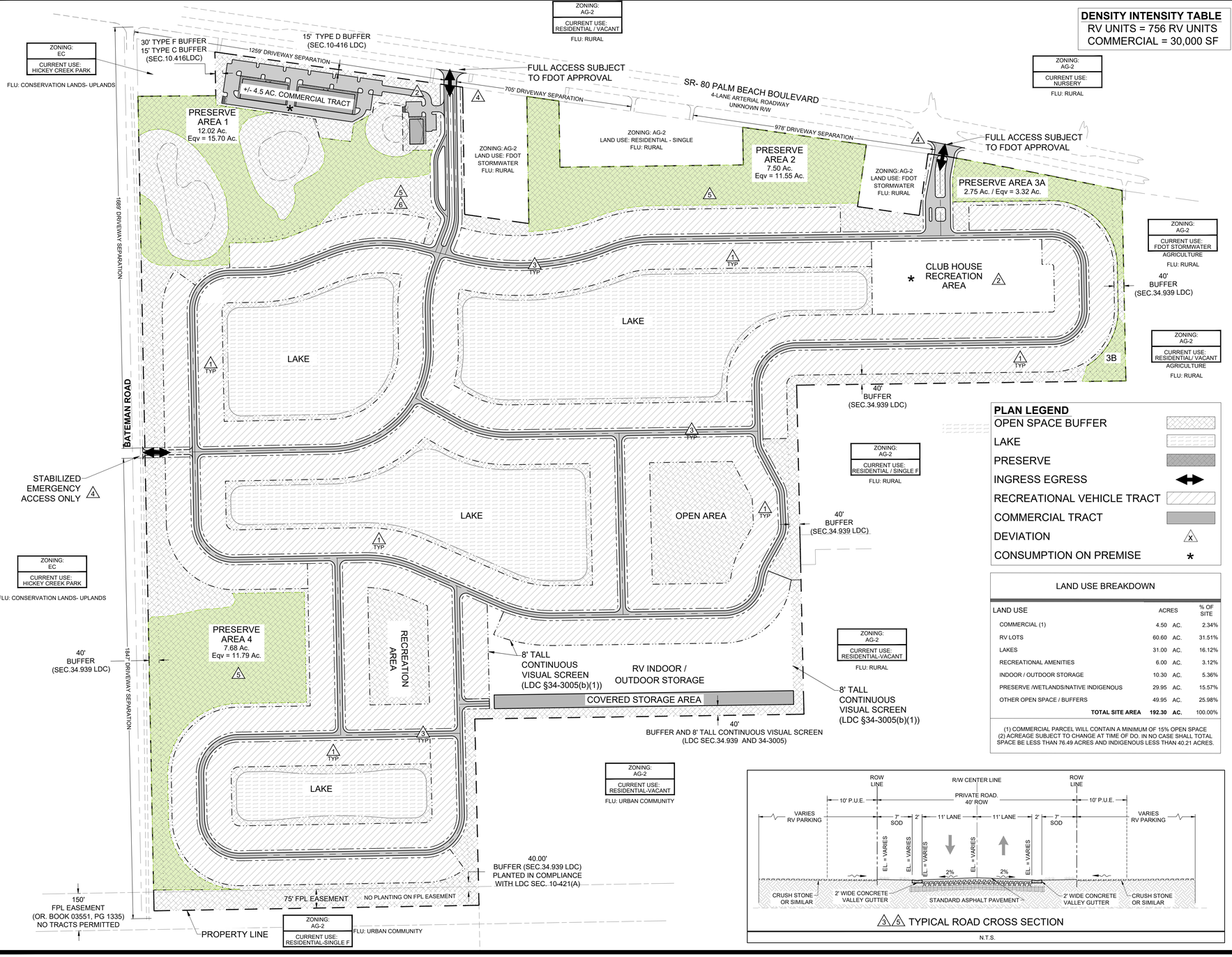

SITE
EA OF MINIMAL
HAZARD
UNINCO


PROPE
SITE
INSURANCE
ZONE X
Little Ln

CALOOSA 80 MPD

LOCATED IN SECTION 29 & 30, TOWNSHIP 43-S, RANGE 27-E, LEE COUNTY, FLORIDA

MASTER CONCEPT



DENSITY INTENSITY TABLE
RV UNITS = 756 RV UNITS
COMMERCIAL = 30,000 SF

PLAN LEGEND

OPEN SPACE BUFFER	
LAKE	
PRESERVE	
INGRESS EGRESS	◄►
RECREATIONAL VEHICLE TRACT	
COMMERCIAL TRACT	
DEVIATION	X
CONSUMPTION ON PREMISE	*

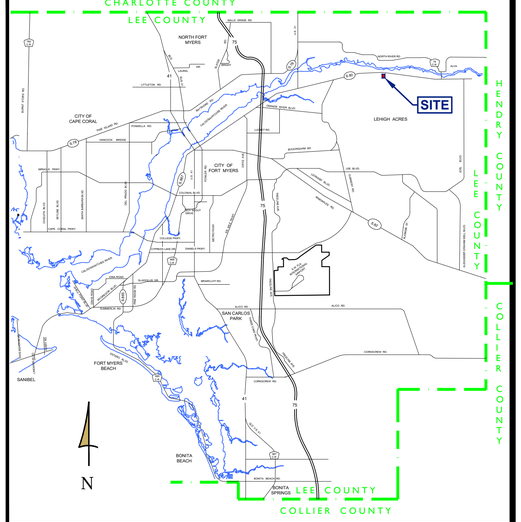
3 5 TYPICAL ROAD CROSS SECTION

N.T.S.

LAND USE BREAKDOWN

LAND USE	ACRES		% OF SITE
COMMERCIAL (1)	4.50	AC.	2.34%
RV LOTS	60.60	AC.	31.51%
LAKES	31.00	AC.	16.12%
RECREATIONAL AMENITIES	6.00	AC.	3.12%
INDOOR / OUTDOOR STORAGE	10.30	AC.	5.36%
PRESERVE /WETLANDS/NATIVE INDIGENOUS	29.95	AC.	15.57%
OTHER OPEN SPACE / BUFFERS	49.95	AC.	25.98%
TOTAL SITE AREA	**192.30**	**AC.**	100.00%

(1) COMMERCIAL PARCEL WILL CONTAIN A MINIMUM OF 15% OPEN SPACE
(2) ACREAGE SUBJECT TO CHANGE AT TIME OF DO. IN NO CASE SHALL TOTAL SPACE BE LESS THAN 76.49 ACRES AND INDIGENOUS LESS THAN 40.21 ACRES.



LOCATION MAP
(NOT TO SCALE)

PROJECT SUMMARY:

OPEN SPACE SUMMARY

LAND USE	**AREA**
REQUIRED OPEN SPACE	
40% OF RPVD AREA = 40% OF 187.85 AC.	= 75.14 AC.
30% OF COMMERCIAL AREA = 30% OF 4.5 AC.	= 1.35 AC.
	76.49 AC.
PROVIDED OPEN SPACE	= 79.89 AC.

COMMERCIAL TRACT WILL CONTAIN A MINIMUM OF 15% OF THE REQUIRED COMMERCIAL OPEN SPACE (0.2 ACRES)

RECREATIONAL FACILITY SUMMARY
REQUIRED RECREATIONAL FACILITIES
= 250 SF X 185.85 AC.
= 46,962.5 SF.

NOTES

1) THIS PLAN IS CONCEPTUAL IN NATURE AND IS SUBJECT TO MODIFICATION DUE TO AGENCY PERMITTING REQUIREMENTS.
2) ALL ACREAGE/SQUARE FOOTAGE ARE APPROXIMATE AND SUBJECT TO MODIFICATION AT THE TIME OF DEVELOPMENT ORDER.
3) OPTIONAL TREATMENT PLANT WILL ONLY BE CONSTRUCTED IF CONNECTION TO LCU SEWER LINES IS NOT POSSIBLE

N

0' 100' 200'

PLAN VIEW SCALE

Quattrone & Associates, Inc.
Engineers, Planners, & Development Consultants
4301 Veronica Shoemaker Blvd | Fort Myers, Florida 33916 | 239-936-5222 | QAInc.net

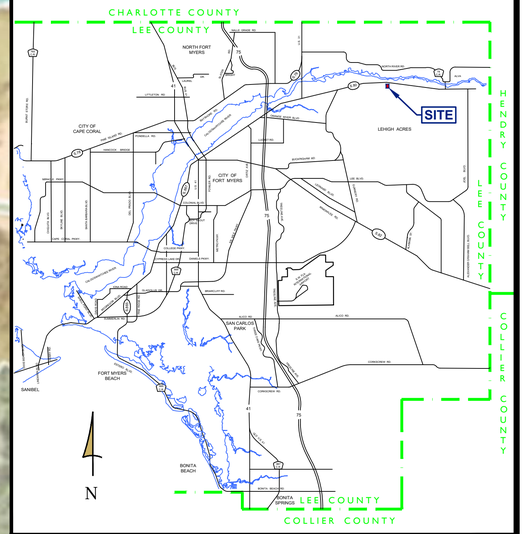
P:\2022 Projects\220408 CALOOSA 80 ZONING\01-CADD FILES\00-QAI CADD - CONCEPTS\2023-03-29 CALOOSA RV MPD\CALOOSA RV MPD

CALOOSA 80 MPD

LOCATED IN SECTION 29 & 30, TOWNSHIP 43-S, RANGE 27-E, LEE COUNTY, FLORIDA

FEMA FLOODPLAIN EXHIBIT





LOCATION MAP
(NOT TO SCALE)

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP
FOR DRAFT FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A, V, A99*
	With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
	Area with Reduced Flood Risk due to Levee See Notes *Zone X*
	Area with Flood Risk due to Levee *Zone D*
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard *Zone X*
	Effective LOMRs
	Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
OTHER FEATURES	20.2 Cross Sections with 1% Annual Chance
	17.5 Water Surface Elevation
	Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	513 Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary

NOTE:
FEMA IMAGES EXTRACTED FROM MAP NUMBER 12071C0309G.
DATED NOV. 17th, 2022.

Quattrone & Associates, Inc.
Engineers, Planners, & Development Consultants
4301 Veronica Shoemaker Blvd | Fort Myers, Florida 33916 | 239-936-5222 | QAInc.net

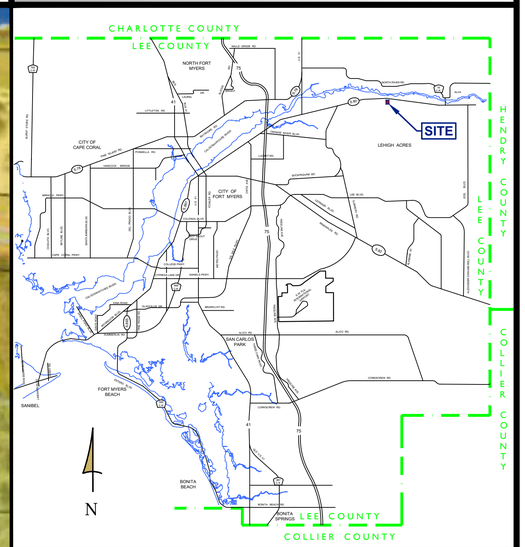
P:\2022 Projects\220408 CALOOSA 80 ZONING\01-CADD FILES\00-QAI CADD - CONCEPTS\00-2023-02-13 CALOOSA RV MPD\CALOOSA RV MPD-

CALOOSA 80 MPD

LOCATED IN SECTION 29 & 30, TOWNSHIP 43-S, RANGE 27-E, LEE COUNTY, FLORIDA



FLOOD INSURANCE MAP (FIRM) EXHIBIT



LOCATION MAP
(NOT TO SCALE)

FIRM LEGEND:

FIRM
- VE
- AE
- AH
- AO
- A
- X (shaded)
- X

Coastal Study - Floodway

Coastal A - Preliminary

Coastal Study - FIRM Panel

City Limits

FIRM Floodway

FIRM - ZoneA BFE (county determined)

FIRM Panel

N

0' 200' 400'

PLAN VIEW SCALE

NOTE:
FIRM IMAGES EXTRACTED FROM LEEGIS.MAPS.ARCGIS.COM

Quattrone & Associates, Inc.
Engineers, Planners, & Development Consultants
4301 Veronica Shoemaker Blvd | Fort Myers, Florida 33916 | 239-936-5222 | QAInc.net

P:\2022 Projects\220408 CALOOSA 80 ZONING\01-CADD FILES\00-QA\ CADD - CONCEPTS\00-2023-02-13 CALOOSA RV MPD\CALOOSA RV MPD-