Oak Development Group, LLC
Rezoning H-23-54

Hernando County
Board of County Commissioners
March 12, 2024

Evidence in Support of Application

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STEARNS WEAVER MILLER

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Oak Development Group LLC

STEARNS WEAVER MILLER

LANGAN

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19046 Bruce B. Downs Boulevard | Suite 308
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Oak Development Group LLC
Rezoning

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March 12, 2024
H-23-54

TEAM

- Applicant: Oak Development Group LLC
  - Casey Krauser, Managing Partner
- Legal and Land Planning: Stearns Weaver Miller, PA
  - Jessica Icerman, Esq.
  - Cynthia D. Spidell, MBA, AICP
- Civil Engineer: Langan
  - Andrew Eiland, Jr., PE
- Environmental Consultant: Bio-Tech Consulting
  - Dillon Reeves
- Transportation: Raysor Transportation Consulting
  - Michael D. Raysor, PE

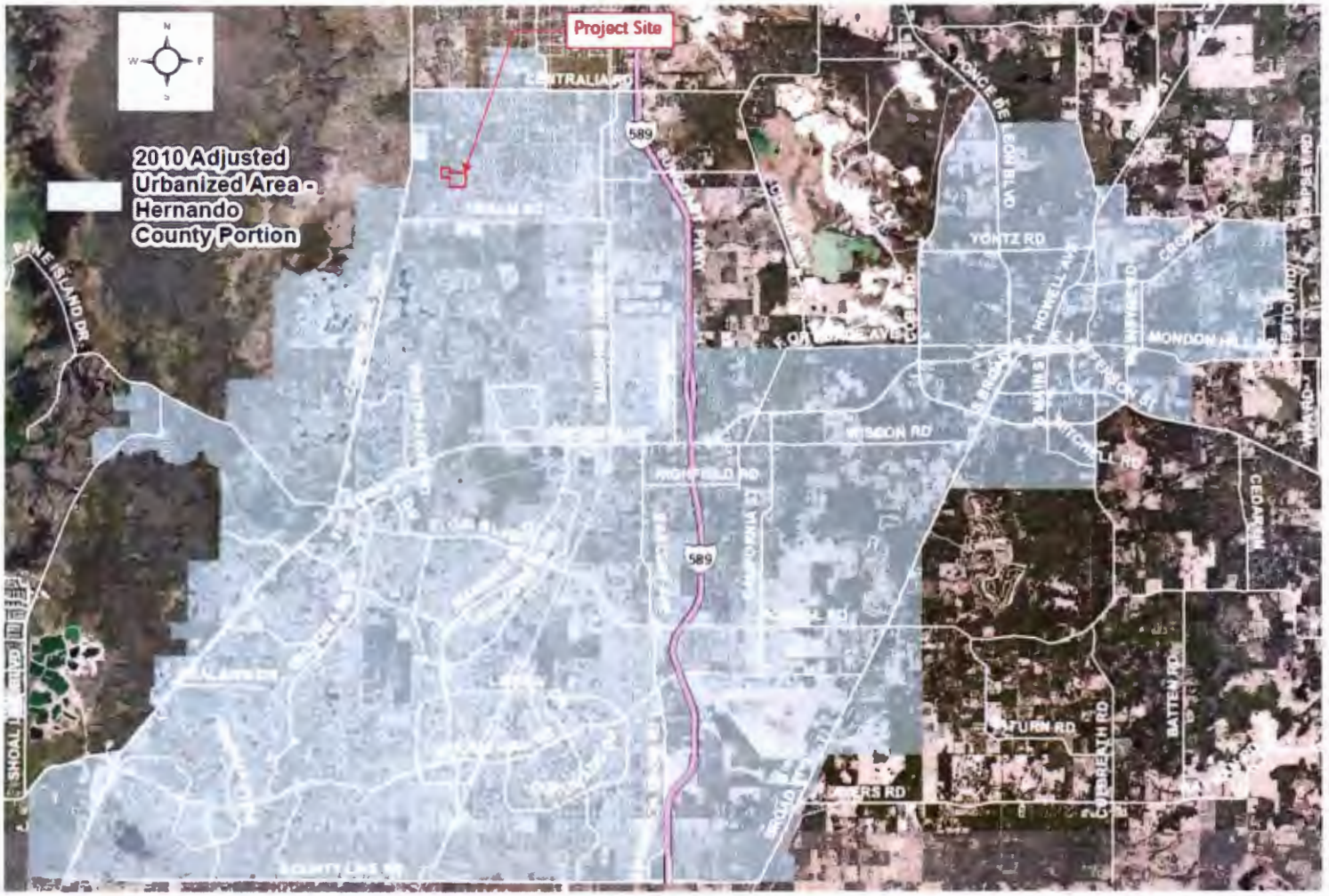
Property Location

- Property is generally located east of Eakin Street & southwest of Madeline Court and west of Lomita Wren
- Property is approximately 53.28 acres
- Parcel Keys:
  - 00343015
  - 00103907

Location Map

Hernando County Comprehensive Plan

ADJUSTED URBANIZED AREA MAP



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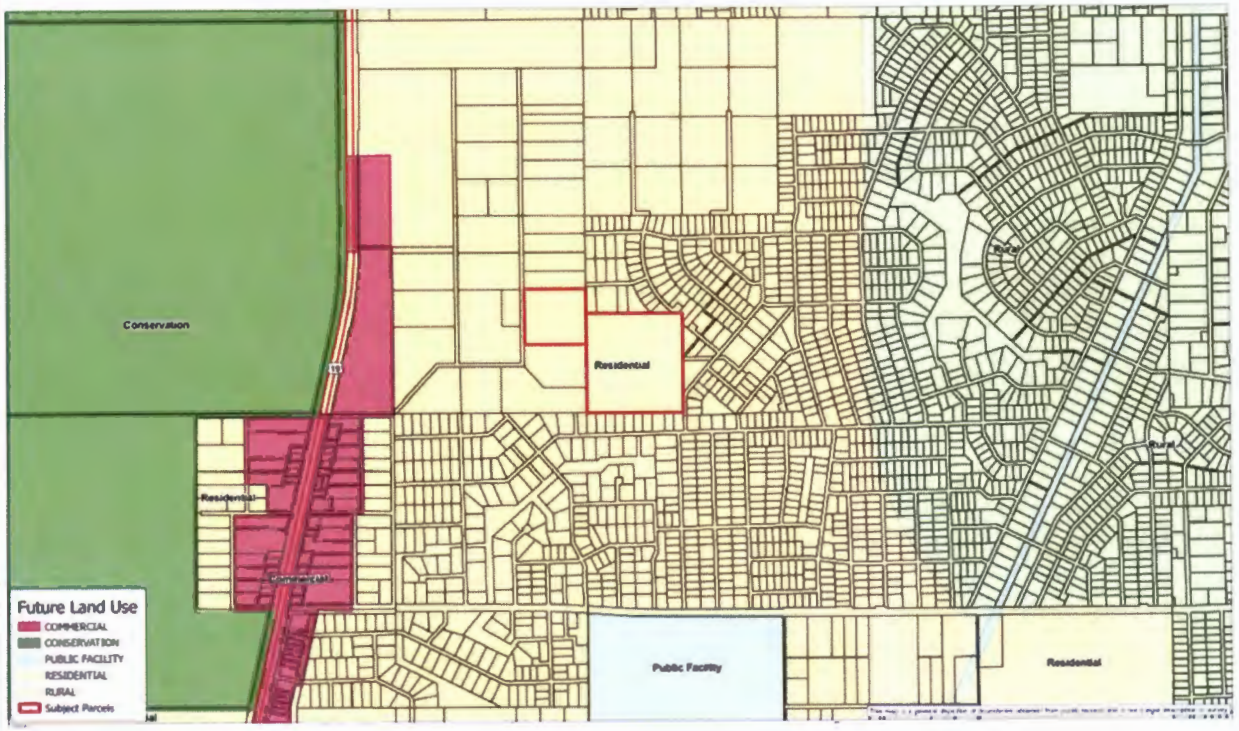
Future Land Use Classification

- Future Land Use: Residential
- Density range of 2.5-6.0 du/ga
- 2.55 du/ga proposed



The Comprehensive Plan - 2040
Chapter 1 – Future Land Use Element

Strategy 1.04A(2): Review of rezoning requests shall be consistent with the overall intent of the Future Land Use Map (FLUM) and Comprehensive Plan strategies in terms of potential use or character and in terms of potential densities and intensities.

In Adj. Urbanized Area Map

Strategy 1.04A(3): The **Residential Category** accommodates residential growth clustered in and around urbanized areas that maximize the efficient use of infrastructure contained in long-range facilities plans of the County.

Strategy 1.04B(3): The **Residential Category** will include zoning for single-family housing, generally averaging **a density of 2.5 dwelling units per gross acre to 6.0 dwelling units per gross acre** comprised of varying lot sizes and dwelling unit types such as senior housing, villa housing, single family detached housing, and zero lot line housing.

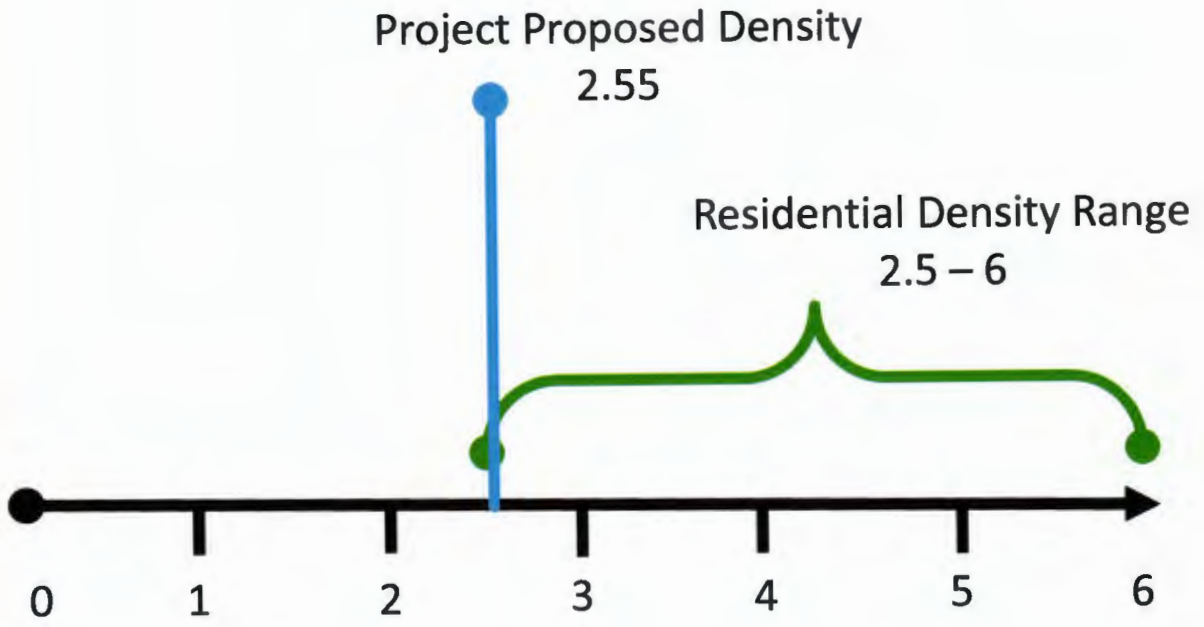
2.55 du/acre

Strategy 1.04B(4): The **Residential Category** includes zoning for multifamily housing generally averaging **7.5 dwelling units per gross acre up to 22 dwelling units per gross acre** in order to provide for a diversity of housing choices. Multifamily housing should be located within, or in close proximity to urban areas shown on the **Adjusted Urbanized Area Map**, or near shopping and employment centers or within Planned Development Projects.

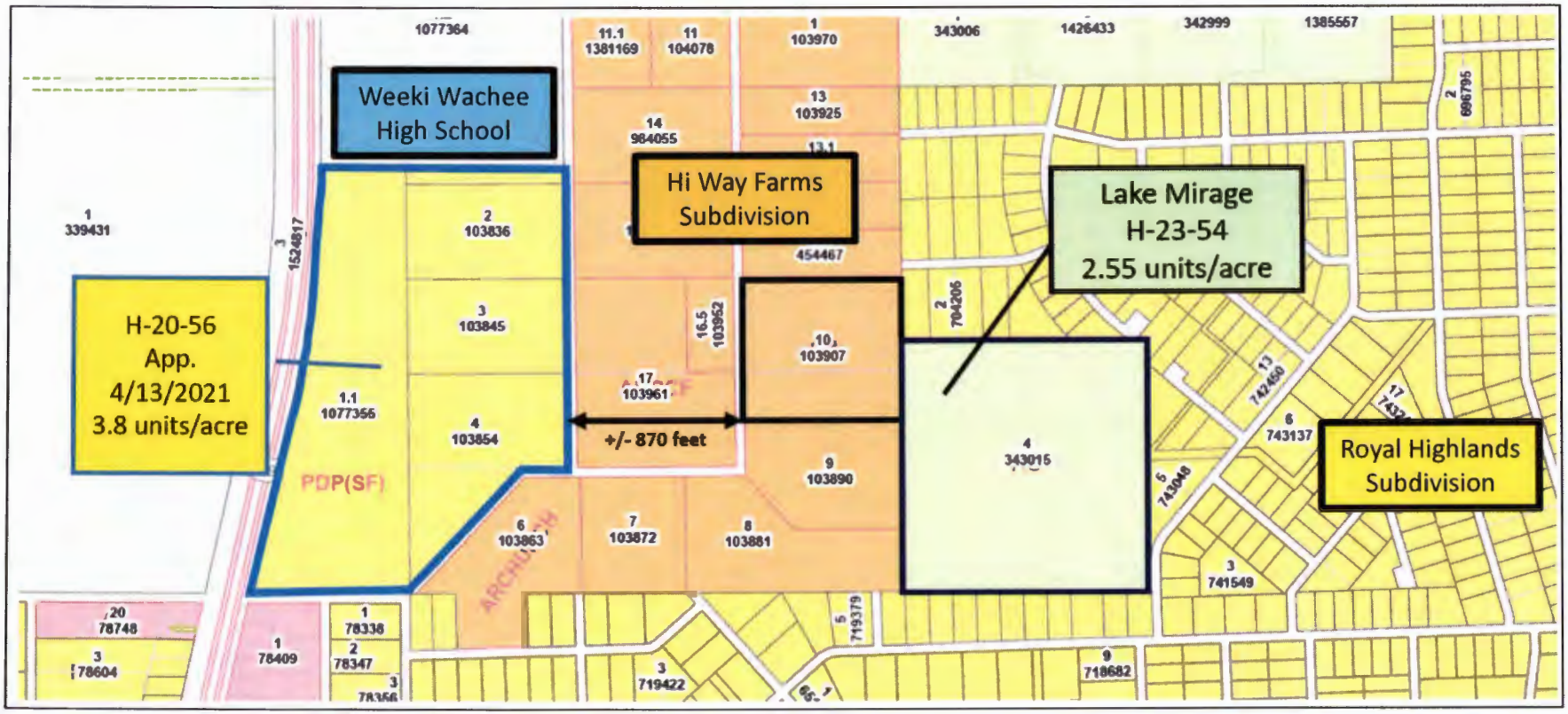
No Multi-Family
No Manufactured Housing

Density

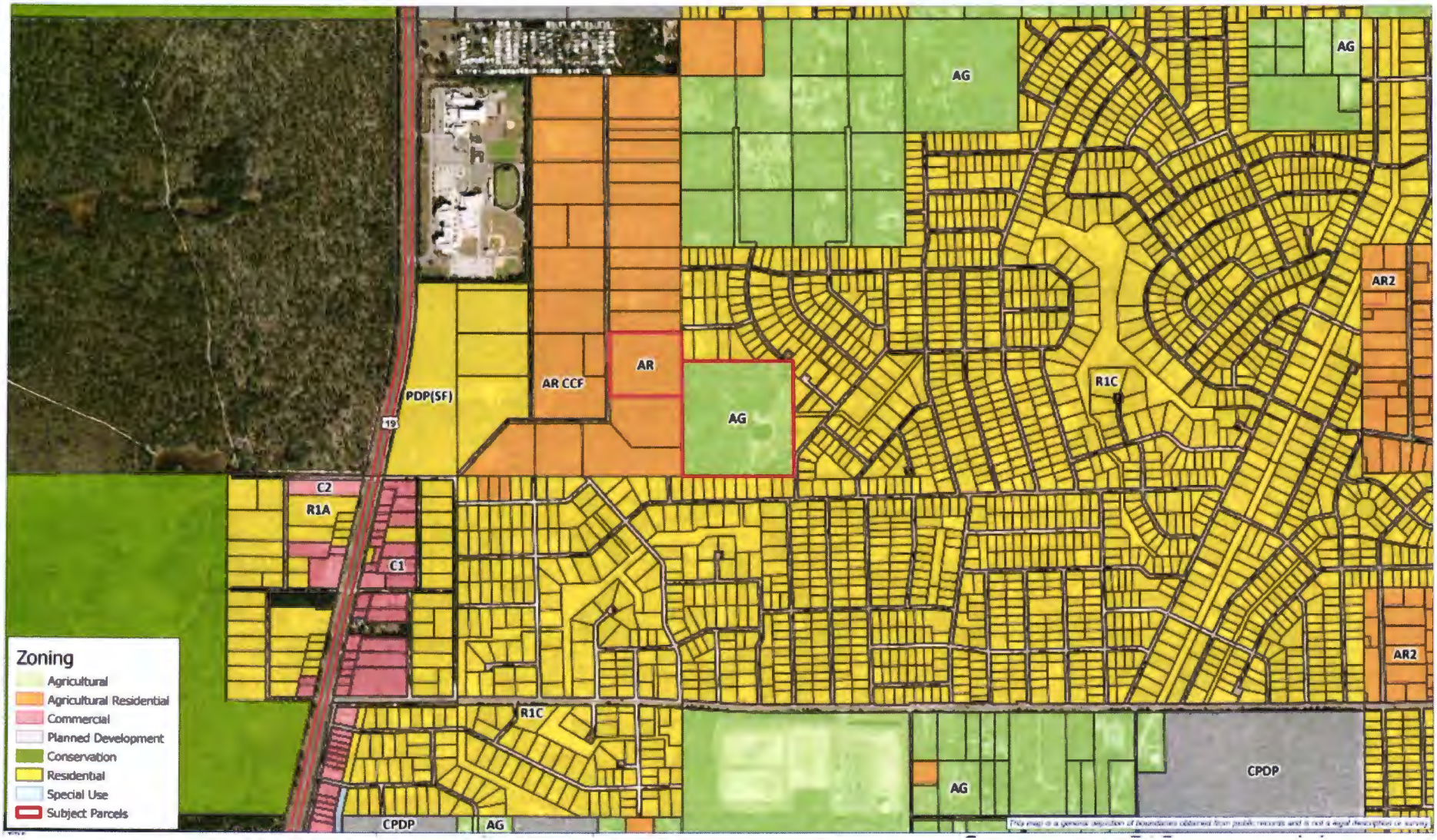
- Future Land Use: Residential
- Density range of 2.5-6.0 du/ga
- Just above minimum



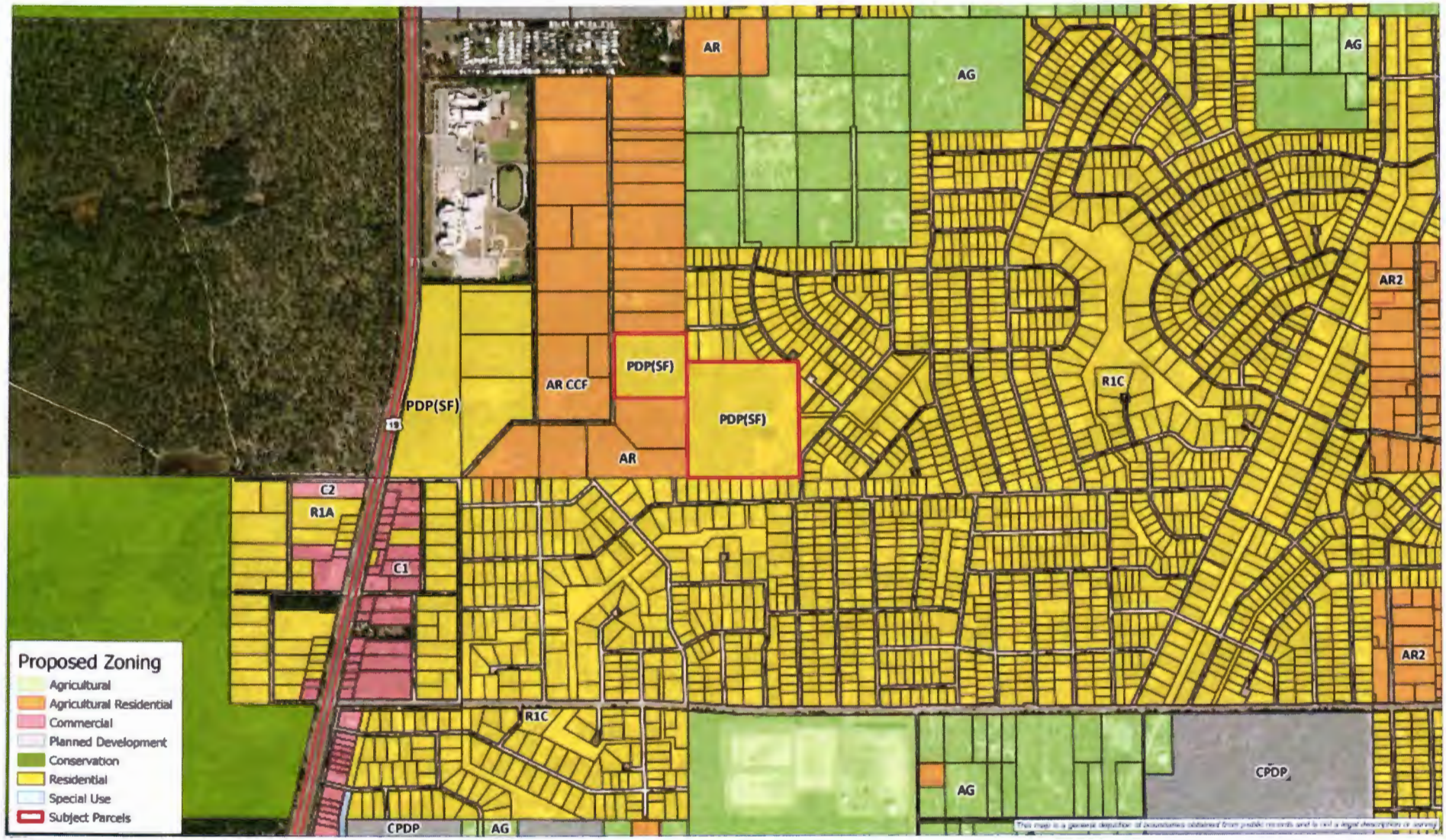
Surrounding Development



Current Zoning: Agricultural & Agricultural Residential



Proposed Zoning from AG and AR to PDP(SF)



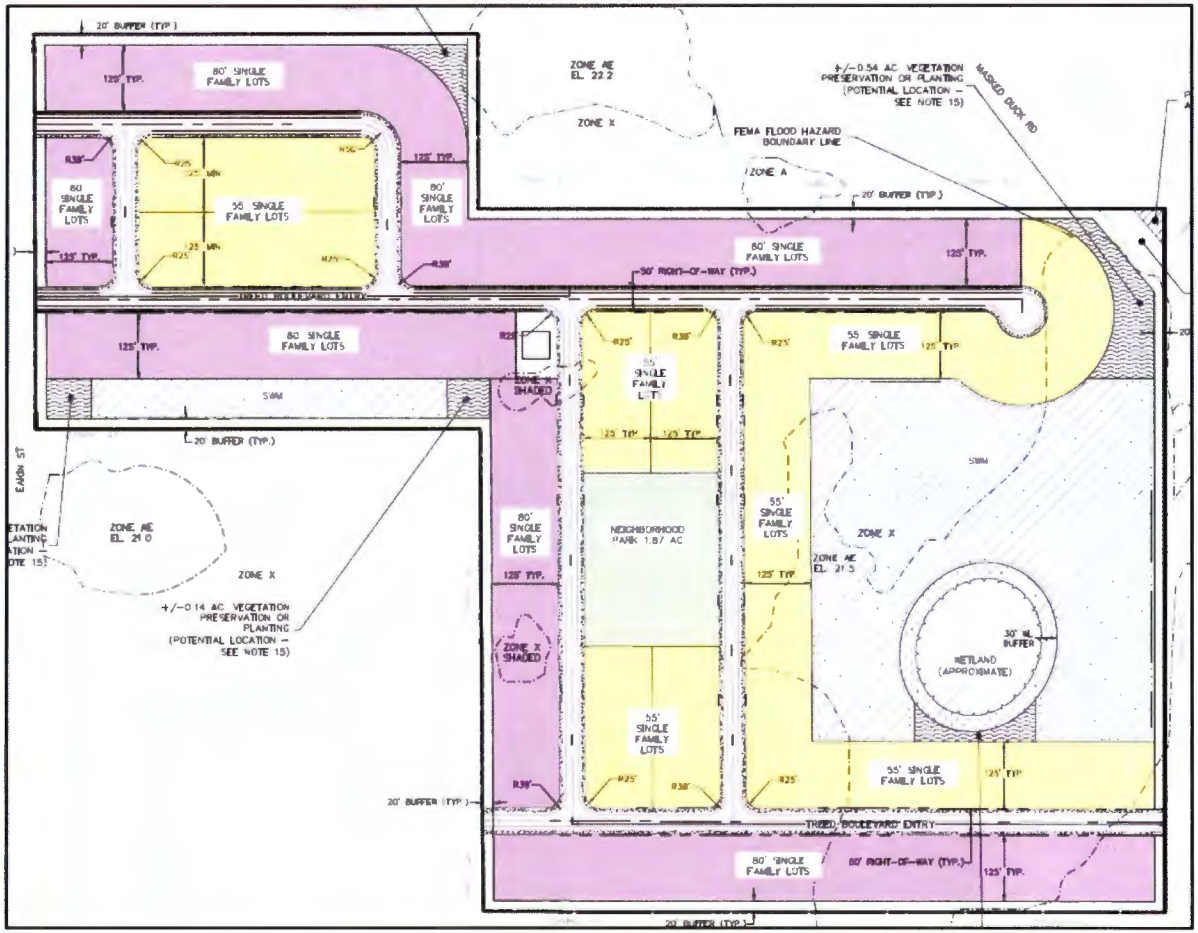
Changes Since Planning & Zoning Commission

Item	Proposed at P&Z	Today	Change since P&Z
# of Units/Density	**190 units 3.57 units/acre**	**136 units 2.55 units/acre**	**-54 units**
Lot Width	**50' interior 70' perimeter**	**55' interior 80' perimeter**	**+5' +10'**
Lot Size	**5,500 s.f. 7,700 s.f.**	**6,875 s.f. 10,000, s.f.**	**+1,375 s.f. +2,300 s.f.**
# of Deviations	**5 deviations**	**2 deviations**	**-3**
Access	**Potential Future Access at NE Corner**	**Removed Stub Out/ Potential Future Access at NE Corner**	**-1 future potential access point**

PD Request

- 136 Units Max
- 2.55 du/acre
- Residential infill
- Design Standards to address compatibility with surrounding environment
- Strategic location of 55’ and 80’ lots
- Strategic location of stormwater ponds and neighborhood park
- 20’ landscaped perimeter buffer w fence
- Public sidewalks
- No manufactured housing

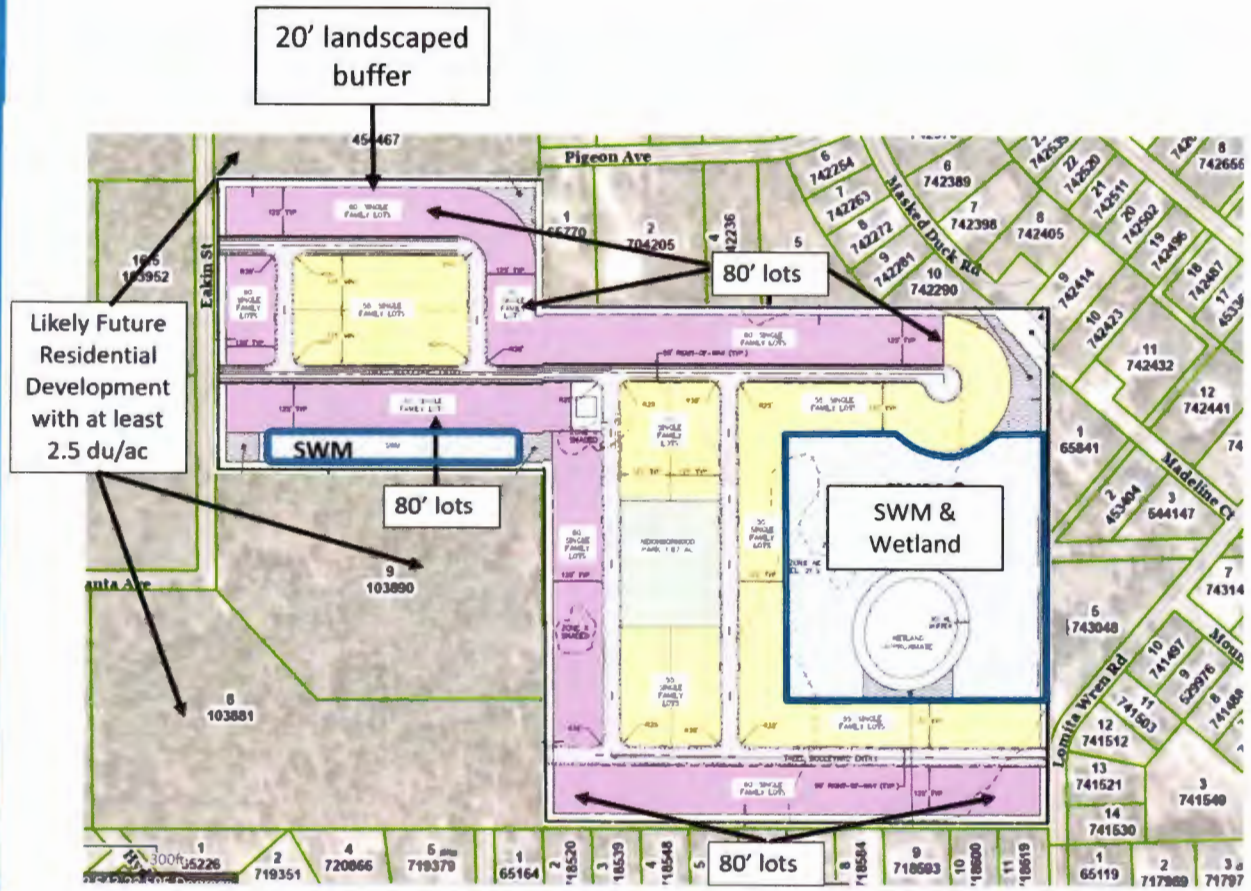
Proposed: Planned Development District
Single Family



Thoughtful Lot, Buffer, and SWM Locations

- 80’ lots along exterior adjacent to all existing residential
- 55’ lots interior or adjacent to currently vacant land (likely to be redeveloped into residential subdivision in future)
- 20’ landscaped buffer along entire perimeter with 6’ opaque fence except in SWM/ open space areas, where landscaping with 80% opacity will be located*
- SWM located along exterior to act as additional buffer

Proposed: Planned Development District Single Family



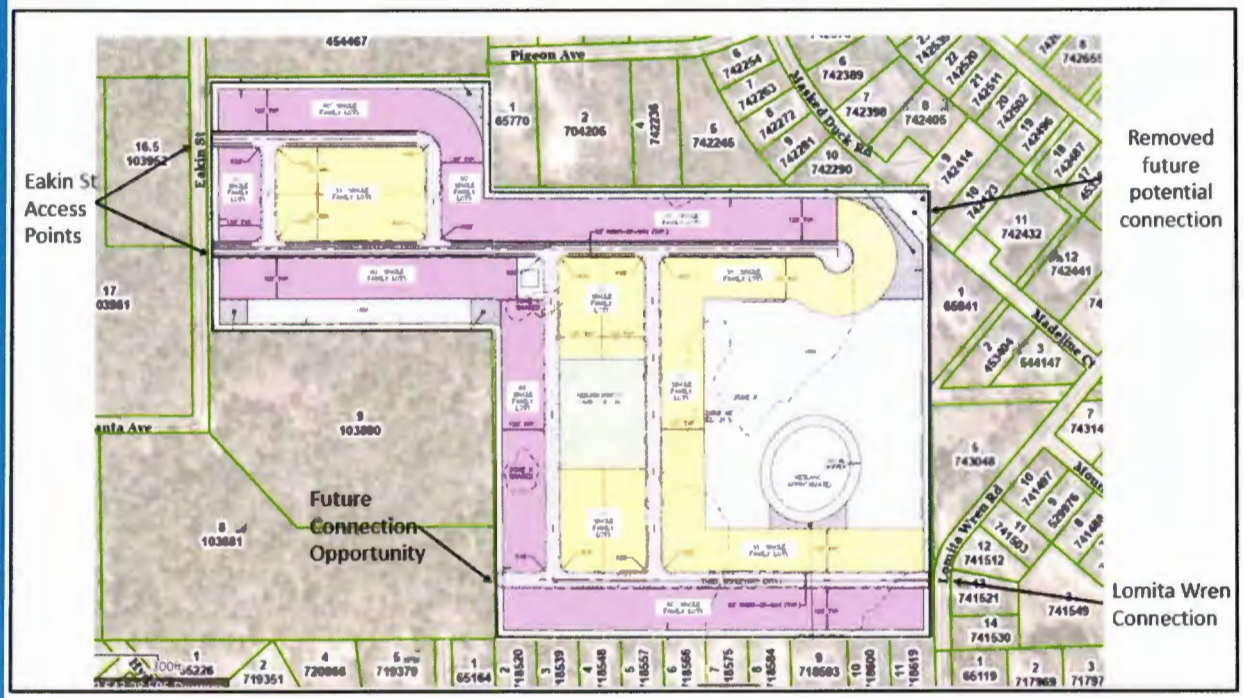
Deviations

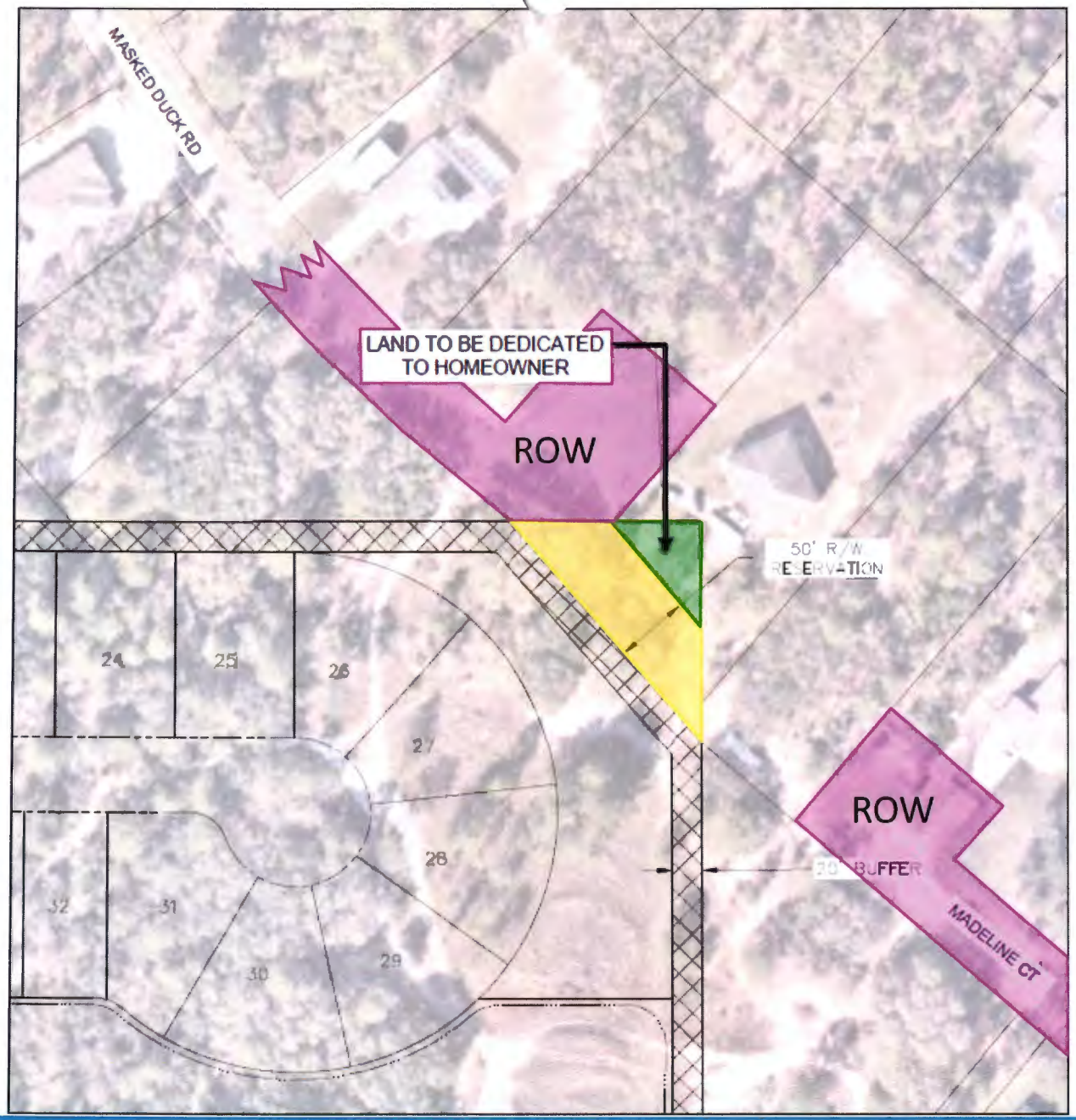
LDC Section	Description	LDC Requirement	Proposed Amount	Requested Deviation
✔ LDC App. A, Art. IV, Sec. 2, C: R-1A Residential District	Minimum Lot Width	60 feet	55* feet	(5) Feet
✔ LDC App. A, Art. IV, Sec. 2, C: R-1A Residential District	Side Yard	10 feet	7.5* feet	(2.5) Feet
*Note: Represents minimum requested for 55-foot lots which are restricted as to location per the Master Plan.				

Access

- Three access points to paved, County-maintained roadways
- Two potential future connection opportunities

Proposed: Planned Development District Single Family




MASKED DUCK RD
LAND TO BE DEDICATED TO HOMEOWNER
ROW
50' R/W RESERVATION
ROW
BUFFER
MADELINE CT
24
25
26
27
28
29
30
31
32

CONCLUSION

- Staff recommendation of approval.
- We respectfully request the Hernando County Board of County Commissioners recommend approval with revised conditions.

STAFF REPORT

HEARINGS: Planning & Zoning Commission: December 11, 2023
Board of County Commissioners: January 9, 2024
Planning & Zoning Commission: February 12, 2024
Board of County Commissioners: March 12, 2024

APPLICANT: Oak Development Group LLC on Behalf of Panther I LLC

FILE NUMBER: H-23-54

REQUEST: Rezoning from AR (Agricultural/Residential) and AG (Agricultural) to PDP(SF)/ Planned Development Project (Single Family) with deviations

GENERAL LOCATION: Between the east side of Eakin Street, approximately 230' from its intersection with Atlanta Avenue, and the west side of Lomita Wren Road, approximately 300' from its intersection with Mirage Avenue

PARCEL KEY NUMBERS: 343015, 103907

APPLICANT'S REQUEST

The petitioner requests a rezoning of the subject property from AR (Agricultural/Residential) and AG (Agricultural) to PDP(SF)/ Planned Development Project (Single Family) with deviations. The petitioner is requesting approval of 190 dwelling units on 53.28 acres (3.57 du/ac). The petitioner is requesting the following lot sizes and lot widths:

There are two minimum lot sizes proposed:
50' width x 110' length (5,500 total lot size)
70' width x 110' length (7,700 total lot size)

The 70' wide lots have been proposed along the perimeter of the project where existing residential lots exist. The 50' wide lots are proposed internal to the site and/or if adjacent to additional open space or other buffer considerations such as stormwater features.

Deviations Requested:

- Front setbacks: 20' (deviation from 25')
- Side Setbacks: 5' (deviation from 10')
- Double Frontage: 10' (deviation from 25')
- Minimum Lot Width: 50' (deviation from 60')
- Minimum Lot Size: 5,500 Sq. Ft. (deviation from 6,000 Sq, Ft,)

SITE CHARACTERISTICS

Site Size: 53.28 Acres

Surrounding Zoning; Land Uses:
North:R-1C; Single Family and Undeveloped
South:R-1C, AR; Single Family and Undeveloped
East:R-1C; Single Family and Undeveloped
West:AR; Undeveloped

Current Zoning: AR (Agricultural/Residential) and AG (Agricultural)

Future Land Use Map Designation: Residential

ENVIRONMENTAL REVIEW

Soils: Candler Fine Sand, Basinger Fine Sand/Depressional

Comments: Candler Fine Sand provides habitat suitable for gopher tortoises (a listed species) and commensal species. A comprehensive faunal (wildlife) survey shall be prepared by a qualified professional and submitted during the construction plans stage of development. The petitioner is required to comply with all applicable FWC regulations and permitting.

Protection Features: There are neither Protection Features (Wellhead Protection Areas (WHPA) nor Special Protection Areas (Special Protected Areas (SPAs) on this site according to county data.

Hydrologic Features: There are no Hydrologic Features (Sinkholes, Karst Sensitive Areas, and Wetlands) on this property according to county data.

Comments: There is a water feature on the property that is designated "Palustrine-unconsolidated bottom permanently flooded-excavated" according to Southwest Florida Water Management District (SWFWMD). It is the responsibility of the petitioner to coordinate development permitting with SWFWMD.

Habitat: The subject property is designated Sandhill, Wet Prairie, and Artificial Impoundment Reservoir according to FWC CLC mapping (Florida Cooperative Land Cover Classification System that combines Florida Land Use Cover and Classification System with fish and wildlife data).

Comments: Invasive plant species if present are to be removed during the development process.

Water Quality: The proposed development is within the Weeki Wachee River Basin Management Action Plan (BMAP), the Weeki Wachee Outstanding Florida Springs (OFS) Group and the Weeki Wachee Springs Priority Focus Area.

Comments: Implementation of Florida Friendly Landscaping™ principles, techniques, and materials designed to conserve water and reduce pollutant loading to Florida's waters is required. The petitioner must meet the minimum requirements of Florida Friendly Landscaping™ publications and the Florida Yards and Neighborhoods Program for required plantings and buffers, as applicable.

Natural vegetation is to be retained in the buffers and enhanced with tress and vegetation to meet 80% opacity requirement.

The Builder/Developer shall provide new property owners with Florida-Friendly Landscaping™ Program information and encourage the use of the principles, techniques, and landscaping recommendations. Information on the County's Fertilizer Ordinance and fertilizer use is to be included. Educational information is available through Hernando County Utilities Department.

Flood Zone: The subject properties are in the X flood zone with portions in the AE flood zone.

SCHOOL DISTRICT REVIEW

The applicant must apply for and receive a Finding of School Capacity from the School District prior to the approval of the conditional plat or the functional equivalent. The County will only issue a certificate of concurrency for schools upon the School District's written determination that adequate school capacity will be in place or under actual construction within three (3) years after the issuance of subdivision approval or site plan approval (or functional equivalent) for each level of school without mitigation, or with the execution of a legally binding proportionate share mitigation agreement between the applicant, the School District, and the County.

UTILITIES REVIEW

The Hernando County Utilities Department (HCUD) reviewed the application and provided the following comments:

- HCUD does not currently supply water or sewer service to these parcels.
- There is an existing 16-inch water main that runs along the east side of Commercial Way.

- There is an existing 10-inch sewer force main that also runs along the east side of Commercial Way.

Comments: HCUD has no objection to the submitted zoning change from AR and AG to PDP(SF) to allow the development of 190 single family homes, subject to a utility capacity analysis and connection to the central water and sewer systems at time of vertical construction, with the stipulation that the developer will need to provide utility placement details showing the locations of all utilities on the conditional plat for lots with side setbacks of less than 10'.

The shortest distance between the water and sewer mains lining Commercial Way and the subject property, is approximately 2,300'. The more likely placement of new water and sewer mains for this development would follow Atlanta Avenue, proceeding up Eakin Street for a total approximate distance of 3,175'.

TRANSPORTATION

The roads in the Royal Highlands subdivision are a mixture of limerock and paved rural local roads[1]. The roads are paved that have been done so through an MSBU. There are four (4) proposed access points to the development. Two access points are on Eakin Street which dead ends to the north and is a rural local road designed to accommodate larger lot sizes and low expected vehicle traffic. The Hi-Way Farms subdivision has access to a single road (Eakin) which dead ends to the north.

Eakin Street turns into Atlanta Avenue approximately 300' south of the subject property and ends with direct access onto Commercial Way. Atlanta and Eakin may be unpaved limestone roads. One access point to Lomita Wren Road, which is a local rural roadway, and one access point at Masked Duck Road, also a local road, which currently dead ends at the subject parcel.

There are no transit stops or routes along these roads.

ENGINEERING REVIEW

The subject site is located between the east side of Eakin Street, approximately 230' from its intersection with Atlanta Avenue, and the west side of Lomita Wren Road, approximately 300' from its intersection with Mirage Avenue. The petitioner is proposing five (5) points of access for the proposed project. Two (2) of the proposed access points are for future connectivity (southwest and northeast corners). Immediate connections will be provided to Eakin Street

[1] Rural roads are characterized by moderate to low posted speeds, infrequent access points to that road, small travel lane widths (10' or less), lack pavement markings (no center line or exterior lane lines), lack of formal curbs or shoulders and low estimated Average Annual Daily Trips (AADT).

and Lomita Wren. The County Engineer reviewed the petitioner's request and provided the following comments:

- This site contains a large area of flood Zone "AE, (El.21.5)" in the east of the site, and a small area of Zone "AE,(El.22.3)" in the northeasterly corner.
- There are also two areas of shallow flooding less than 1 foot deep.
- A Traffic Access Analysis is required. Any improvements identified by the analysis will be the responsibility of the developer.
- All Roadways shall meet Hernando County Design Standards.
- Sidewalks will be required throughout the project.
- Improvements to adjacent roadways are required and will be the responsibility of the Developer.

LAND USE REVIEW

Setbacks, Lot Sizes and Lot Widths:

Proposed Minimum Lot Size and Widths:

- 50' x 110' for a minimum lot size of 5,500 square feet (deviation from 60' and 6,000 Sq. Ft.)
- 70' x 110' for a minimum lot size of 7,700 square feet.

Proposed Minimum Building Setbacks:

- Front: 20' (deviation from 25')
- Side: 5' (deviation from 10')
- Rear: 20'
- Secondary Front Yard/Corner Lots: 10' (deviation from 25')

Comments: The petitioner is requesting deviations to both the front and side setbacks for the proposed development. Recent deviations to both these setbacks, on like projects, have resulted in unforeseen consequences with parking and utilities equipment. Reductions to the front setbacks from the required 25' to 20' would reduce the driveway length, thereby causing vehicles block sidewalks, furthermore, causing more street parking which restricts the drive aisles for delivery trucks, emergency vehicles and garbage trucks.

Additionally, a reduction to side setbacks have resulted in access issues between the homes into rear yards due to AC units and other ancillary uses and the placement/access of utility equipment, especially on curved road and/or cul-de-sacs.

Staff recommends that the minimum side setback be held at 7.5' and the front setback at 25'. Additionally, the request for a reduction on secondary yard

frontage from 25' to 10' is not justified and should meet the minimum standards of the County LDRs.

Buffer:
A buffer shall be required between a Planned Development Project land use which is multifamily or non-residential and a land use, external to the PDP, which is residential, agricultural-residential or agricultural.

The buffer shall consist of a minimum five-foot landscaped separation distance. The multifamily or nonresidential use located on such lot shall be permanently screened from the adjoining and contiguous properties by a wall, fence, and/or approved enclosures. Such screening shall have a minimum height of five (5) [feet] and a maximum height of eight (8) feet, or an evergreen hedge with a minimum height of five (5) feet at the time of planting.

Comments: The petitioner is proposing a 20' landscape buffer with a 6' high opaque fence or wall along the entire perimeter of the project with the exception of those areas designated open space or wetlands.

Access:
To establish minimum access requirements to single family and multifamily subdivisions, the Board of County Commissioners adopted a policy requiring two (2) means of access for subdivisions. The policy serves to provide more than one-way in and one-way out for residents of a subdivision, alternate routes for emergency services, interconnection between subdivisions, a shortened drive time for residents to the entrance/exits, and access points for travel direction outside of the development. A minimum of two (2) access points must be provided to serve any new subdivision or development pod with more than 50 units. If approved, individual single family and multifamily pods that exceed 50 units must meet the two (2) means of access per pod.

Additionally, Hernando County Land Development Regulations require that new single family and multifamily developments with more than 50 units provide at least one treed roadway/access way for motor vehicles extending through the length or width (whichever is greater) of the development with a vegetative buffer at least 10' in width.

Comments: The petitioner is proposing five (5) points of access for the proposed project. Two (2) of the proposed access points are for future connectivity (southwest and northeast corners). Immediate connections will be provided to Eakin Street and Lomita Wren.

Neighborhood Park:
All developments with 50 dwelling units or more shall provide and maintain a neighborhood park system for use by the residents of the subdivision in accordance with the requirements of the LDRs. The proposed phase contains more than 50 dwelling units. Neighborhood parks may count towards the minimum open space requirements. The amount of land provided and maintained as a neighborhood park shall be 1.0 acre for the first 50 dwelling units plus 1/100th of an acre for each dwelling unit over 50 up to 250 dwelling units, for a maximum of

3.0 acres. If approved, the development must meet the minimum neighborhood park requirements as required by the County's LDRs. Individual single family and multifamily pods that exceed 50 dwelling units must provide a neighborhood park.

Comments: The petitioner is proposing a 2.4 acre centralized neighborhood park in accordance with the Hernando County Land Development Regulations.

Natural Vegetation:
Projects greater than twenty (20) acres shall designate an area of at least seven percent (7%) of the total project area as preserved natural vegetation and no construction activity can occur in this area. Preserved natural vegetation areas must be a minimum of twenty thousand (20,000) square feet. If approved, the petitioner must provide a minimum of seven percent (7%) natural vegetation. Preserved natural vegetation and/or planted native vegetation may be used to meet all or part of the requirement for open space if it is a minimum of fifteen (15) feet in width.

Comments: The petitioner has indicated approximately 26.0 acres of open space for the proposed project. The area designated for open space also includes floodplain, and wetland.

Fire Protection Plan:
Hernando County LDRs require that a fire protection plan be completed for residential developments with lot sizes less than 60' in width.

Comments: If approved, the petitioner shall submit a fire protection plan with the Conditional Plat in accordance with Hernando County LDRs.

COMPREHENSIVE PLAN REVIEW

The subject site is located within the Residential Land Use designation on the County's Adopted Comprehensive Plan. The area is characterized by approximately 208 parcels within 1,000 feet of the subject property. One-hundred thirty-one (131) of these parcels are 20,000 square feet and over, 64 of the 131 parcels are over one (1) acre. The land use density for these 208 parcels 1.17 DU/Acre).

The petitioner is requesting approval of 190 dwelling units (DU) on 53.28 acres of land, for a density of 3.57 DU/Acre. The larger of the two subject parcels abuts the Royal Highlands subdivision on the north, south and east property boundaries. The smaller of the two parcels is in the Hi-Way Farms subdivision.

Strategy 1.04A(3): The Residential Category accommodates residential growth clustered in and around urbanized areas and those areas that maximize the efficient use of infrastructure contained in long-range facilities plans of the County.

Residential Category

Objective 1.04B: The Residential Category allows primarily single family, duplex, resort and multi-family housing and associated ancillary uses such as recreational and institutional. Office and certain commercial uses may be allowed subject to the locational criteria and performance standards of this Plan. Residential density shall not exceed 22 dwelling units per gross acre.

Strategy 1.04B(1): Commercial and institutional uses within the Residential Category are generally associated with medium and high density residential development and may include neighborhood commercial, office professional, recreational, schools, and hospitals. Minor public facilities that do not unduly disturb the peaceful enjoyment of residential uses may also be allowed.

Strategy 1.04B(2): Future residential development will be planned to locate where the Residential Category predominates on the Future Land Use Map as determined by the availability of facilities and services, the need to accommodate future growth, the strategies to discourage the proliferation of urban sprawl, and the impacts to natural resources, including groundwater.

Single-Family Housing

Strategy 1.04B(3): The Residential Category will include zoning for single-family housing, generally averaging a density of 2.5 dwelling units per gross acre to 6.0 dwelling units per gross acre comprised of varying lot sizes and dwelling unit types such as senior housing, villa housing, single family detached housing, and zero lot line housing.

Comments: The petitioner is proposing 190 units on 53.28 acres for an overall density of 3.57 du/ac

Planned Development Projects and Standards

Strategy 1.10C(1): A Planned Development Project (PDP) is designed as an integral unit with one or more land uses utilizing a Master Plan to illustrate and describe the site layout and characteristics including, but not limited to, uses and use restrictions, density and intensity, site and building layout and design, site coverage and designated open space, construction and phasing plans, and other detailed information about the project.

Strategy 1.10C(2): Delineation of the allowable density and/or intensity of development shall be contingent upon the ability to provide the adopted level of service of public services and facilities concurrent with project

development as outlined in the adopted land development regulations.

Comments: The proposed residential subdivision is consistent with the Comprehensive Plan Residential Future Land Use Category with appropriate performance conditions.

FINDING OF FACTS

A rezoning from AR (Agricultural/Residential) and AG (Agricultural) to PDP(SF)/ Planned Development Project (Single Family) with deviations is appropriate based on the following:

1. The following requested deviations are not justified and are consider adverse to the public interest:
    - Reductions to the Front Setbacks from 25' to 20'. Development should meet the minimum County LDR Front Setback of 25'.
    - Reduction in Side Setbacks from 10' to 5'. It is recommended that the minimum side setback not be reduce smaller than 7.5'
    - Reduction in Secondary Yard Frontage/Corner Lot from 25' to 10'. The reduction is not justified and should meet the minimum standards of the County LDRs.
2. The proposed development, with the appropriate performance condition, is consistent with the County's adopted Comprehensive Plan and compatible with the surrounding area.

NOTICE OF APPLICANT RESPONSIBILITY

The rezoning process is a land use determination and does not constitute a permit for either construction on, or use of, the property, or a Certificate of Concurrency. Prior to use of, or construction on, the property, the petitioner must receive approval from the appropriate County department(s) for the proposed use.

The granting of this land use determination does not protect the owner from civil liability for recorded deed restrictions which may exceed any county land use ordinances. Homeowner associations or architectural review committees require submission of plans for review and approval. The applicant for this land use request should contact the local association or the Public Records for all restrictions applicable to this property.

STAFF RECOMMENDATION

It is recommended that the Planning and Zoning Commission recommend the Board of County Commissioners adopt a Resolution denying the petitioner's request for rezoning from AR (Agricultural/Residential) and AG (Agricultural) to PDP(SF)/ Planned Development Project (Single Family) with deviations.

P&Z ACTION:

On December 11, 2023, the Planning and Zoning Commission voted 4-0 to postpone the petitioner's request for a rezoning from AR (Agricultural/Residential) and AG (Agricultural) to PDP(SF)/ Planned Development Project (Single Family), to the February 12, 2024, Planning and Zoning Commission meeting.

BOCC ACTION:

On January 9, 2024, the Board of County Commissioners voted 5-0 to postpone the petitioner's request for a rezoning from AR (Agricultural/Residential) and AG (Agricultural) to PDP(SF)/ Planned Development Project (Single Family) with deviations, in order to allow the petitioner additional time to discuss the proposed development with County staff.

STAFF RECOMMENDATION

It is recommended that the Planning and Zoning Commission recommend the Board of County Commissioners adopt a Resolution approving the petitioner's request for rezoning from AR (Agricultural/Residential) and AG (Agricultural) to PDP(SF)/ Planned Development Project (Single Family) with deviations with the following performance conditions:

1. The petitioner must obtain all permits from Hernando County and other applicable agencies and meet all applicable land development regulations, for either construction or use of the property, and complete all applicable development review processes.

2. The petitioner shall provide a comprehensive floral/faunal (wildlife) survey prepared by a qualified professional to identify any listed species present prior to any clearing or development occurring on the property. Furthermore, copies of any required FWC permits shall be provided prior to clearing or development.

3. The petitioner must meet the minimum requirements of Florida Friendly Landscaping ™ publications and the Florida Yards and Neighborhoods Program for design techniques, principles, materials, and plantings for required landscaping. Retention of large native trees and stands should be maintained to the extent possible.

4. The Builder/Developer shall provide new residential property owners with Florida-Friendly Landscaping™ Program materials and encourage use of the principles, techniques, and landscaping recommendations. Information on the County's Fertilizer Ordinance and fertilizer use shall be included. Educational materials are available through the Hernando County Utilities Department. (Condition dependent on lot ownership and how the site will be developed.)

5. Geotechnical subsurface testing and reporting in accordance with Hernando County's Facility Design Guidelines shall be conducted for all drainage retention ponds within the project.

6. The petitioner shall contact the State Division of Historical Resources, Compliance and Review section, be contacted to determine if there are any State survey requirements for any archaeological features near the subject property.

7. The petitioner shall submit a fire protection plan with the Conditional Plat in accordance with Hernando County LDRs.

8. The petitioner shall provide the minimum required natural vegetation in accordance with the Hernando County Land Development Regulations.

9. The petitioner shall provide the minimum neighborhood park acreage of 2.4 acres exclusive of the drainage retention area in accordance with the Hernando County Land Development Regulations.

10. The petitioner shall provide a water and sewer capacity analysis at the time of conditional plat review and connect to the central water and sewer systems at time of vertical construction.

11. A formal application for School Concurrency Analysis shall be submitted to the School District no less than thirty (30) days prior to submission for approval of a site plan, conditional plat, or functional equivalent. Should the School District then find sufficient capacity neither exists, nor is anticipated to exist within three (3) years from the issuance of such approval, the School District will require, as a condition of any such approval, a Capacity Improvement Agreement or a Proportionate Share Mitigation Agreement with the School Board, to offset the demand for public school facilities created by the proposed development.

12. The petitioner shall be required to provide a treed boulevard roadway in accordance with the Code requirements.

13. The petitioner shall provide a 20' vegetated buffer and a 6' high opaque fence along the perimeter of the project.

14. Minimum Lot Size and Widths:
    - 50' x 110' for a minimum lot size of 5,500 square feet (deviation from 60' and 6,000 Sq. Ft.)
    - 70' x 110' for a minimum lot size of 7,700 square feet.

    Minimum Building Setbacks:
    - Front: 25'
    - Side: 7.5' (deviation from 10')
    - Rear: 20'
    - Secondary Front Yard/Corner Lot: 25'

15. Sidewalks shall be required throughout the project.

16. Improvements to adjacent roadways will be required and will be the responsibility of the Developer.

17. The petitioner shall provide a revised plan in compliance with all the performance conditions within 30 calendar days of BCC approval. Failure to submit the revised plan will result in no further development permits being issued.

REZONING APPLICATION NARRATIVE

*****

LAKE MIRAGE PROPERTY

OAK DEVELOPMENT GROUP, LLC

Submitted by:

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Original Submittal: August 2, 2023
First Revision: January 5, 2024
Second Revision: March 11, 2024

JUSTIFICATION REPORT
LAKE MIRAGE REZONING FROM AG & AR to PDP-SF

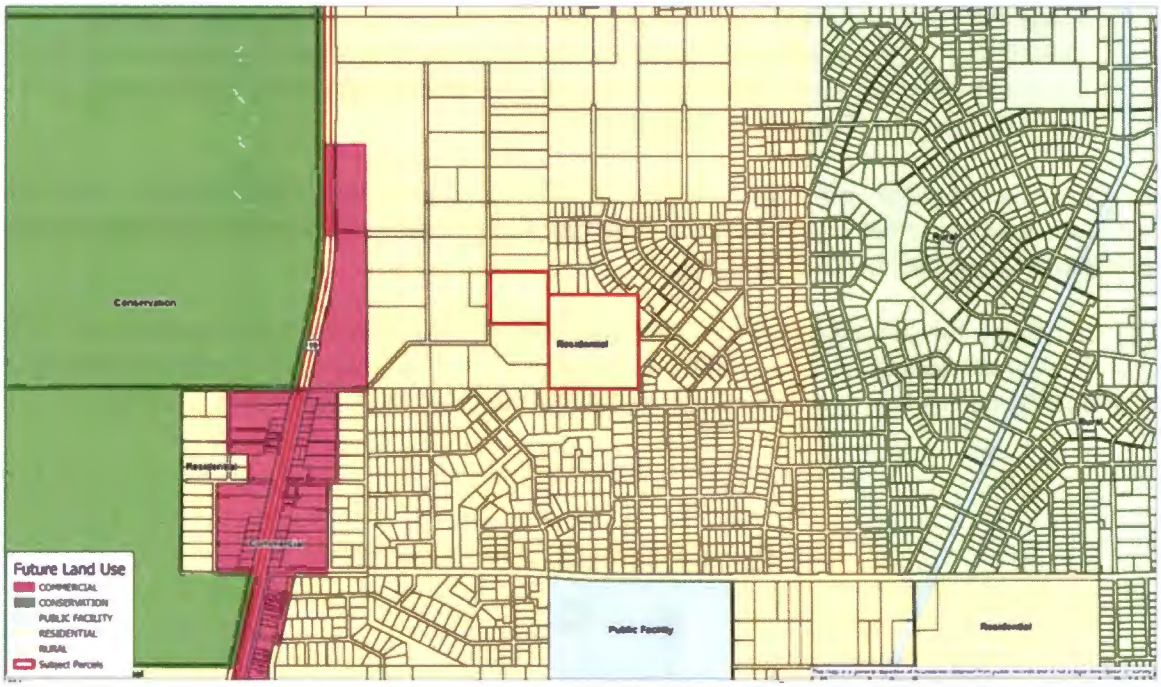
I. Proposal

a. Statement of Proposed Land Use & Acreage.

This rezoning application proposes to change the zoning from the Agricultural District (AG) and Agricultural Residential District (AR) to Planned Development - Single Family (PDP-SF) on approximately 53.28 acres on parcel key nos. 00343015 and 00103907 (the "**Property**" or "**Project**") **(Exhibit A – Location Map)**.

b. <u>Statement of Density Level of Residential Uses & Consistency with Comprehensive Plan</u>

This Application seeks a maximum of 136 single family residential units on 53.28 acres. This equates to a gross density of **2.55 dwelling units/gross acre,** consistent with the comprehensive plan and underlying future land use (FLU) (136 units/53.28 acres = 2.55 dwelling units/gross acre). The underlying FLU category is Residential.



Strategy 1.04A(2) of the Comprehensive Plan requires rezoning requests to be reviewed consistently with the overall intent of the Future Land Use Map (FLUM) and Comprehensive Plan:

> **Strategy 1.04A(2):** Review of rezoning requests shall be consistent with the overall intent of the Future Land Use Map (FLUM) and Comprehensive Plan strategies in terms of potential use or character and in terms of potential densities and intensities.

According to the Hernando County Comprehensive Plan, both single family and multifamily are allowed in the Residential FLU category. The density range within the Residential FLU category for single family residential is 2.5 to 6.0 dwelling units per gross acre (du/ga). **This means that anyone seeking to develop within the Residential FLU category is required to develop at least 2.5 du/ga**:

> **Strategy 1.04B(3):** The Residential Category will include zoning for single-family housing, generally averaging a density of 2.5 dwelling units per gross acre to 6.0 dwelling units per gross acre comprised of varying lot sizes and dwelling unit types

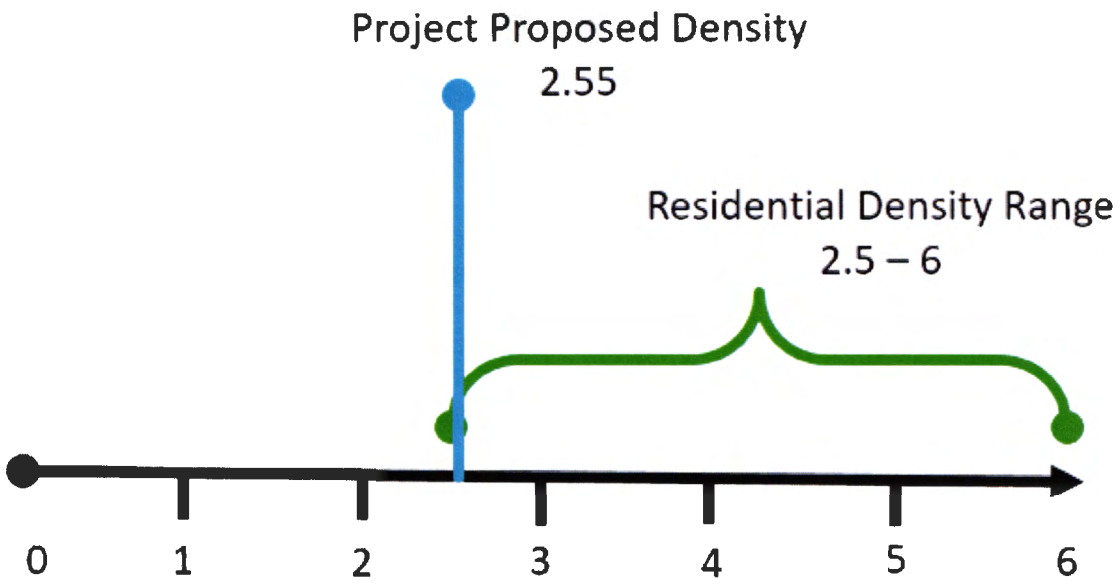
such as senior housing, villa housing, single family detached housing, and zero lot line housing.

Note that the Residential FLU category also allows for multifamily housing with a minimum density of 7.5 dwelling units per acre:

> **Strategy 1.04B(4):** The Residential Category includes zoning for multifamily housing generally averaging 7.5 dwelling units per gross acre up to 22 dwelling units per gross acre in order to provide for a diversity of housing choices. Multifamily housing should be located within, or in close proximity to urban areas shown on the Adjusted Urbanized Area Map, or near shopping and employment centers or within Planned Development Projects.

However, even though multifamily would be allowed under the Comprehensive Plan, this Application does not seek any multifamily. **This Application only seeks traditional single family residential (no manufactured housing).**

As stated above, this rezoning proposes a maximum of 136 single family residential units on 53.28 acres for a gross density of 2.55 dwelling units/gross acre. **The proposed maximum density of 2.55 du/ga is on the low end of the 2.5 to 6.0 du/ga range of the Comprehensive Plan.**



This graphical depiction demonstrates that the proposed density is well within range required by the comprehensive plan and just barely above the minimum.

Open Space and Infrastructure:
As part of the density analysis required to determine consistency with the comprehensive plan, one also needs to consider all of the minimum code requirements for landscaping, buffering, neighborhood parks and open space.

Consistent with the code, this Application proposes a neighborhood park consisting of 1.87 acres satisfying the County's land development regulations (LDR's) pursuant to Code of Ordinance Section 26-75. Pursuant to such LDR's, the amount of acreage required is one (1) acre for the first fifty (50) units plus $1/100^{th}$ of an acre for each dwelling unit over fifty (50) up to 250 dwelling units for a maximum of 3 acres. As this rezoning seeks a maximum of 136 dwelling units, the calculation is as follows:

Dwelling Units	**Acreage**
First 50 units	1 acre
Units 51 to 136 = 86 units	(86 * 1/100) .86 of acres
Minimum Park Acreage:	**(1 + .86) 1.86 acres**
Proposed:	**1.87 acres**

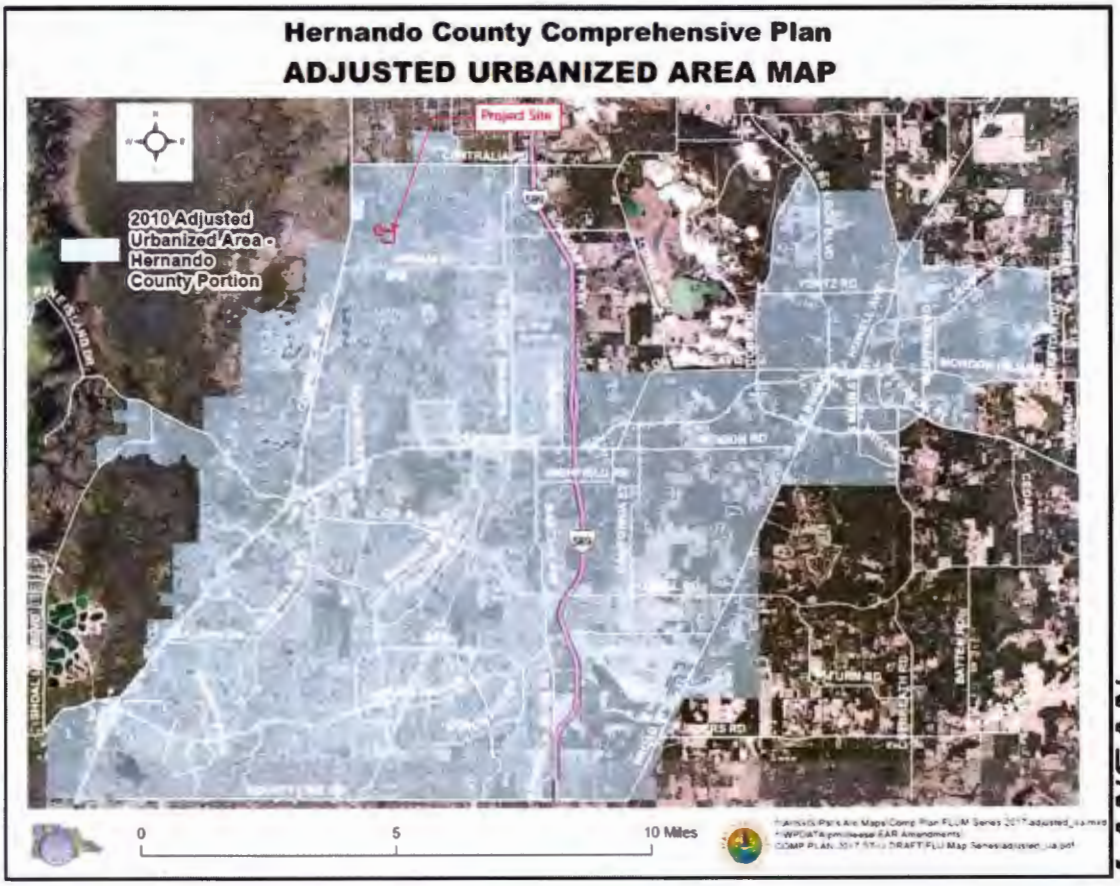
The neighborhood park has been creatively located central to the project increasing its accessibility to the homeowners. Due to the developer's context sensitive design, the Property's unique features have been leveraged to maximize open space opportunities. This includes perimeter buffering, designated natural vegetation preservation areas, wetland protection and strategically located stormwater ponds along the perimeter. These open space acreages are as follows:

Feature	**Acre(s)**	**% of Total**
Park	1.87	3.50%
Right-of-Way (ROW)	7.32	13.70%
Landscape Buffers	3.30	6.20%
Vegetation Preservation (Outside of Buffer)	1.21	2.30%
Stormwater	9.21	17.30%
Wetlands	1.70	3.19%
Subtotal Open Space & ROW	**24.61**	**46%**
Total Acreage	**53.28**	
Subtotal Open Space Only (No ROW)	**17.29**	**32%**

This table shows that when taking all of the right-of-way, drainage, wetlands, buffering and park requirements into consideration, this takes up 46% of the gross acreage. Only taking open space into consideration, the master plan secures approximately 32% open space. The ability to have larger open space is a direct benefit of clustering density via lots smaller through the PDP(SF) rezoning process. The PDP(SF) rezoning process is superior to the County's Euclidean zoning

districts for many reasons, including the discouragement of urban sprawl, provision of efficient infrastructure, and the ability to preserve open space (as opposed to having larger lots subject to human impact). The clustering of density through lot design is a key objective of preventing urban sprawl as required by the Comprehensive Plan:

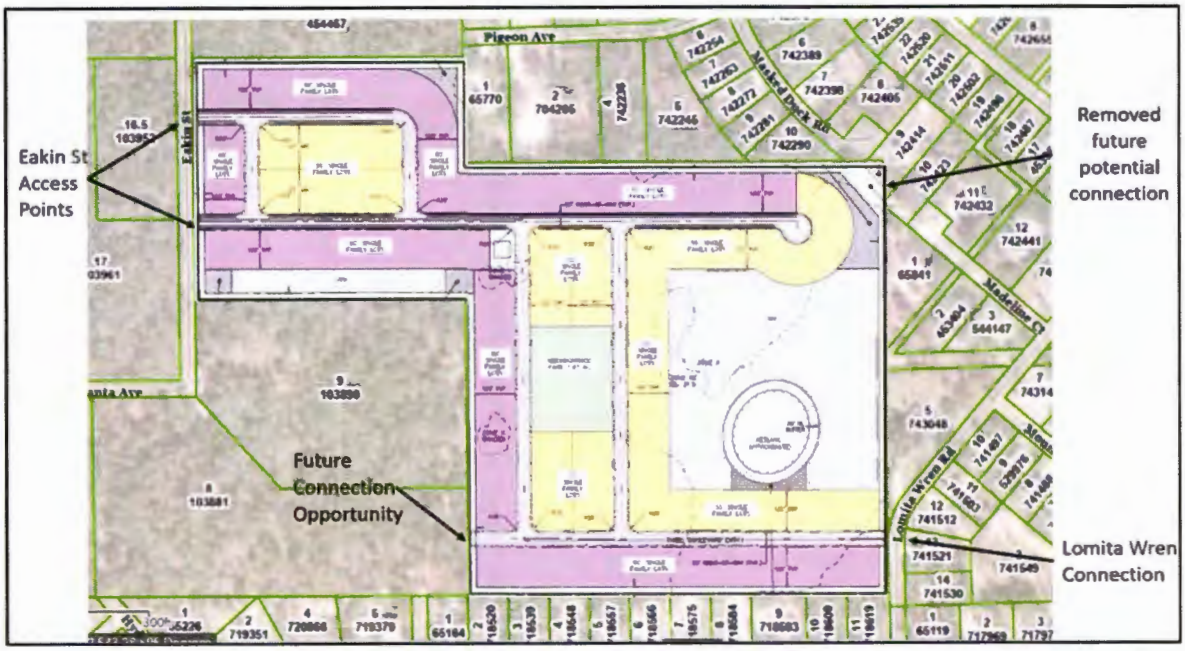
> **Strategy 1.04A(3):** The Residential Category accommodates residential growth clustered in and around urbanized areas that maximize the efficient use of infrastructure contained in long-range facilities plans of the County.
>
> **GOAL 1.11 – Urban Sprawl**
> In accordance with the County's growth strategy to provide for directed high-quality infrastructure services and discourage urban sprawl, Hernando County will provide mechanisms that prioritize public infrastructure and direct growth towards urbanized and urbanizing areas of the County. [F.S. 163.3177(6)(a)2.h, (6)(a)9.a., and, (6)(a)9.b]
>
> **Directed Infrastructure**
>
> **Objective 1.11A:** All County infrastructure planning shall ensure that the existing and future infrastructure needs, especially for roads, wastewater service, and potable water service, are prioritized for urbanized, urbanizing and infill areas of the County, especially in the Residential, Commercial, Industrial and Planned Development District Future Land Use Categories.
>
> **Strategy 1.11A(1):** The County's long range and master plans for transportation, potable water service, wastewater service and other public facilities are utilized to provide guidance for the timing and location of infrastructure according to need and level of service. Capital infrastructure projects shall be primarily directed to the urbanized areas of the County as depicted on the Adjusted Urbanized Area Map.
>
> **Strategy 1.11A(2):** The County shall manage infrastructure availability to influence the timing and location of development.
>
> **Strategy 1.11A(3):** Direct infrastructure toward the urbanized area and areas designated under the Plan for new development to prevent urban sprawl.



As can be seen above, the project is located within the Adjusted Urbanized Area Map.

Access & Connectivity

The proposed master plan actively provides connectivity through the site and notably provides multiple connection points including two (2) connections to Eakin Street, one (1) connection to Lomita Wren Road and one (1) future connection opportunity.



This proposed connectivity is supported by strategies in the comprehensive plan which discourages access to county arterial and collectors and encourages "separate" access driveways:

> **Strategy 5.01C(4):** Minimum driveway spacing standards by functional classification shall be established for driveways accessing County maintained roadways.
>
> **Strategy 5.01C(5):** New residential development should have points of access that connect to the arterial or collector road system but shall not have residential driveways connecting directly to those systems.

By providing missing portions of the potential grid network, this project contributes to more connected streets. "More connected streets can promote health by reducing care use and greenhouse gas emissions and by increasing walkability and levels of physical activity"[1]

Furthermore, the Master Plan designates two treed boulevard entrances exceeding the minimum required by the County LDR's.

In summary, this proposed rezoning is required to be reviewed consistent with the comprehensive plan. As stated above, this rezoning is consistent with the comprehensive plan and furthers the objectives and goals of the comprehensive plan to reduce urban sprawl.

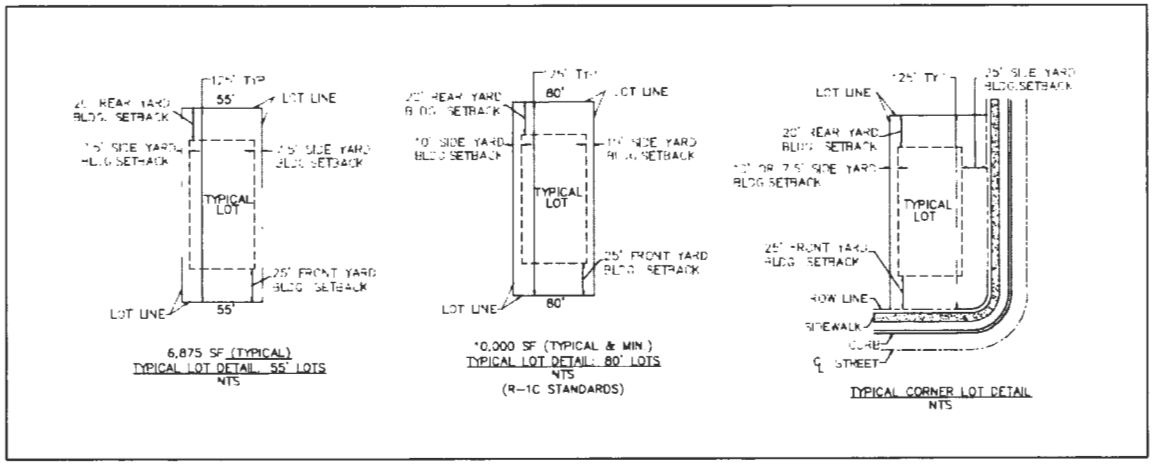
[1] Car Ownership Levels in America Follow Trends of Urban Street Griddedness, Uncovering JAPA, by Nina Sayles, March 11, 2021. (**Exhibit B**)

c. Statement of Proposed Square Footage of Development and Building Heights of Commercial Uses

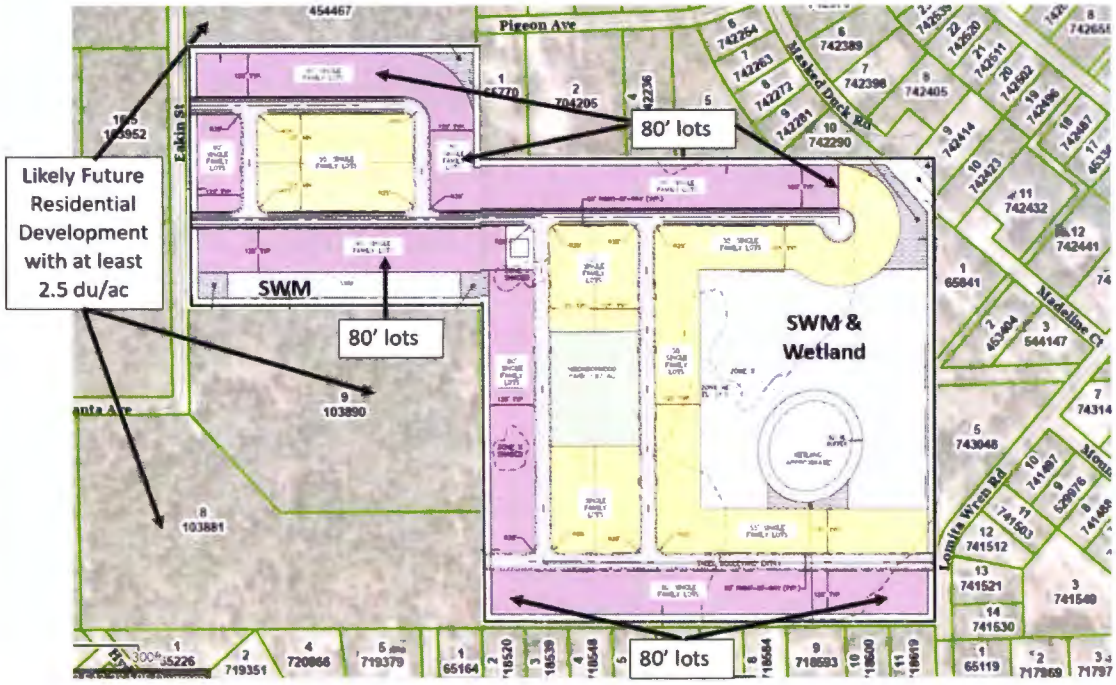
No commercial uses are proposed. There are two minimum lot sizes proposed:

- 55' width x 125' length (55 x 125 = 6,875 square feet lot size)
- 80' width x 125' length (80 x 125 = 10,000 square feet lot size)

Note that no 40-foot lots are proposed. The maximum building height for all lots is 35 feet/ two stories. The single family residential lot layout and dimensional standards are located on the Master Plan (**Exhibit C**), and shown below.



The 80' wide lots have been proposed along the perimeter of the Project where existing residential lots exist. The 50' wide lots are proposed internal to the site and/or if adjacent to additional open space or other buffer considerations such as stormwater features.



d. <u>Statement of Proposed Deviations from Code.</u>

The deviations proposed below are from the R1-A Euclidean zoning district and not the R1-C Euclidean zoning district. Compliance with the R1-C Euclidean Zoning District is inappropriate for the Residential Future Land Use Category as it would not be consistent with the comprehensive plan residential density minimum of 2.5 dwelling units per acre. However, it should be noted that the 80' perimeter lots also meet the R1-C Euclidean Zoning District standards.

Neighborhood park acreage is based on density. The fact that the PDP(SF) rezoning and master plan process requires density and related neighborhood park acreage to be shown on the master plan are reasons why this proposed PDP(SF) rezoning is superior to a conventional Euclidean rezoning. In summary, the PDP-SF rezoning process is a better planning tool than the standard Euclidean districts. The PD zoning district promotes flexibility on lot standards which in turn supports more efficient infrastructure and secures more open space and common areas. This in turn allows more areas to benefit all members of the community within the Project. In contrast, larger lots allows more areas (that would otherwise be preserved as open space) to be potentially impacted by human activity.

The proposed rezoning is to PDP-SF with specific standards is unique to this development. The proposed standards only deviate from the Euclidian standards for the R1-A zoning district in two ways:

LDC Section	Description	LDC Requirement	Proposed Amount	Requested Deviation
LDC App. A, Art. IV, Sec. 2, C: R-1A Residential District	Minimum Lot Width	60 feet	55* feet	(5) feet
LDC App. A, Art. IV, Sec. 2, C: R-1A Residential District	Minimum Side Yard	10 feet	7.5 feet	(2.5) feet
*Notes: Represents minimum requested for 55-foot lots which are restricted as to location per the Master Plan. 80' lots as designated on the master plan do not require a deviation from the R1-A district. All perimeter 80' lots also comply with the R1-C district.				

The R1-A Euclidean zoning district is designed primarily to permit the continued development of established residential areas which include a mixture of conventional single family dwellings and mobile homes and is therefore, not intended to be utilized extensively for future development. *See* App. A, Article IV, Sec. 1(3). No mobile homes or manufactured homes are proposed. The proposed density is 2.55 du/ga (136 units/53.28 acres). Clustering density to provide perimeter buffers, wider entrances at the access points to accommodate treed boulevards, and the neighborhood park, all require relatively smaller lots and reduced setbacks. However, the proposed PDP(SF) is appropriately buffered and screened to ensure compatibility with the surrounding neighborhoods.

As described in section III.B below, a 20' landscape buffer has been shown on the Master Plan along the full perimeter of the project and includes a 6' high opaque fence or wall along the perimeter except in areas designated as open space such as stormwater or wetlands. 100% opacity will be achieved where the wall is located; however, a minimum 80% opacity will be a condition of approval for those areas designated as open space, stormwater or wetlands where no fence is located. Additionally, the strategic location of the stormwater ponds provide additional and strategically located buffering.

As stated above, this development is located in the adjusted urbanized area and will promote the efficient use of public facilities and services.

Based on feedback from the Planning Commission, the applicant redesigned the property to increase the lot sizes. However, it should be noted that lot sizes are a critical mechanism to avoiding urban sprawl consistent with the above referenced comprehensive plan strategies. Additionally, the benefits of smaller lots are described in the attached publication by the American Planning Association's PAS QuickNotes No. 71, "Small Lot Subdivision Design" (**Exhibit D**). The lot sizes proposed in this Project are consistent with the key findings as follows:

SMALLS LOTS WHERE LARGER LOTS ARE PREVALENT

In communities where detached single-family homes on large lots are the predominant form of residential development, allowing for small-lot development provides an alternative to this form of development that serves several purposes. Small-lot development increases overall housing density and promotes context-sensitive infill development or redevelopment in areas where land is underutilized. This can help increase overall housing production, which is a component of addressing housing affordability concerns.

Additionally, small-lot development provides additional diversity in housing stock, which creates options for home buyers and may be particularly attractive to first-time home owners or seniors looking for less space or lower price points.

CONSIDERATIONS

Regardless of the predominant development pattern, there are several important design considerations for small-lot subdivisions to help new homes blend into existing neighborhoods. These considerations include building setbacks, building design (height, form, and style), and parking requirements.[2]

This Project as proposed with the perimeter buffer and the strategic location of open space and stormwater facilities to increase setbacks and buffers are universally accepted planning tools addressing compatibility of smaller lots relative to surrounding areas.

Furthermore, although no comprehensive plan amendment is required for this rezoning, the utilization of transitions, buffers, setbacks and strategic location of stormwater ponds are also compatibility strategies emphasized by the Comprehensive Plan Strategy 1.10B(5) as adopted by Ordinance 2022-18 on July 12, 2022 **(Exhibit E)**

> Strategy 1.10B (5): To promote compatible lot size and design and to mitigate potential incompatibilities, residential Master Plan applications will be reviewed for the following:
>
> a. Use of undisturbed native vegetation as a suitable buffer;
> b. Use of enhanced buffers to include supplemental trees and shrubs and/or perimeter fencing/walls;
> c. Requirements for increased opacity of screening on the site perimeter;
> d. Increased setbacks on the site perimeter;
> e. The placement of smaller lots internal to the site;
> f. The placement of larger lots, similar in size to adjoining lots, on the site perimeter;
> g. Increased width of buffers on the site perimeter;
> h. Limitations on density consistent with adjoining land uses;
> i. Gradual transition of density and lot size; and
> j. Proposed residential developments adjacent to residential uses shall demonstrate compatibility through the creation of a similar lot pattern, enhanced screening/buffering or other means. Maintenance and enhancement of rural, scenic, or natural view corridors shall also be a consideration in evaluating compatibility in this area.

[2] Small Lot Subdivision Design, PAS Quick Notes No. 71, American Planning Association, **Exhibit D**

As summarized above and depicted on the master plan, this project satisfies all of the county's compatibility criteria a, b, c, d, e, f, g, h, i, and j.

II. Site Characteristics

a. **Site Size**: The Property is 53.28 acres. **(Exhibit F)**

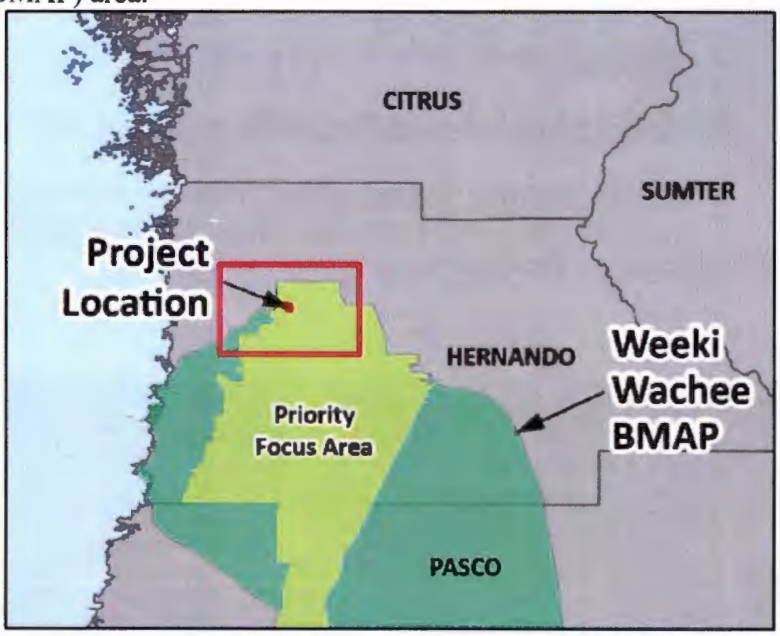
b. **Existing Land uses and their specific acreage**: N/A. The lot is currently vacant:

c. **Known activities or uses on-site:** There are no known uses on the site; however, a review of the aerial photograph reveals that an unofficial trail system may be used to access the Property, particularly Lake Mirage:

III. Surrounding Area & Compatibility Considerations

The Project is surrounding by the Royal Highlands Subdivision which has a density of 0.5 du/ga and an old plat called Hi Way Farms which has 12 residential units across 221 acres which is 0.05 units per acre. Both of these subdivisions preceded the Comprehensive Plan and are inconsistent with the Comprehensive Plan as follows:

- 0.5 and 0.05 du/ga are excessively below the current Residential FLU requirement for a density of 2.5 to 6 du/ga.
- No more wells & septic. The Project and surrounding area are located in the Priority Focus Area (PFA) of the Weeki Wachee Basin Management Action Plan (BMAP) area:



  - The PFA represents the area where the aquifer is "most vulnerable to inputs and where there are the most connections between groundwater and the springs."
  - Sewer connections along with the elimination or conversion of individual septic systems are identified in the Weeki Wachee BMAP as a method to reduce groundwater contamination with the goal of protecting the Weeki Wachee Springs.
  - Well and Septic on large lots are no longer viable infrastructure solutions; Well & Septic are counterproductive to reducing urban sprawl and improving public health.
    - As stated in the BMAP, New Onsite Sewage Treatment and Disposal Systems (OSTDS) on lots less than one acre are prohibited within the PFA, unless the system includes enhanced treatment of nitrogen as defined by the OSTDS remediation plan or unless the OSTDS permit applicant demonstrates that sewer connections will be available within 5 years. Local governments and utilities are expected to develop master wastewater treatment feasibility analyses to identify specific areas to be sewered within 20 years of BMAP adoption.[3]

[3] Florida Department of Environmental Protection, Weeki Wachi Basin Management Action Plan, June 2018, **Exhibit G**

Connections to water and wastewater is required for this development consistent the following Comprehensive Plan Goals, Objectives:

> **GOAL 6.04** – Utilities Level of Service Hernando County shall ensure that new development is compatible with available local water supplies, wastewater service capacity supplies, drainage and stormwater handling capacity and solid waste disposal service capacity and shall ensure that acceptable levels of service are provided. [F.S. 163.3180(1)]
>
> **Objective 6.04A**: Development must be served with potable water, wastewater handling, drainage and solid waste disposal that meet accepted level of service standards. The Land Development Regulations shall ensure a review of the potable water, wastewater handing, drainage and solid waste needs for new developments.
>
> **Strategy 6.04A(1):** For those areas of the County which are served or will be served by a community water system, the level of service standard for facility capacity is 350 gallons per equivalent residential unit per day.
>
> **Strategy 6.04A(2):** For those areas of the County which are served or will be served by central wastewater facilities, the level of service standard for facility capacity is 280 gallons per equivalent residential unit per day.
>
> **Strategy 6.04A(3):** Development using any interim potable water or wastewater system shall be required to connect to a public system when available.
>
> **Strategy 6.04A(4):** Any interim or permanent wastewater treatment plant shall be required to meet all treatment standards of the Florida Department of Environmental Protection (FDEP) under Florida Statute 403 and related sections, and to receive a permit from FDEP prior to receiving a construction permit from Hernando County.
>
> **Strategy 6.04A(5):** Any interim or permanent septic tank shall be required to meet all density, setback and construction standards of the Florida Department of Health (FDOH) under Florida Statute 381 and related sections, and to receive a permit from FDOH prior to receiving a construction permit from Hernando County.

Additionally, feedback provided by the Hernando County Utilities Department specific to this Project is consistent with the findings of the BMAP and Comprehensive Plan:

> The Hernando County Utilities Department (HCUD) reviewed the application and provided the following comments:
>
> - HCUD does not currently supply water or sewer service to these parcels.
> - There is an existing 16-inch water main that runs along the east side of Commercial Way.
> - There is an existing 10-inch sewer force main that also runs along the east side of Commercial Way.

Comment: HCUD has **no objection** to the submitted zoning change from AR and AG to PDP(SF) to allow the development of 190 single family homes, subject to a utility capacity analysis and connection to the central water and sewer systems at time of vertical construction, with the stipulation that the developer will need to provide utility placement details showing the locations of all utilities on the conditional plat for lots with side setbacks of less than 10'. The shortest distance between the water and sewer mains lining Commercial Way and the subject property, is approximately 2,300'. The more likely placement of new water and sewer mains for this development would follow Atlanta Avenue, proceeding up Eakin Street for a total approximate distance of 3,175'.

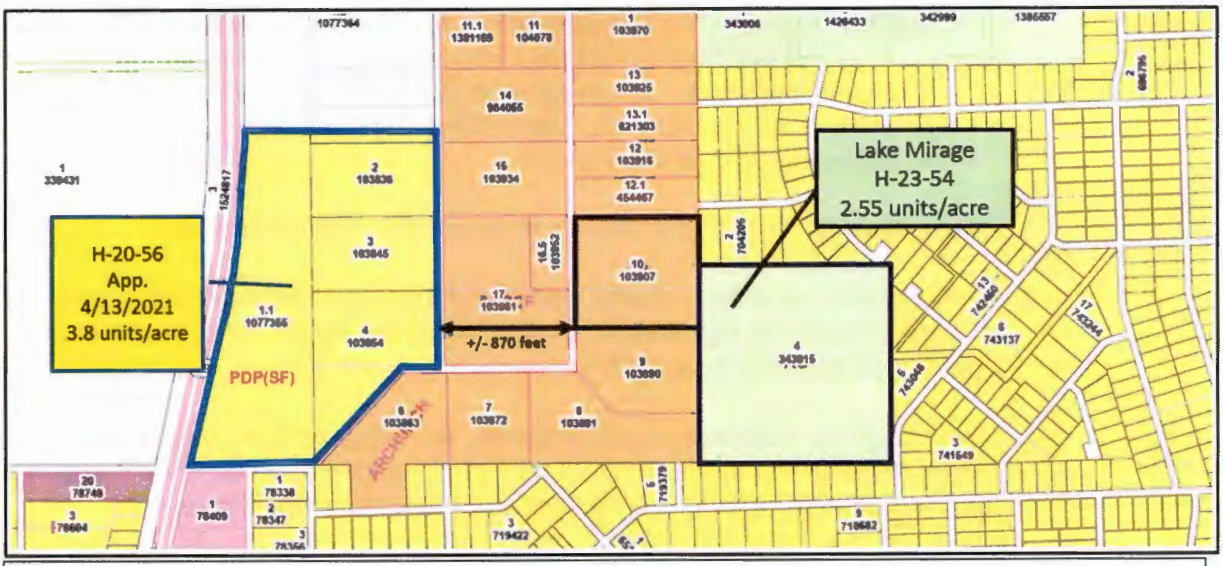
In summary, as recommended by the BMAP and consistent with county's LDR's, this Project as proposed will connect to water and wastewater. Potable water and wastewater systems are superior infrastructure investments in comparison to septic and wells which may still be predominant in the surrounding area. Septic tanks (also known as OSTDS) are a risk to the sensitive Weeki Wachi Springs.

In summary, this proposed rezoning to PDP(SF) is consistent with the Comprehensive Plan, whereas the surrounding area is not. Any redevelopment in the surrounding area will have to comply with the comprehensive plan and updated code requirements for density, water & wastewater connections and provision of neighborhood parks & open space, just like this Project is demonstrating with this application.

Another consideration with respect to compatibility, includes recently approved development in the surrounding area. A search of the surrounding area has revealed the County's adoption of a PDP(SF) rezoning with deviations on April 13, 2021 for Garden Street Communities Southeast, LLC, f/k/a Esplanade Communities of Florida, LLC (Rezoning File No. H2056) (referred to herein as "Esplanade"). **Esplanade was approved for 250 single family units on 65.70 acres for a density of 3.8 du/ga (250 units/65.7 acres) with a minimum lot size of 6,000 square feet and standard configuration of 50' wide by 120' long sized lots.** The rezoning included deviations setback reduction as follows (all of which were approved):

Included in the rezoning application are the following deviation requests:

- Reduction in building setbacks and lot width:
  - Side – from 10' to 5'
  - Rear – from 20' to 15'
  - Lot Width-from 60' to 50'
  - Setback from US 19: 40' (deviation from 125')
- Elimination of the frontage road requirement



Surrounding Area Comparable Rezoning

This is a prime example of how this Project's proposed rezoning is consistent with the redevelopment of the surrounding area and the comprehensive plan.

In summary, this proposed rezoning is compatible with the surrounding area.

IV. Environmental Considerations.

Environmental considerations such as flood zone, drainage features, and water features have been noted on the Master Plan including a 30-foot wetland buffer is proposed around the wetland. A supplemental environmental review is attached hereto as **Exhibit H**. The Applicant will comply with all applicable environmental permitting regulations. Furthermore, the County's standard environmental Planned Development conditions approval shall apply:

1. The petitioner must obtain all permits from Hernando County and other applicable agencies and meet all applicable land development regulations, for either construction or use of the property, and complete all applicable development review processes.

2. The petitioner is required to comply with all applicable FWC regulations and permitting.

3. The petitioner must meet the minimum requirements of Florida Friendly-Landscaping™ publications and the Florida Yards and Neighborhoods Program for design techniques, principles, materials and plantings for required landscaping, as applicable.

4. The Builder/Developer shall provide new property owners with Florida-Friendly Landscaping™ (FFL) Program information and include FFL language in the HOAs covenants and restrictions. Information on the County's Fertilizer Ordinance and fertilizer use is to be included. Educational information is available through Hernando County Utilities Department.

5. A jurisdictional wetland line shall be shown on the conditional plats.

6. Geotechnical subsurface testing and reporting in accordance with Hernando County's Facility Design Guidelines shall be conducted for all proposed drainage retention or detention areas within the project.

7. Invasive plant species must be removed, including wetland areas, during the development process and controlled through the approved Association documents during the subdivision process for long-term maintenance and control.

Site Plan Discussion.

a. **Description of the concept of the development plan.**
As can be seen on the attached Master Plan (**Exhibit C**) and as summarized above, the County's latest development guidelines have been incorporated into the design. Larger 80' wide lots have been strategically placed along the perimeter with 55' lots primarily located interior to the site.

b. **Proposed buffer sizes and separation widths between proposed land uses**.
A 20' landscape perimeter buffer has been shown on the Master Plan. Additionally, as depicted on the Master Plan, the Applicant/Developer is committed to placing larger lots (minimum 80' wide) along the perimeter with the exception of those areas adjacent to the stormwater ponds. It should be noted that the stormwater pond locations and native vegetation areas are proposed to be strategically located around the outer portions of the project to maximize perimeter buffering opportunities. A 6' opaque fence or wall will also be placed along the perimeter except in areas designated as open space such as stormwater or wetlands. The wall will provide 100% opacity; however, even in the areas designated as open space such as stormwater or wetlands, a condition of approval is proposed that will require 80% opacity in the buffer.

c. **Proposed setbacks and minimum sizes for individual lots**.
The master plan contains the various lot sizes proposed for the project and includes all applicable setbacks on the lot layout.

d. **Proposed uses within pods**.
This rezoning proposes single family residential and a potential recreational amenity center within the neighborhood park. No manufactured housing is proposed.

V. Public Facilities Impact Analysis.

a. **Water & Wastewater Analysis**. The following charts outline the potential impacts on water and wastewater:

Potable Water Impacts		
Zoning District	**Proposed Density EDU**	
Planned Development - Single Family*	137	
Average Daily Demand	53,430	gallons per day
Maximum Daily Demand	80,145	gallons per day
	55.66	gallons per minute
Required Fire Flow	1000	gallons per minute
Required Fire Flow + Maximum Daily Demand	1055.66	gallons per minute
*Analysis based on PDP (Single Family) Zoning District of 137 equivalent dwelling units as the Zoning Application.		
Sanitary Sewer Impacts		
Average Daily Flow	27,400	gallons per day
Peak Hourly Flow	57.08	gallons per minute

b. **Schools.** School concurrency applies to residential development and thus shall apply to this project. The Applicant will work with the school board to complete a school capacity application and shall comply with applicable school concurrency requirements in conjunction with development of the property.

c. **Parks.** In accordance with Strategy 7.01B(4) of the Hernando County Comprehensive Plan, a project in excess of 1,000 new residential units will require an analysis of the proximity and accessibility of a district or community park by the proposed development to determine whether additional facilities are needed. As this project is a maximum of 136 dwelling units, an additional park analysis is not required.

VI. Water and Sewer Services.

As stated above, it is understood that the County subdivision regulations require the dedication of sewer and water systems to the County. It is also understood that such regulations provide for obtaining water and sewer service from the County, payment of connection fees, and commitments for service.

As part of the zoning and permitting process, the Applicant will work with the County and enter into applicable water and sewer agreements. It is also acknowledged that the Developer must request water and sewer service from the County.

VII. Senior, Age-Restricted or Affordable Housing.

N/A. None of these items are proposed.

VIII. Additional conditions of approval.

a. No manufactured housing permitted.

Exhibit List

Exhibit A:	Location Map
Exhibit B:	Car Ownership Levels in America Follow Trends of Urban Street Griddedness, Uncovering JAPA, by Nina Sayles, March 11, 2021.
Exhibit C:	Master Plan
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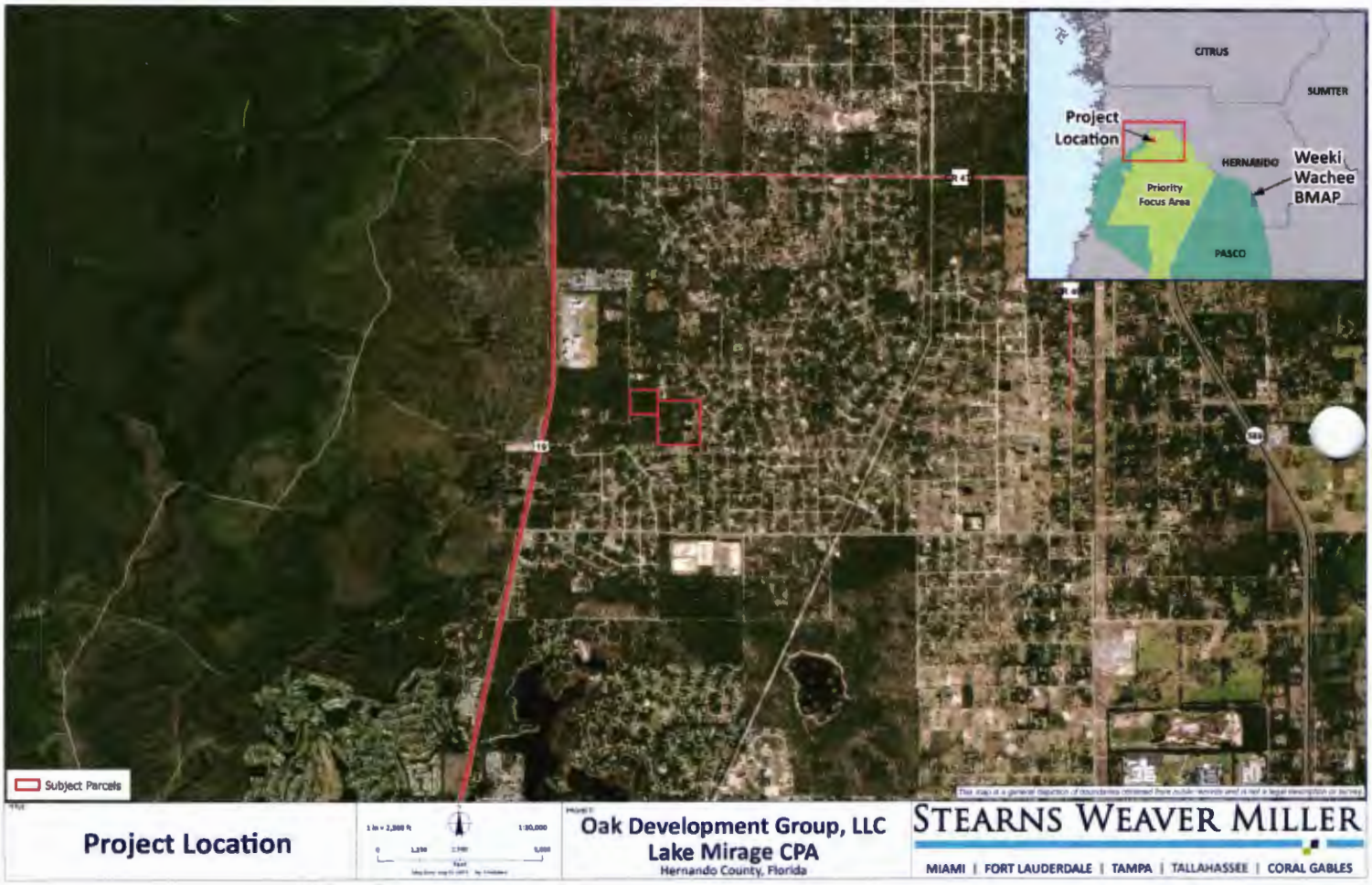
Exhibit G:	Florida Department of Environmental Protection, Weeki Wachi Basin Management Action Plan, June 2018
Exhibit H:	Environmental Considerations

Exhibit A



Project Location

1 in = 2,000 ft | 1:30,000

Oak Development Group, LLC
Lake Mirage CPA
Hernando County, Florida

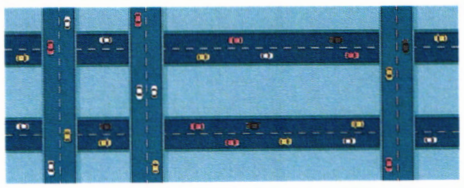
STEARNS WEAVER MILLER

MIAMI | FORT LAUDERDALE | TAMPA | TALLAHASSEE | CORAL GABLES

Exhibit B

UNCOVERING JAPA

Car Ownership Levels in America Follow Trends of Urban Street Griddedness



As technology, transportation, and design have evolved, so too has the physical composition of American streets, or street "griddedness." In "Off the Grid...and Back Again? (https://doi.org/10.1080/01944363.2020.1819382)" in the

Journal of the American Planning Association (Vol. 87, No. 1), Geoff Boeing seeks to understand the correlation between geometric spatial ordering in U.S. cities and the ownership and use of automobiles. He hypothesizes that the griddedness, or lack thereof, of American cities is not merely a design choice, but has tangible implications for equity in mobility, public health, and environmental sustainability.

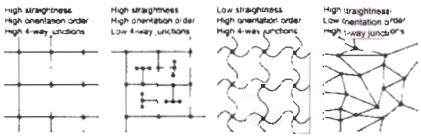


Figure 1. Street grids. Theoretically, a street grid has an internally consistent orientation, is relatively straight, and comprises mostly 4-way intersections. Each of these three characteristics is necessary but alone insufficient: only in unison do they make a street grid.

The gridded street design was the primary layout of U.S. cities from the 18th century through the 20th. Griddedness wasn't just a feature of cities; griddedness defined westward expansion as a means of promoting rapid expansion and settlement. As the automobile began to dominate the streets, planners took a car-centric approach to spatial design, and the standards of layout and engineering in American cities and towns evolved to prioritize personal cars. In new urban and suburban developments, streets became more circuitous and then more disconnected, through the 1940s and into the 1990s.

> Meanwhile [in the mid-20th century], planning practice shifted away from dense, interconnected, gridded street networks in a bid to simultaneously attenuate the automobile's negative externalities...in residential communities while still empowering the populace to travel by car because it was fast and convenient.

Theorists of the 20th century proclaimed that street network designs promoted particular values. Lewis Mumford disliked gridded designs, arguing in 1961 that griddedness was monotonous and lacked function. More recent academics praise street grids for their legibility, efficiency, and directness. Yet street design is not merely a matter of values and aesthetic. The choices that planners make about network layout pertain to matters of equity, health, and access. More

connected streets can promote health by reducing car use and greenhouse gas emissions and by increasing walkability and levels of physical activity.

To determine the extent of a shift toward renewing a gridded typology throughout the United States, and the contemporary implications of street grids in practice, Boeing collected and analyzed data on the street networks of all 74,113 U.S. census tracts. He found that Chicago and New York City were two cities with particularly high orientation order, meaning their streets mostly point in just four directions. Nationwide, the Great Plains and the Midwest are the most gridded, while New England and Appalachia are the least grid-like. Boeing also finds a grid-time relationship, noting that the average grid index value in urban tracts built primarily in the 1940s is 84 percent higher than in 1990s urban tracts. Yet, since 2000, the grid index and its components have been on the rise in American cities.

Boeing finds that car ownership follows a similar trend as griddedness, with car ownership today rising with tract vintage from the 1940s to the 1990s but declining in tracts designed after 2000. Households in 1990s-vintage tracts own approximately 50 percent more cars than those in urban tracts designed before the Second World War.

Boeing implores any planner tasked with street layout and design to think carefully about the project, as the implications for such a project are clear and long-lasting. If there is not an imminent street redesign project, planners can update zoning codes and design guidelines to favor four-way intersections and connected grids. Boeing warns that planners should not merely react to mobility trends, but rather plan proactively to disincentivize car usage and advance city climate action plans.

Top image: *Getty Images illustration.*

ABOUT THE AUTHOR

Nina Rae Sayles is a joint Master in Urban Planning and Master in Public Health candidate at Harvard University.

MARCH 11, 2021

By Nina Sayles

Tags: Equity, Diversity, and Inclusion, (/blog/?tags=1229) Technology Methods and Tools, (/blog/?tags=103) Transportation, (/blog/?tags=89) Urban Design, (/blog/?tags=107) Diversity, (/blog/?tags=1912) JAPA (/blog/?tags=1339)

< Previous (/blog/blogpost/9100029/)
Next > (/blog/9213523/the-continued-challenges-of-bias-and-discrimination-within-planning-education/)

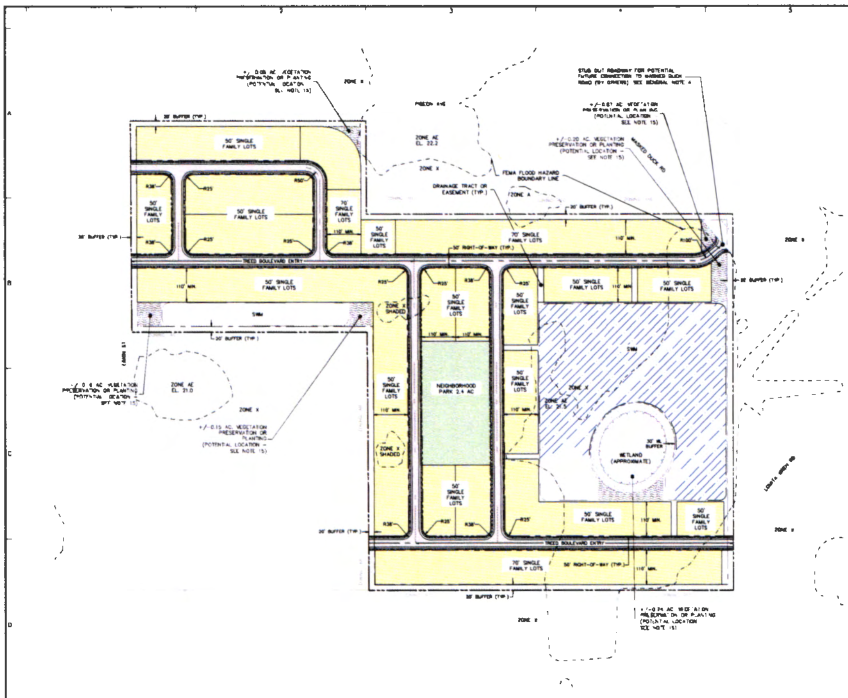
(https://use1.smartadserver.com/click?imgid=29393507&insid=11427968&pgid=584791&fmtid=34985&ckid=9181916806890555526&uii=8305010773028759739&acd=1703274762877&opid=43ef841c-6608-46d5-83a3-07c239f23e96&opdt=1703274762878&tmstp=455822184&tgt=%24dt%3d1t%3b%24dma%3d539&systgt=%24qc%3d1314778061%3b%24ql%3dUnknown%3b%ownership-levels-in-america-follow-trends-of-urban-street-griddedness%2f&cappid=9181916806890555526&eqs=d61a112a0b5cd4acdd1ebcebde1608685e2335df&go=https%3a%2f%2fplanning.org%2faicp%2f)

Chicago

American Planning Association
205 N. Michigan Ave., Suite 1200
Chicago, IL 60601-5927

Phone: 312-431-9100
Fax: 312-786-6700

Exhibit C



LEGEND

- SINGLE FAMILY LOT AREA
- ASPHALT ROADWAY
- NEIGHBORHOOD PARK AREA
- LANDSCAPE BUFFER - 3.27 ACRES (IF NO EXISTING VEGETATION TO BE PRESERVED, BUFFER TO BE CLEARED, GRADED, AND PLANTED WITH NATIVE VEGETATION)
- CONCRETE SIDEWALK
- POTENTIAL LOCATION FOR VEGETATION PRESERVATION OR PLANTING

SITE DATA

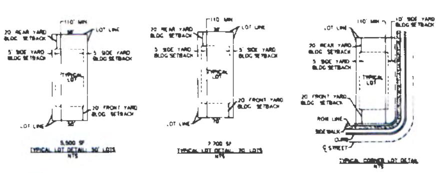
1. PARCEL KEY/ID
   R08-223-18-3570-0000-0100
   R08-423-19-0000-0040-0000
2. AREA
   53.28 ACRES
3. OWNER
   PANTHER I LLC
4. CURRENT ZONING
   AR, AG
5. PROPOSED ZONING
   PDP (SINGLE FAMILY)
6. PROPOSED USE
   SINGLE FAMILY RESIDENTIAL
7. SURROUNDING ZONING
   NORTH AR, R1C
   EAST R1C
   SOUTH R1C/DRA
   WEST AR, AR/CF
8. FLOOD ZONE
   ZONE AE PER 12053C0178E
   EFFECTIVE JANUARY 15, 2021
9. PROPOSED LOTS
   100
10. PROPOSED LOT SIZES (SEE LOT DIAGRAM NOTE 2)
   50 FT X 110 FT = 5,500 SF
   70 FT X 110 FT = 7,700 SF
11. PROPOSED DENSITY
   100 LOTS / 53.28 ACRES
   1.87 LOTS / ACRE
12. PROPOSED YARD SETBACKS
   SEE LOT DIAGRAMS
13. MAX BUILDING HEIGHT
   35 FT / 2½ STORIES
14. NEIGHBORHOOD PARK REQUIREMENTS
   PER HERNANDO COUNTY CODE OF ORDINANCES SEC. 26-73. ONE (1) ACRE FOR FIRST 50 UNITS PLUS ONE-ONE HUNDREDTH (1/100) ACRE FOR EVERY UNIT OVER 50

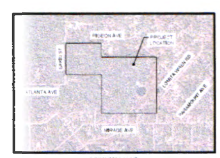
   1 AC (FIRST 50 LOTS) + (.01 AC)*(100-50 LOTS)
   TOTAL REQUIRED = 2.4 ACRES
   TOTAL PROVIDED = 2.4 ACRES
15. NATIVE VEGETATION PRESERVATION OR PLANTING REQUIREMENTS
   PER HERNANDO COUNTY CODE OF ORDINANCES SEC. 10-30 (A). PROJECTS OVER 20 ACRES SHALL PROVIDE AT LEAST SEVEN (7%) OF TOTAL PROJECT AREA AS PRESERVED NATURAL VEGETATION OR INSTALLED NATIVE VEGETATION

   TOTAL REQUIRED: 53.28 AC X 7% = 3.73 ACRES
   TOTAL PROVIDED: 3.73 ACRES
   FINAL LOCATIONS WITHIN LANDSCAPE BUFFERS, NEIGHBORHOOD PARK, OR OTHER OPEN SPACES DEPICTED HEREON (OR ELSEWHERE) WILL BE SHOWN ON CONSTRUCTION PLANS. LOCATIONS HEREON ARE NOT TO BE CONSIDERED SP[illegible] NOTHING ON THIS MASTER PLAN OR A[illegible] APPROVAL SHALL BE CONSTRUED A[illegible] COMMITMENT TO PRESERVE EXIST[illegible] VEGETATION IN BUFFERS OR PROH[illegible] THE LANDSCAPE BUFFER AREAS AS [illegible] SWALES THAT MAY HOUSE UNDERGR[illegible] DRAINAGE STRUCTURES

GENERAL NOTES

1. THIS IS A PLANNING DOCUMENT AND IS NOT TO BE CONSIDERED A FINAL DESIGN OR CONSTRUCTION PLANS.
2. STORMWATER MANAGEMENT AND FINAL UTILITY CONFIGURATIONS, FUNCTION, EASEMENTS, SIZE, OR LOCATIONS TO BE DETERMINED WITH THE FINAL APPROVED ENGINEERED SET OF CONSTRUCTION PLANS AND FINAL PLAT.
3. TOPOGRAPHIC INFORMATION IS APPROXIMATE AND REFERENCED FROM SOUTHWEST FLORIDA WATER MANAGEMENT MAPPING AND GIS DEPARTMENT.
4. INTERNAL SUBDIVISION ROAD TO BE STUBBED TO NEAR THE PROPERTY LINE. RIGHT-OF-WAY TO BE PLATTED TO PROPERTY LINE TO ALLOW HERNANDO COUNTY TO CONNECT TO MASKED DUCK ROAD IF AND WHEN THE COUNTY IMPROVES MASKED DUCK ROAD.





VICINITY MAP

NOTE:
1. PROPOSED LOT SIZES SHOWN ARE MINIMUM. DEVELOPER RESERVES THE RIGHT TO INCREASE LOT SIZES IF AND WHEN NECESSARY.
2. LOT SQUARE FOOTAGES SHOWN ARE NOT INTENDED AS ABSOLUTE MINIMUMS. RADIAL OR OTHER IRREGULAR LOTS MAY DEVIATE FROM THESE LOT SQUARE FOOTAGES SO LONG AS THEY FIT THE TYPICAL HOUSING PRODUCT WITH THE REQUIRED SETBACKS SHOWN.

Date	Description	No
Revisions		

Signature: ANDREW D. EILAND JR, FLORIDA LIC No 69810

LANGAN
Langan Engineering and Environmental Services, Inc
4[illegible] N. Ashley Drive, Suite 2175
Tampa, FL 33602
T 813.436.6100 F 813.436.6101 www.langan.com

Project: LAKE MIRAGE
BROOKSVILLE
HERNANDO COUNTY FLORIDA

Drawing Title: MASTER SITE PLAN

Project No: 350064301
Date: JUNE 2023
Drawn By: VE
Checked By: AE

Drawing No: CS101

Exhibit D

QUICKNOTES

Planning fundamentals for public officials and engaged citizens

This PAS QuickNotes was prepared by Anna Read, AICP, senior program development and research associate at APA.

Small-Lot Subdivision Design

Many cities in the U.S. have residential neighborhoods where most homes sit on lots that are less than 5,000 square feet in area. In older central cities, these are often neighborhoods near the downtown core, and for suburbs developed before World War II, modest homes on small lots are common. However, in the postwar period, communities across the country adopted zoning codes that set large minimum lot sizes for residential development, facilitating a pattern of detached single-family homes on large lots.

Increasingly, communities are looking to promote infill development, provide alternatives to large-lot single-family homes, and produce more affordable housing stock. Small-lot subdivisions can help promote context-sensitive infill development, increase opportunities for home ownership, and may be a tool for addressing housing affordability issues.

There are two primary reasons why a community may want to treat small-lot subdivisions as a distinct type of development. The first is to permit small-lot development in areas where the predominant development pattern is larger lots. The second is to allow for development (or redevelopment) in areas where the existing development pattern is small lot, but where small-lot development is no longer compatible with existing zoning regulations.

SMALLS LOTS WHERE LARGER LOTS ARE PREVALENT

In communities where detached single-family homes on large lots are the predominant form of residential development, allowing for small-lot development provides an alternative to this form of development that serves several purposes. Small-lot development increases overall housing density and promotes context-sensitive infill development or redevelopment in areas where land is underutilized. This can help increase overall housing production, which is a component of addressing housing affordability concerns. Additionally, small-lot development provides additional diversity in housing stock, which creates options for home buyers and may be particularly attractive to first-time home owners or seniors looking for less space or lower price points.

Los Angeles amended its zoning code in 2005 to provide an alternative to conventional large-lot single-family home development patterns and facilitate infill development on underutilized lots in most residential and commercial zones into fee-simple homes. The code's Small Lot Subdivision standards allow developers to divide existing parcels into lots with one to three homes, with a minimum lot area of 600 square feet (compared to the 5,000-square-foot minimum for conventionally developed single-family homes). The ordinance also reduces setback requirements and removes the street frontage requirements (§12.22.C.27). All small-lot subdivisions must also comply with the city's Small Lot Design Guidelines, which address site planning, building design, and landscaping to ensure that small-lot developments are context sensitive and compatible with existing neighborhood form.

SMALL LOTS TO FIT EXISTING FORM

Many communities have small lots as a component of their existing development pattern, and in some communities, small lots are the predominant form. For older cities, these lots often predate the local zoning code and may fail to meet the minimum lot size or dimension standards of the code. Furthermore, the homes on these lots may fail to meet the required setbacks of the zoning district. In these cases, the small lots are grandfathered nonconformities, meaning owners must typically meet all current zoning standards before they can modify existing homes or build anything new on these lots. This poses both practical and financial challenges for renovation and redevelopment of existing homes, as well as infill development on nonconforming vacant lots. Therefore, communities that either amend zoning district standards to match the existing development pattern or define and

Brent Walsh/CC BY 2.0

Cottage housing on small lots in Kirkland, Washington.

American Planning Association

Making Great Communities Happen

permit small-lot subdivisions as a distinct form of development can facilitate infill and redevelopment and create a more predictable environment for project financing.

In 1999, Newark, New Jersey, changed its zoning code to allow small-lot development. At the time, the minimum lot size requirements in Newark's zoning ordinance were incompatible with existing residential development patterns in the urban core, which primarily consisted of 25'x 100' lots. Property owners had to request variances to develop on lots that were under the minimum lot size, which created challenges for home owners attempting to make improvements to their properties and for the redevelopment of previously developed but currently vacant lots. Following this change, the city saw an increase in infill housing development. However, local officials found that many of the new residences did not blend well with neighboring homes and moved to adopt new zoning standards that addressed design considerations for small-lot development in 2008.

CONSIDERATIONS

Regardless of the predominant development pattern, there are several important design considerations for small-lot subdivisions to help new homes blend into existing neighborhoods. These considerations include building setbacks, building design (height, form, and style), and parking requirements.

Building setbacks on small lots are important to creating a uniform street frontage, helping to minimize potential conflicts between small-lot developments and neighboring properties, and facilitating property maintenance. The Los Angeles Small Lot Design Guidelines note that minimal setbacks are often appropriate for small-lot development. They require a five-foot side setback between small-lot developments and any adjacent development. These guidelines also require that the street setback be compatible with the prevailing setback in the area.

Defining design features, including height, form, and architectural style, is important to ensure compatibility with existing form and minimize potential conflicts. Height standards address the height of the new development in relation to existing buildings and may use a measurement such as a block average to make sure that small-lot homes are compatible with existing development. Specific elements of form or style that address context can also be defined. For example, a town home style may work better in the context of an urban environment, while a cottage style may be better suited to a suburban environment. Newark's zoning standards do not specify a style of building; however, they address key design features for single-family development. For example, building setbacks must match those of neighboring properties; windows must cover 30 percent of the front facade; and primary entrances must face the street (§40:5-3). The standards also limit paved areas to 50 percent of the lot to encourage green space.

Another important consideration for small-lot development is parking requirements—both the number of spaces that need to be provided and how they are provided on the site. In 2007, Kirkland, Washington, added development standards to its zoning code for Cottage Housing, a common term for small-lot subdivisions in the Puget Sound region. These standards reduced the number of parking spaces required per home and allowed the parking for all residences to be provided in a single area on the site (§113.25).

CONCLUSION

Small-lot subdivision design can be a tool to help communities achieve goals related to infill development and redevelopment, increasing the diversity of the housing stock and opportunities for home ownership, and creating more affordable housing. While small-lot development can help achieve a range of goals, it can also create conflicts with existing neighbors. As a result, it is important to address design for small lots through design standards or guidelines to ensure that this development respects its context to minimize potential conflicts.

PAS QuickNotes (ISSN 2169-1940) is a publication of the American Planning Association's Planning Advisory Service (PAS). *Visit PAS online at planning.org/pas to find out how PAS can work for you. American Planning Association staff: James M. Drinan, JD, Executive Director; David Rouse, FAICP, Managing Director of Research and Advisory Services; David Morley, AICP, and Anna Read, AICP, QuickNotes Editors; Julie Von Bergen, Senior Editor; Susan Deegan, Senior Graphic Designer*

FURTHER READING

1. Published by the American Planning Association

Nisenson, Lisa. 2012. "Density and the Planning Edge." *Zoning Practice*, August. Available at planning.org/media/document/9006912.

Tomasulo, Katy. 2016. "One Size Does Not Fit All." *Planning*, July. Available at planning.org/planning/2016/jul/onesize.

2. Other Resources

Los Angeles, City of. 2014. *Small Lot Design Guidelines*. Available at tinyurl.com/y7bcs3xa.

U.S. Department of Housing and Urban Development (HUD). 2011. "Kirkland, Washington: Cottage Housing Ordinance." HUD User Case Study. Available at huduser.gov/portal/casestudies/study_102011_2.html.

U.S. Department of Housing and Urban Development (HUD). 2011. "Los Angeles, California: Small Lot Ordinance." HUD User Case Study. Available at huduser.gov/portal/casestudies/study_102011_1.html.

Exhibit E

DEPARTMENT OF PLANNING AND ZONING
PLANNING DIVISION

1653 BLAISE DRIVE • BROOKSVILLE, FLORIDA 34601
P 352.754.4057 • F 352.754.4420 • W www.HernandoCounty.us

July 27, 2022

Ray Eubanks, Plan Processing Administrator
Florida Department of Economic Opportunity
Bureau of Comprehensive Planning
Caldwell Building
107 East Madison Street, MSC 160
Tallahassee, Florida 32399-4140

Re: **Hernando County Comprehensive Plan Amendment Adoption (Expedited Review)**
DEO ID: 22-02ESR; Large-Scale Comprehensive Plan Text Amendment to Revise Future Land Use Element, Land Use Compatibility and Urban Sprawl Prevention Sections, to Address Lot Size Compatibility

Dear Mr. Eubanks:

Please find enclosed the transmittal package of the adopted Hernando County Comprehensive Plan Amendment **22-02ESR** (CPAM-22-02). The adopted amendment is being submitted pursuant to the expedited review process as described in Section 163.3184(3), F.S. and shall be submitted to the Florida Department of Economic Opportunity through its Online Comprehensive Plan Amendment portal.

The Board of County Commissioners (BCC) acting as the Local Planning Agency (LPA) and the governing body held an advertised transmittal public hearing on April 12, 2022. The plan amendment was transmitted to the State Land Planning Agency and review agencies on April 14, 2022, as a proposed amendment. A review letter was issued by the State Land Planning Agency on May 13, 2022, having no comments related to the proposed amendment.

The advertised public hearing to adopt the Comprehensive Plan Amendment was held on July 12, 2022. The proposed amendment was adopted by Ordinance 2022-18 on this date.

The adoption package includes:

Attachment A: The executed adoption Ordinance 2022-18 and Exhibit A

Attachment B: The staff report with final BOCC action.

This letter herby certifies that Hernando County has sent a complete copy of the proposed Comprehensive Plan Amendment and supporting materials to all the review agencies listed in Chapter 163 that provided comments at the transmittal stage.

The name of the person(s) for Hernando County who is familiar with the proposed plan amendment package is:

Michelle L. Miller | Acting Planning Administrator
Hernando County Planning Department
20 N. Main Street, Room 262 | Brooksville, Florida 34601
Phone: (352) 754-4057 ext. 28027 | Fax: (352) 754-4420
Email: mlmiller@hernandocounty.us

If you have any further questions or require additional information, please contact me.

Sincerely,

Michelle L. Miller
Acting Planning Administrator
Hernando County Development Services Department

Enclosure

cc: VIA – Email:

Cara W. Serra, Comprehensive Resiliency Planner, Tampa Bay Regional Planning Council, 4000 Gateway Centre Blvd, Ste. 100, Pinellas Park, FL 33782, email to: cara@tbprc.org

Trisha Neasman, AICP, Planning Supervisor, Southwest Florida Water Management District 2379 Broad Street, Brooksville FL 34604-6899, email to: trisha.neasman@watermatters.org

Daniel C. Santos, AICP, Growth Management Supervisor, Florida Department of Transportation, District Seven, 11201 North McKinley Dr., MS 7-500, Tampa, FL 33612-6456, email to: Daniel.Santos@dot.state.fl.us

Department of Environmental Protection, Attn: Plan Review, Office of Intergovernmental Programs 3900 Commonwealth Boulevard, MS 47, Tallahassee, FL, 32399, email to: Plan.Review@dep.state.fl.us

Department of State, Bureau of Historic Preservation, 500 South Bronough St, Tallahassee, FL 32399-0250, email to: compliancepermits@dos.myflorida.com

Scott Sanders, Florida Fish and Wildlife Conservation Commission, Conservation Planning Services 620 South Meridian St, MB 5B5, Tallahassee FL 32399-1600, email to: FWCConservationPlanningServices@myfwc.com

Department of Agriculture and Consumer Services, Attn: Comprehensive Plan Review, Office of Policy and Budget, The Capital, Plaza Level 8, Tallahassee, FL 32399-0800, email to: compplans@freshfromflorida.com

Department of Education, Office of Educational Facilities, 325 West Gaines St, Ste. 1014, Tallahassee, FL 32399-0400, email to: CompPlans@fldoe.org

Steve Gouldman, City Planner, City of Brooksville, 201 Howell Avenue, Brooksville FL 34601, email to: sgouldman@cityofbrooksville.us

Joanna L. Coutu, AICP, Director, Citrus County Land Development Division, 3600 W. Sovereign Path, Ste. 140, Lecanto, FL 34461, email to: Joanna.coutu@citrusbocc.com

Jeff Jenkins, Executive Planner, Long Range Planning Division. Pasco County Planning and Development

8731 Citizens Drive, Ste. 320, New Port Richey, FL 34654, email to: jjenkins@pascocountyfl.net

Karl E. Holley, AICP, CFM, Director of Development Services, Sumter County Board of Commissioners
7375 Powell Road, Ste. 115, Wildwood, FL 34785, email to: karl.holley@sumtercountyfl.gov

Jim Lipsey, Manager of Planning, Design and Construction, Hernando County School District
8016 Mobley Rd Brooksville FL 34601, email to: lipsey_j@hcsb.k12.fl.us

Attachment A: Ordinance 2022-18 and Exhibit A

ORDINANCE NO. 2022-18

AN ORDINANCE AMENDING THE 2040 HERNANDO COUNTY COMPREHENSIVE PLAN BY REVISING THE FUTURE LAND USE ELEMENT, LAND USE COMPATIBILITY AND URBAN SPRAWL PREVENTION SECTIONS, TO ADDRESS LOT SIZE COMPATIBILITY; APPROVING AND ADOPTING CPAM2202; PROVIDING FOR TRANSMITTAL OF ADOPTED CPAM2202 TO THE STATE LAND PLANNING AGENCY AND REVIEW AGENCIES; PROVIDING FOR APPLICABILITY; PROVIDING FOR SEVERABILITY; PROVIDING FOR CONFLICTING PROVISIONS; PROVIDING FOR FILING WITH THE DEPARTMENT OF STATE; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, in 1985, the Florida Legislature adopted the Local Government Comprehensive Planning and Land Development Regulation Act (now known as the Community Planning Act), as set forth in Sections 163.3161 through 163.3215, Florida Statutes (the "Act"); and,

WHEREAS, on September 25, 2018, the Hernando County Board of County Commissioners ("BOCC") adopted the 2040 Hernando County Comprehensive Plan (Ordinance 2018-16), within which, are included goals, objectives, and strategies used to guide future growth; and,

WHEREAS, the BOCC, following a public hearing on April 12, 2022, approved the Large-Scale Comprehensive Plan Text Amendment to Revise Future Land Use Element, Land Use Compatibility and Urban Sprawl Prevention Sections, to Address Lot Size Compatibility (a complete copy of the amendment is attached as **Exhibit "A"** hereto and made a part hereof and referred to as CPAM2202 and,

WHEREAS, the County subsequently transmitted CPAM2202 to the State Land Planning Agency for review pursuant to the Act, and it was assigned tracking number "22-02ESR" by the State Land Planning Agency; and,

WHEREAS, the State Land Planning Agency and the other Review Agencies reviewed CPAM2202 and, thereafter, comments concerning same were submitted to the County; and,

WHEREAS, the BOCC finds and determines that CPAM2202 is internally consistent with other Elements and Strategies of the 2040 Hernando County Comprehensive Plan, and is now ready for final adoption by the BOCC; and,

WHEREAS, the BOCC conducted a second public hearing on July 12, 2022, in connection with the final adoption of CPAM2202 as an amendment to the 2040 Hernando County Comprehensive Plan; and,

WHEREAS, upon enactment of this Ordinance, CPAM2202 will be transmitted as an adopted comprehensive plan amendment to the State Land Planning Agency and the other Review Agencies.

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

SECTION I. Recitals. The recitals set forth above are true and correct and incorporated herein by this reference.

SECTION II. Adopting CPAM2202 **(22-02ESR).** CPAM2202 (22-02ESR) attached as **Exhibit "A"** hereto and incorporated herein by this reference), is hereby approved and adopted and the 2040 Hernando County Comprehensive Plan is amended accordingly, subject to the Effective Date provision (Section X) below.

SECTION III. Execution. The Chairman of the Hernando County Board of County Commissioners is hereby authorized to execute this Ordinance, and all related documents.

SECTION IV. Transmittal of Adopted CPAM2202 to State Land Planning Agency and Review Agencies. County staff shall transmit an executed copy of this Ordinance adopting CPAM2202 to the State Land Planning Agency and the other Review Agencies within ten (10) days of adoption hereof pursuant to Section 163.3184, Florida Statutes.

SECTION V. Publication. This Ordinance shall be published as required by law.

SECTION VI. Applicability. This Ordinance shall be applicable throughout the unincorporated area of Hernando County.

SECTION VII. Severability. It is declared to be the intent of the Board of County Commissioners that if any section, subsection, clause, sentence, phrase, or provision of this Ordinance is for any reason held unconstitutional or invalid, the invalidity thereof shall not affect the validity of the remaining portions of this Ordinance.

SECTION VIII. Conflicting Provisions. Special acts of the Florida Legislature applicable only to unincorporated areas of Hernando County, Hernando County ordinances, County resolutions, or parts thereof, in conflict with this Ordinance are hereby superseded by this Ordinance to the extent of such conflict except for ordinances concerning either adoption or amendment of the Comprehensive Plan, pursuant to Chapter 163, Part II, Florida Statutes.

SECTION IX. Filing with the Department of State. The clerk shall be and is hereby directed forthwith to send a certified copy of this Ordinance, or electronically transmit this Ordinance by email, to the Bureau of Administrative Code, Department of State, R.A. Gray Building, Room 101, 500 South Bronough Street, Tallahassee, Florida 32399-0250.

SECTION X. Effective Date. This Ordinance shall take effect upon filing with the Florida Secretary of State; however, the adopted amendment (CPAM2202) shall take effect, and be considered an amendment to the 2040 Hernando County Comprehensive Plan, if the amendment is not timely challenged, 31 days after the State Land Planning Agency notifies the local government that the plan amendment package is complete or as otherwise provided in Section

163.3184, Florida Statutes. If timely challenged, this amendment shall become effective on the date the State Land Planning Agency or the Administration Commission enters a final order determining this adopted amendment to be in compliance. No development orders, development permits, or land uses dependent on this amendment may be issued or commence before it 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, a copy of which resolution shall be sent to the State Land Planning Agency.

BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF HERNANDO COUNTY in Regular Session this 12th day of JULY 2022.

BOARD OF COUNTY COMMISSIONERS
HERNANDO COUNTY, FLORIDA

Attest: Heidi Kruppe, D.C.
DOUGLAS A. CHORVAT, JR.
for CLERK OF CIRCUIT COURT
AND COMPTROLLER

By: _____
STEVE CHAMPION
CHAIRMAN

BOARD OF COUNTY COMMISSIONERS HERNANDO COUNTY FLORIDA SEAL

Approved as to Form and
Legal Sufficiency

By: _____
Assistant County Attorney

Exhibit A: CPAM2202 - Revisions to the Future Land Use Element

Land Use Compatibility

Strategy 1.10 B (4): Review all land use applications for compatibility to include:

a. Evaluation of existing uses of land, zonings, and Future Land Uses, including the existing and potential densities and intensities;
b. Consideration of existing development patterns and approved development in the area;
c. Evaluation of existing proposed and anticipated transitions between land uses;
d. Consideration of environmental and cultural features and community characters;
e. Appropriate timing based on the availability of adequate public facilities/services;
f. Consistency with applicable specific area plans, corridor plans and redevelopment plans;
g. Limitations on building height and/or use of increased setbacks; and
h. Transition of density and intensity.

Strategy 1.10B (5): To promote compatible lot size and design and to mitigate potential incompatibilities, residential Master Plan applications will be reviewed for the following:

a. Use of undisturbed native vegetation as a suitable buffer;
b. Use of enhanced buffers to include supplemental trees and shrubs and/or perimeter fencing/walls;
c. Requirements for increased opacity of screening on the site perimeter;
d. Increased setbacks on the site perimeter;
e. The placement of smaller lots internal to the site;
f. The placement of larger lots, similar in size to adjoining lots, on the site perimeter;
g. Increased width of buffers on the site perimeter;
h. Limitations on density consistent with adjoining land uses;
i. Gradual transition of density and lot size; and
j. Proposed residential developments adjacent to residential uses shall demonstrate compatibility through the creation of a similar lot pattern, enhanced screening/buffering or other means. Maintenance and enhancement of rural, scenic, or natural view corridors shall also be a consideration in evaluating compatibility in this area.

Urban Sprawl Prevention

Strategy 1.11 B (4): The following information shall be required when considering rezoning requests in Rural neighborhoods:

a. A narrative describing how the proposed development will maintain and/or protect the existing rural neighborhood, to include:
    1. An analysis of adjacent conditions and proposed development which illustrates protection of the rural character;
    2. An analysis of the existing roadway network and other infrastructure which demonstrates minimal impact;
    3. The applicant shall conduct one (1) neighborhood meeting prior to the Planning and Zoning Commission hearing for citizen input on the proposed petition.

4. A description of the methods proposed protecting rural neighborhoods from the impacts upon adjacent uses that may affect the long-term viability of those neighborhoods. The impacts to be analyzed include unwanted light, noise, physical access, odor, and other disruptions;
5. An analysis of the impact upon, and compatibility with adjoining agricultural uses.; and
6. The need to include a homeowners or deed restriction for lots in the development that the development is adjacent to agricultural uses

Attachment B: Staff Report

STAFF REPORT

HEARINGS:	Planning & Zoning Commission: Local Planning Agency: Board of County Commissioners:	March 14, 2022 April 12, 2022 July 12, 2022
APPLICANT:	Hernando County Board of County Commissioners	
FILE NUMBER:	CPAM-22-02	
REQUEST:	Large-Scale Comprehensive Plan Text Amendment to Revise Future Land Use Element, Land Use Compatibility and Urban Sprawl Prevention Sections, to Address Lot Size Compatibility	
GENERAL LOCATION:	Countywide	
PARCEL ID:	Countywide	

DESCRIPTION OF THE PROPOSED AMENDMENT

Hernando County has seen a significant increase in the number of residential rezoning and Comprehensive Plan Amendments for new subdivisions throughout the County. Many of these requests for new subdivisions include master plan requests with lot sizes smaller than existing lots that have been historically developed in the County.

The proposed amendment proposes Strategy revisions to the Future Land Use Element, specifically the Land Use Compatibility and Urban Sprawl sections, to address lot size compatibility issues and propose mechanisms for review of land use and rezoning applications. Placing Strategies in the Comprehensive Plan provides the legal foundation and policy guidance for the review of lot sizes for compatibility in proposed residential master plans.

FINDINGS

The proposed revisions complement the existing Goals, Objectives and Strategies in the Comprehensive Plan and provide guidance for determining compatible lot size and design, both in infill development and rural neighborhoods.

STAFF RECOMMENDATION

It is recommended that the Planning & Zoning Commission (P&Z) review proposed revisions to the Future Land Use Element of the 2040 Comprehensive Plan and recommend to the Local Planning Agency (LPA) / Board of County Commissioners (BOCC) that CPAM-22-02 be transmitted to the designated State and local agencies for review and comment.

P&Z RECOMMENDATION:

On March 14, 2022, the Planning and Zoning Commission voted 5-0 to recommend that the Local Planning Agency (LPA)/Board of County Commissioners (BOCC) transmit CPAM-22-02 to the designated State and Local agencies for review and comment.

BCC/LPA ACTION:

On April 12, 2022, the Board of County Commissioners/Local Planning Agency voted 5-0 to transmit CPAM-22-01 to the designated State and Local agencies for review and comment.

STATE AGENCY RESPONSES:

On May 13, 2022, the County received a letter of no objection from the Florida Department of Economic Opportunity.

STAFF RECOMMENDATION

It is recommended that the Board review the proposed amendment, consider the attached staff report and backup information, adopt the amendment package, and authorize the final transmittal to the Florida Department of Economic Opportunity.

BOCC ACTION:

On July 12, 2022, the Board of County Commissioners voted 5-0 to adopt Ordinance 2022-18, adopting CPAM-22-02.

Exhibit F

Instr #2021036383 BK: 3999 PG: 88, Filed & Recorded: 5/17/2021 4:02 PM SMB Deputy Clk, #Pgs:2
Doug Chorvat, Jr.,Clerk of the Circuit Court Hernando CO FL Rec Fees: $18.50 Deed Doc Stamp: $2,422.00

Return to:
North American Title Company
2951 Landover Blvd.
Spring Hill, FL 34608

This Instrument Prepared
under the supervision of:

Mark J. Loterstein, Esq.
North American Title Company
2951 Landover Blvd.
Spring Hill, FL 34608

Property Appraisers Parcel Identification (Folio) No.:
R06 422 18 0000 0040 0000 and R06 222 18 2570 0000 0100

Our File No.: 11618-21-07593

WARRANTY DEED

This Trustee's Warranty Deed made this 14th day of April, 2021 by Sergio M Arambulo, individually and as Trustee(s) of under the provisions of Trust Agreement # 101 dated 10/5/1998 whose mailing address is 65 Hawthorne Drive, Apt 217, Bedford, NH 03110, hereinafter called the grantor(s), to Panther I LLC, A Florida Limited Liability Company whose post office address is P.O. Box 1081, Brooksville, FL 34601, hereinafter called the grantee:

(Wherever used herein the terms "grantor" and "grantee" include all the parties to this instrument and the heirs, legal representatives and assigns of individuals, and the successors and assigns of corporations)

WITNESSETH: That the grantor(s), for and in consideration of the sum of $10.00 (ten) and other valuable considerations, receipt whereof is hereby acknowledged, hereby grants, bargains, sells, aliens, remises, releases, conveys and confirms unto the grantee all that certain land situate in Hernando County, State of Florida, viz:

The Southwest Quarter (SW 1/4) of the Southeast Quarter (SE 1/4), of Section 6, Township 22 South, Range 18 East, Subject to restrictions contained in Deed Book 87, Page 204. AND Lots 10 and 11 HI WAY FARMS SUBDIVISION, according to the plat thereof as recorded in Plat Book 6, Page 22, Public Records of Hernando County, Florida.

Said property is not the homestead of the Grantor under the laws and constitution of the state of Florida in that neither the Grantor nor any member of their family reside thereon.

SUBJECT TO: covenants, conditions, restrictions, reservations, limitations, easements and agreements of record, if any; taxes and assessments for the year 2021 and subsequent years; and to all applicable zoning ordinances and/or restrictions and prohibitions imposed by governmental authorities, if any,

TOGETHER, with all the tenements, hereditaments and appurtenances thereto belonging or in anywise appertaining.

TO HAVE AND TO HOLD, the same in Fee Simple forever.

AND the grantor hereby covenants with said grantee that the grantor is lawfully seized of said land in fee simple; that the grantor has good right and lawful authority to sell and convey said land, and hereby warrants the title to said land and will defend the same against the lawful claims of all persons.

IN WITNESS WHEREOF, the said grantor has signed and sealed these presents the day and year first above written.

Signed, sealed and delivered in the presence of:

Joseph Langlais
First Witness Signature

Printed Signature

Second Witness Signature

Michael R Barry
Printed Signature

Sergio M. Arambulo Trustee under the provisions of Trust Agreement # 101 dated 10/5/1998

BY: Sergio M. Arambulo
Sergio M Arambulo individually and as Trustee

State of New Hampshire

County of Hillsborough

The foregoing instrument was acknowledged before me by means of [ ] physical presence or [ ] online notarization, this 14th day of April, 2021 by Sergio M Arambulo, individually and as the Trustee under the provisions of Trust Agreement # 101 dated 10/5/1998, who has produced NH Driver's License as Identification or is personally known to me to be the persons therein.

Notary Public, ~~State of~~ New Hampshire

My commission expires: 08/22/2023
Seal

Seal

Exhibit G

Weeki Wachee
Basin Management Action Plan

Division of Environmental Assessment and Restoration
Water Quality Restoration Program
Florida Department of Environmental Protection

with participation from the
Weeki Wachee Stakeholders

June 2018

2600 Blair Stone Rd.
Tallahassee, FL 32399
floridadep.gov

Acknowledgments

The Florida Department of Environmental Protection adopted the *Weeki Wachee Basin Management Action Plan* by Secretarial Order as part of its statewide watershed management approach to restore and protect Florida's water quality. The plan was developed in coordination with stakeholders, identified below, with participation from affected local, regional, and state governmental interests; elected officials and citizens; and private interests.

Florida Department of Environmental Protection
Noah Valenstein, Secretary

Table A-1. Weeki Wachee stakeholders

Type of Entity	Name
Responsible Stakeholders	City of Brooksville Hernando County Pasco County Agricultural producers Golf courses
Responsible Agencies	Florida Department of Agriculture and Consumer Services Florida Department of Environmental Protection Florida Department of Health Southwest Florida Water Management District
Other Interested Stakeholders	Citizens City of Weeki Wachee Florida Farm Bureau Florida Onsite Wastewater Association Florida Springs Institute Hernando Beach Government Affairs Committee Hernando County Task Force Hernando Environmental Land Protectors (HELP) Save the Manatee Club

See **Appendix A** for links to important sources referenced in this document. For additional information on the watershed management approach in the Weeki Wachee Basin, contact:

Terry Hansen, P.G., Basin Coordinator
Florida Department of Environmental Protection
Water Quality Restoration Program, Watershed Planning and Coordination Section
2600 Blair Stone Road, Mail Station 3565
Tallahassee, FL 32399-2400
Email: terry.hansen@dep.state.fl.us
Phone: (850) 245–8561
Fax: (850) 245–8434

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List of Acronyms and Abbreviations

ac	Acre
AWT	Advanced Wastewater Treatment
ATU	Aerobic Treatment Unit
BAF	Biochemical Attenuation Factor
BMAP	Basin Management Action Plan
BMPs	Best Management Practices
CASTNET	Clean Air Status and Trends Network
cfs	Cubic Feet Per Second
CMAQ	Community Multiscale Air Quality
C.R.	County Road
CRF	Controlled Release Fertilizer
DEP	Florida Department of Environmental Protection
DMR	Discharge Monthly Report
DO	Dissolved Oxygen
F.A.C.	Florida Administrative Code
F.A.R.	Florida Administrative Register
FARMS	Facilitating Agricultural Resource Management Systems
FDACS	Florida Department of Agriculture and Consumer Services
FDOH	Florida Department of Health
FF	Farm Fertilizer
FGS	Florida Geological Survey
FLUCCS	Florida Land Use Cover and Forms Classification System
FOWA	Florida Onsite Wastewater Association
F.S.	Florida Statutes
FSAID	Florida Statewide Agricultural Irrigation Demand
FYN	Florida Yards and Neighborhoods
GIS	Geographic Information System
gpd	Gallons Per Day
HA	Habitat Assessment
IA	Implementation Assurance
IV	Implementation Verification
in/yr	Inch Per Year
lb	Pound
lb-N/yr	Pounds of Nitrogen Per Year
LF	Linear Feet
LID	Low Impact Development
LVS	Linear Vegetation Survey
LW	Livestock Waste
MFLs	Minimum Flows and Levels
mgd	Million Gallons Per Day
mg/L	Milligrams Per Liter

MIL	Mobile Irrigation Lab
N	Nitrogen
N/A	Not Applicable
NADP	National Atmospheric Deposition Program
NELAC	National Environmental Accreditation Conference
NELAP	National Environmental Accreditation Program
NNC	Numeric Nutrient Criteria
NOI	Notice of Intent
NSF	NSF International (formerly National Sanitation Foundation)
NSILT	Nitrogen Source Inventory Loading Tool
NTN	National Trends Network
OAWP	Office of Agricultural Water Policy
OFS	Outstanding Florida Spring
OFW	Outstanding Florida Water
OSTDS	Onsite Sewage Treatment and Disposal System
PBTS	Performance-based Treatment System
PFA	Priority Focus Area
PSA	Public Service Announcement or Planned Service Area
QA/QC	Quality Assurance/Quality Control
RIB	Rapid Infiltration Basin
RPS	Rapid Periphyton Survey
SBIO	DEP Statewide Biological Database
SCI	Stream Condition Index
SOP	Standard Operating Procedure
STF	Sports Turf Fertilizer
STORET	Florida Storage and Retrieval Database
SWFWMD	Southwest Florida Water Management District
SWIM	Surface Water Improvement and Management
TDEP	Total Atmospheric Deposition Model
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TSS	Total Suspended Solids
UFA	Upper Floridan Aquifer
UF–IFAS	University of Florida Institute of Food and Agricultural Sciences
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
UTF	Urban Turfgrass Fertilizer
WAFR	Wastewater Facility Regulation (Database)
WBID	Waterbody Identification (Number)
WIN	Florida Watershed Information Network Database
WMD	Water Management District
WWTF	Wastewater Treatment Facility
WWTP	Wastewater Treatment Plant

yr	Year

Executive Summary

Weeki Wachee Basin

The Florida Springs and Aquifer Protection Act (Chapter 373, Part VIII, Florida Statutes [F.S.]), provides for the protection and restoration of Outstanding Florida Springs (OFS), which comprise 24 first magnitude springs, 6 additional named springs, and their associated spring runs. The Florida Department of Environmental Protection (DEP) has assessed water quality in each OFS, and has determined that 24 of the 30 OFS are impaired for the nitrate form of nitrogen. The Weeki Wachee Spring Group is one of the impaired first magnitude OFS.

The Weeki Wachee Basin Management Action Plan (BMAP) area (**Figure ES-1**) consists of 200,474 acres located in southern Hernando County, including a portion of the City of Brooksville, and northern Pasco County. The BMAP area contains the Weeki Wachee Spring Group which is composed of a single, large main spring and numerous smaller springs spread over an area of nearly five square miles. Weeki Wachee Spring is the primary source of the Weeki Wachee River and the largest spring (by discharge) in the group. The BMAP area also contains Magnolia-Aripeka Springs Group; Mud Spring, Salt Spring, Wilderness Spring (collectively referred to as the "Wilderness-Mud-Salt Springs Group"); and Jenkins Creek Spring which are located within the Weeki Wachee riverine system Outstanding Florida Water (OFW) boundaries.

Weeki Wachee Priority Focus Area (PFA)

The PFA (**see Appendix C**) comprises 90,415 acres and includes a region in the western part of the springshed for Weeki Wachee Spring. The PFA represents the area in the basin where the aquifer is most vulnerable to inputs and where there are the most connections between groundwater and the springs.

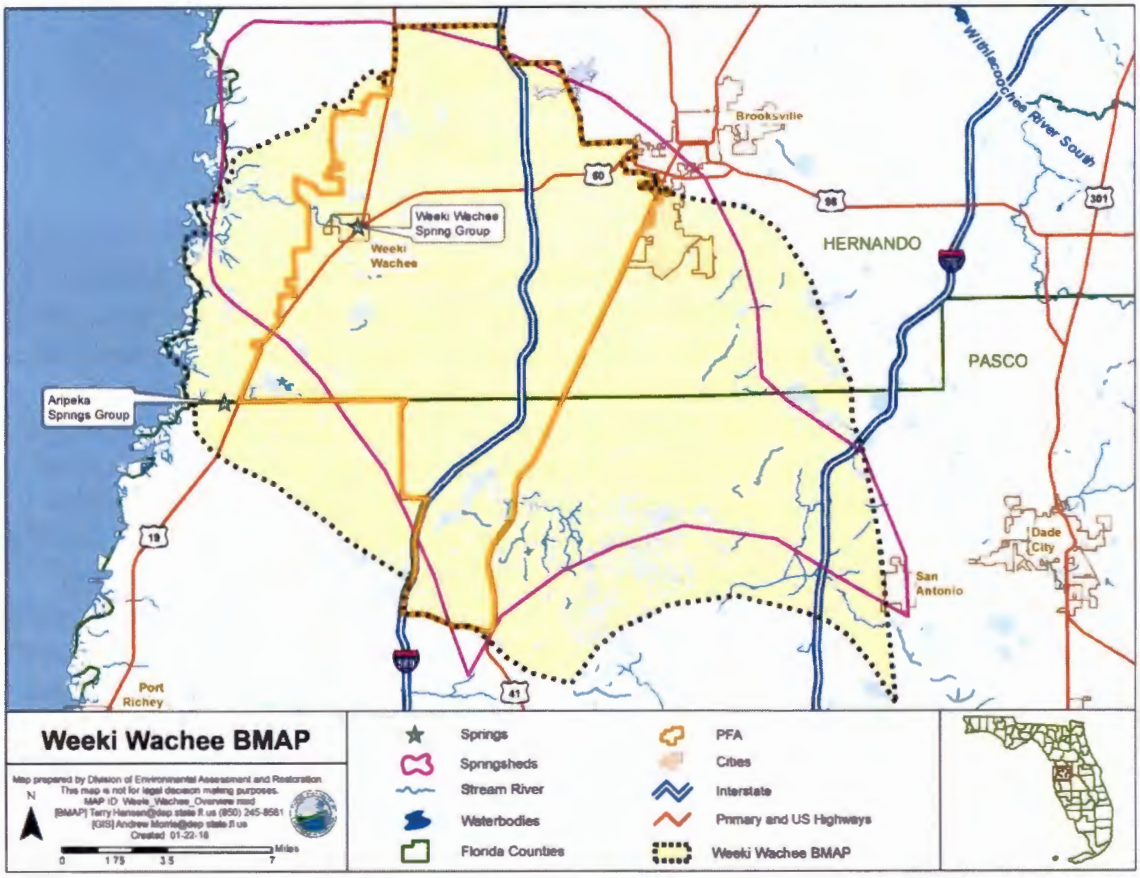

Figure ES-1. Weeki Wachee BMAP and PFA boundaries

Nitrogen Source Identification, Required Reductions, and Options to Achieve Reductions

DEP adopted nutrient total maximum daily loads (TMDLs) for Weeki Wachee Spring and Weeki Wachee River in 2014. The TMDLs established monthly average nitrate targets of 0.28 milligrams per liter (mg/L) for Weeki Wachee Spring and 0.20 mg/L for Weeki Wachee River. DEP adopted nitrate targets of 0.23 mg/L for Magnolia-Aripeka Springs Group; Wilderness-Mud-Salt Springs Group; and Jenkins Creek Spring through adoption of TMDLs in 2016.

Onsite sewage treatment and disposal systems (OSTDS) represent 30 % of the nitrogen loading to groundwater, agriculture (including farm fertilizer [FF] and livestock waste [LW]) 27 %, and urban turfgrass fertilizer (UTF) 22 % of the total loading to groundwater based on the DEP analysis conducted using the Nitrogen Source Inventory Loading Tool (NSILT).

The total load reduction required to meet the TMDLs at the vents is 195,200 pounds of nitrogen per year (lb-N/yr). To measure progress towards achieving the necessary load reduction, DEP is establishing the following milestones:

- Initial reduction of 58,560 lb-N/yr (30 %) within 5 years.
- An additional 97,600 lb-N/yr (50 %) within 10 years.
- The remaining 39,040 lb-N/yr (20 %) within 15 years.
- For a total of 195,200 lb-N/yr within 20 years.

The policies and submitted projects included within this BMAP are estimated to achieve a reduction of 396,220 to 552,102 lb-N/yr to groundwater. While reductions to groundwater will benefit the spring, it is uncertain to know with precision how those reductions will impact the necessary reductions at the spring. DEP will continue to monitor the spring to evaluate those reductions as projects are implemented against the required load reductions above. The BMAP is designed to achieve 80 % of the load reductions needed for the spring vent within 10 years of adoption and 100 % within 15 years. Projects and strategies are designed to achieve nitrogen reductions at Weeki Wachee, but are expected to provide benefits to all springs vents within the springshed/contributing area. DEP will evaluate progress towards these milestones and will report to the Governor and Florida Legislature. DEP will adjust management strategies to ensure the target concentrations are achieved. This may include expanding the area to which the OSTDS remediation policies apply; any such change, however, would be incorporated into an updated BMAP through a formal adoption process.

For the list of projects to improve water quality, see **Appendix B**. Included are owner-implemented best management practices (BMPs) for FF, LW, sports turfgrass fertilizer (STF); wastewater treatment facility (WWTF) upgrades; projects to reduce UTF application; and OSTDS conversions to sewer.

Successful BMAP implementation requires commitment, dedicated state funding, and follow-up. Stakeholders have expressed their intention to carry out the plan, monitor its effects, and continue to coordinate within and across jurisdictions to achieve nutrient reduction goals. As the TMDLs must be achieved within 20 years, DEP, water management districts (WMDs), Florida Department of Health (FDOH), and Florida Department of Agriculture and Consumer Services (FDACS) will implement management strategies using the annual Legacy Florida appropriation from the legislature of at least $50 million to reduce nitrogen in impaired OFS. DEP, working with the coordinating agencies, will continue to invest existing funds and explore other opportunities and potential funding sources for springs restoration efforts.

Restoration Approaches

Load reduction to the aquifer is needed to achieve the load reductions requirements at the spring vent. To ensure that load reductions are achieved at the spring vent, the following restorations actions are being established. These actions are designed to reduce the amount of nutrients to the aquifer, which will reduce the load at the vent and ultimately achieve the necessary reductions. Monitoring of the vent during implementation will be implemented to monitor progress.

- **New OSTDS** – Upon BMAP adoption, the OSTDS remediation plan prohibits new systems on lots of less than 1 acre within the PFAs, unless the system includes enhanced treatment of nitrogen as defined by the OSTDS remediation plan, or unless the OSTDS permit applicant demonstrates that sewer connections will be available within 5 years. Local governments and utilities are expected to develop master wastewater treatment feasibility analyses within 5 years to identify specific areas to be sewered or to have enhanced nitrogen reducing OSTDS within 20 years of BMAP adoption. The OSTDS remediation plan is incorporated as **Appendix D**.

- **Existing OSTDS** – Upon completion of the master wastewater treatment feasibility analyses, FDOH rulemaking, and funding program for homeowners included in the OSTDS remediation plan, but no later than five years after BMAP adoption, modification or repair permits issued by FDOH for all OSTDS within the PFA on all lot sizes will require enhanced treatment of nitrogen, unless sewer connections will be available based on a BMAP-listed project. All OSTDS subject to the policy must include enhanced treatment of nitrogen no later than 20 years after BMAP adoption.

- **WWTFs** – The effluent standards listed in **Table ES-1** will apply to all new and existing WWTFs in the BMAP area (inside and outside the PFA).

Table ES-1. WWTF effluent standards

gpd = Gallons per day

95% of the Permitted Capacity (gpd)	Nitrogen Concentration Limits for Rapid Infiltration Basins (RIBs) and Absorption Fields (mg/L)	Nitrogen Concentration Limits for All Other Land Disposal Methods, Including Reuse (mg/L)
Greater than 100,000	3	3
20,000 to 100,000	3	6
Less than 20,000	6	6

- **UTF** – UTF sources can receive up to 6 % credit for the DEP-approved suite of public education and source control ordinances. Entities have the option to collect and provide monitoring data to quantify reduction credits for additional measures.

- **STF** – STF sources include golf courses and other sporting facilities. Golf courses can receive up to 10 % credit for implementing the Golf Course BMP Manual. Other sports fields can receive up to 6 % credit for managing their fertilizer applications to minimize transport to groundwater.

- **FF** – All FF sources are required to implement BMPs or perform monitoring to demonstrate compliance with the TMDL. A 15 % reduction to groundwater is estimated for owner-implemented BMPs. Additional credits could be achieved through better documentation of reductions achieved through BMP implementation or implementation

of additional agricultural projects or practices, such as precision irrigation, soil moisture probes, controlled release fertilizer, and cover crops.

- **LW** – All LW sources are required to implement BMPs or perform monitoring. A 10 % reduction to groundwater is estimated for owner-implemented BMPs. Additional credits could be achieved through additional projects and practices if data are available.

Section 1: Background

1.1 Legislation

Chapter 373, Part VIII, Florida Statutes (F.S.), created the Florida Springs and Aquifer Protection Act to provide for the protection and restoration of Outstanding Florida Springs (OFS), which comprise 24 first magnitude springs, 6 additional named springs, and their associated spring runs. The Florida Department of Environmental Protection (DEP) has assessed water quality in each OFS, and has determined that 24 of the 30 OFS are impaired for the nitrate form of nitrogen. The Weeki Wachee Spring Group is one of the impaired first magnitude OFS.

Development of the basin management action plan (BMAP) to meet the new requirements of the Florida Springs and Aquifer Protection Act for the Weeki Wachee Basin was initiated in 2016.

1.2 Water Quality Standards and Total Maximum Daily Loads (TMDLs)

A TMDL represents the maximum amount of a given pollutant that a waterbody can assimilate and still meet water quality criteria. The waters of the Weeki Wachee Spring Group, Magnolia-Aripeka Springs Group, Wilderness-Mud-Salt Springs Group, and Jenkins Creek Spring that are addressed in this BMAP are Class III waterbodies with a designated use of recreation, propagation, and the maintenance of a healthy, well-balanced population of fish and wildlife. These waters are impaired by nitrate nitrogen, which in excess has been demonstrated to adversely affect flora or fauna through the excessive growth of algae. Excessive algal growth results in ecological imbalances in springs and rivers and can produce human health problems, foul beaches, inhibit navigation, and reduce the aesthetic value of the resources.

DEP adopted nutrient TMDLs for the Weeki Wachee Spring Group in 2014 (see **Table 1**). The TMDLs established a target of an annual average of 0.28 milligrams per liter (mg/L) of nitrate for Weeki Wachee Spring and 0.20 mg/L for Weeki Wachee River. The period of record for water quality data for the TMDLs was January 2004 through December 2012. DEP adopted nutrient TMDLs for the Magnolia-Aripeka Springs Group, Wilderness-Mud-Salt Springs Group, and Jenkins Creek Spring in 2016 (see **Table 1**). The TMDLs established a target of an annual average of 0.23 mg/L of nitrate. The period of record for the water quality data for the TMDLs was January 2004 through December 2014.

Table 1. Restoration targets for Weeki Wachee Spring Group, Magnolia-Aripeka Springs Group, Wilderness-Mud-Salt Springs Group, and Jenkins Creek Spring

Waterbody or Spring Name	Waterbody Identification (WBID) Number	Parameter	TMDL (mg/L)
Weeki Wachee Spring	1382B	Nitrate, annual average	0.28
Weeki Wachee River	1382F	Nitrate, annual average	0.20
Magnolia-Aripeka Springs Group	1391B	Nitrate, annual average	0.23
Wilderness-Mud-Salt Springs Group	1382G	Nitrate, annual average	0.23
Jenkins Creek Spring	1389	Nitrate, annual average	0.23

1.3 BMAP Requirements

Section 403.067(7), F.S., provides DEP with the statutory authority for the BMAP Program. A BMAP is a comprehensive set of strategies to achieve the required pollutant load reductions. In addition to this authority, the Florida Springs and Aquifer Protection Act (Part VIII of Chapter 373, F.S.) describes additional requirements for the 30 Outstanding Florida Springs.

1.4 BMAP Area

The BMAP area (**Figure 1)** comprises 200,474 acres located in southern Hernando County, including a portion of the City of Brooksville, and northern Pasco County. The BMAP area contains the Weeki Wachee Spring Group which is composed of a single, large main spring and numerous smaller springs spread over an area of nearly five square miles. Weeki Wachee Spring is the primary source of the Weeki Wachee River and the largest spring (by discharge) in the group. The BMAP area also contains Magnolia-Aripeka Springs Group; Mud Spring, Salt Spring, Wilderness Spring (collectively referred to as the "Wilderness-Mud-Salt Springs Group"); and Jenkins Creek Spring which are located within the Weeki Wachee riverine system Outstanding Florida Water (OFW) boundaries.

This area includes the surface water basin as well as the groundwater contributing areas for the springs (or springsheds). Springsheds for the OFS were delineated or reviewed by Southwest Florida Water Management District (SWFWMD) with input from the Florida Geological Survey (FGS). A springshed is the area of land that contributes water to a spring or group of springs, mainly via groundwater flow.

1.5 Priority Focus Area (PFA)

In compliance with the Florida Springs and Aquifer Protection Act, this BMAP delineates a PFA, defined as the area(s) of a basin where the Floridan aquifer is generally most vulnerable to pollutant inputs and where there is a known connectivity between groundwater pathways and an OFS. The PFA provides a guide for focusing restoration strategies where science suggests these

efforts will most benefit the springs. The document describing the delineation process for the PFA is on the DEP website. The link to the PFA document is provided in **Appendix C.**

1.5.1 Description

Nitrogen sources are more likely to influence groundwater quality under certain conditions. For example, where soils are sandy and well drained, less nitrogen is converted to gas and released into the atmosphere or taken up by plants, compared with other soil types. Therefore, local soil types play a role in how much nitrogen travels from the land surface to groundwater in a specific springshed. Also, the underlying geologic material influences the vulnerability of the underlying aquifers and the rate of lateral movement within the Floridan aquifer toward the springs. These conditions, and others, were considered in the delineation of the PFA (**see Appendix C**).

Following BMAP adoption, DEP will ensure that the Geographic Information System (GIS) files associated with the PFA boundary are available to the public on the DEP Map Direct webpage.

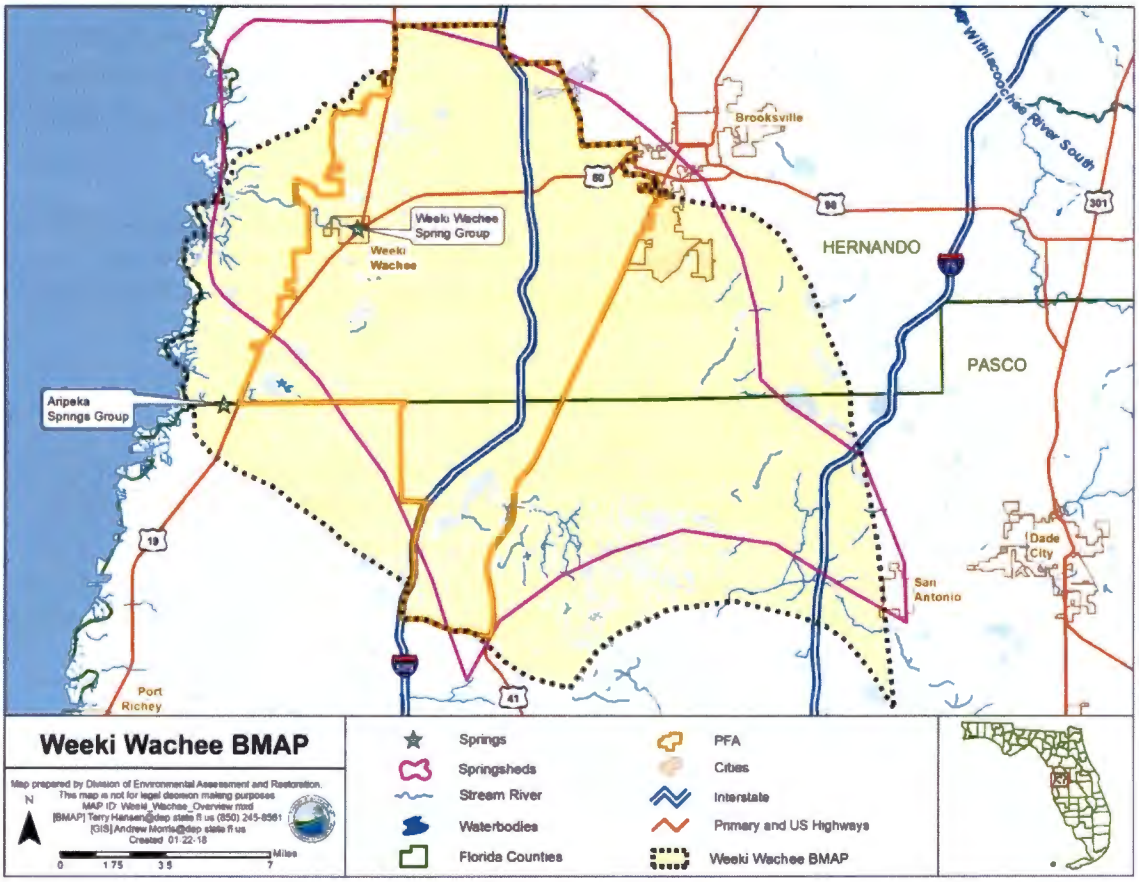

Figure 1. Weeki Wachee BMAP, springshed, and PFA boundaries

1.5.2 Additional Requirements

In accordance with Section 373.811, F.S., the following activities are prohibited in the PFA:

- New domestic wastewater disposal facilities, including rapid infiltration basins (RIBs), with permitted capacities of 100,000 gpd or more, except for those facilities that meet an advanced wastewater treatment (AWT) standard of no more than 3 mg/L total nitrogen (TN) on an annual permitted basis.

- New onsite sewage treatment and disposal systems (OSTDS or septic systems; the terms are used interchangeably throughout this document) on lots of less than one acre inside the PFAs unless additional nitrogen treatment is provided, as specified in the OSTDS remediation plan (see **Appendix D** for details).

- New facilities for the disposal of hazardous waste.

- The land application of Class A or Class B domestic wastewater biosolids not in accordance with a DEP-approved nutrient management plan establishing the rate at which all biosolids, soil amendments, and sources of nutrients at the land application site can be applied to the land for crop production, while minimizing the amount of pollutants and nutrients discharged to groundwater or waters of the state.

- New agricultural operations that do not implement best management practices (BMPs), measures necessary to achieve pollution reduction levels established by DEP, or groundwater monitoring plans approved by a water management district (WMD), or DEP.

1.5.2.1 Biosolids and Septage Application Practices

In the PFA, the aquifer contributing to the springs is highly vulnerable to contamination by nitrogen sources and soils have a high to moderate tendency to leach applied nitrogen. DEP previously documented elevated nitrate concentrations in groundwater beneath septage application zones in spring areas. To assure that nitrogen losses to groundwater are minimized from permitted application of biosolids and septage in the PFA, the following requirements apply to newly-permitted application sites and existing application sites upon permit renewal.

All permitted biosolids application sites that are agricultural operations must be enrolled in the Florida Department of Agriculture and Consumer Services (FDACS) BMP Program or be within an agricultural operation enrolled in the FDACS BMP Program for the applicable crop type. Implementation of applicable BMPs will be verified by FDACS in accordance with Chapter 5M-1, Florida Administrative Code (F.A.C.). Permitted biosolids application sites that are new agricultural operations must also comply with Subsection 373.811(5), F.S. Biosolids application sites must be certified as viable agricultural operations by an acknowledged agricultural professional such as an agricultural consultant or agricultural extension agent. Effective nutrient management

practices must be ongoing at the application zones in the permit. Plant uptake and harvesting are vital components of the nutrient management plan to remove nitrogen and prevent it from leaching to groundwater. If DEP determines that the site is not a viable agricultural site implementing a nutrient management plan, corrective action will be required.

Groundwater monitoring for nitrate is required for all biosolids and septage land application sites in the PFA to assure compliance with nutrient management objectives in this BMAP. However, groundwater monitoring is not required if the site nutrient management plan limits biosolids application rates to TN with no adjustment for available nitrogen normally allowed by subsections 62-640.500(5) and (6), F.A.C. (e.g. for a recommended fertilizer rate of 160 pounds of nitrogen per acre, only 160 pounds of TN per acre shall be applied). For septage application, groundwater monitoring is not required if the site nutrient management plan limits application rates to 30,000 gallons per acre for sites accepting mixtures of septage and grease (food establishment sludge) or to 40,000 gallons per acre for sites accepting septage without grease. The permit renewal application will include a trend analysis for nitrate in groundwater monitoring wells during the previous permit cycle, and an evaluation of the potential for the facility to cause or contribute to exceedance of the TMDL.

1.6 Other Scientific and Historical Information

In preparing this BMAP, DEP collected and evaluated credible scientific information on the effect of nutrients, particularly forms of nitrogen, on springs and springs systems. Some of the information collected is specific to the Weeki Wachee Basin, while other references provide information on related knowledge for restoring springs, such as nitrogen-reducing technologies, the treatment performance of OSTDS, and runoff following fertilizer applications.

1.7 Stakeholder Involvement

Stakeholder involvement is critical to develop, gain support for, and secure commitments in a BMAP. The BMAP process engages stakeholders and promotes coordination and collaboration to address the pollutant load reductions necessary to achieve the TMDLs. DEP invites stakeholders to participate in the BMAP development process and encourages public participation and consensus to the greatest practicable extent. **Table A-1** identifies the stakeholders who participated in the development of this BMAP.

During the development of the Weeki Wachee BMAP, DEP held a series of meetings involving stakeholders and the general public. The purpose of these meetings was to consult with stakeholders to gather information, evaluate the best available science, develop an OSTDS remediation plan (including a public education plan), define management strategies and milestones, and establish monitoring requirements. All of the meetings were open to the public and noticed in the *Florida Administrative Register* (F.A.R.). Additionally, a public meeting on the current draft BMAP was held on January 17, 2018, and was noticed in the F.A.R. and in local newspapers.

Upon BMAP adoption, DEP intends to facilitate annual meetings with stakeholders to review progress towards achieving the TMDLs.

1.8 Description of BMPs Adopted by Rule

Table 2 identifies the adopted BMPs and BMP manuals relevant to this BMAP.

Table 2. BMPs and BMP manuals adopted by rule as of June 2017

Agency	F.A.C. Chapter	Chapter Title
FDACS Office of Agricultural Water Policy (OAWP)	5M-6	Florida Container Nursery BMP Guide
FDACS OAWP	5M-8	BMPs for Florida Vegetable and Agronomic Crops
FDACS OAWP	5M-9	BMPs for Florida Sod
FDACS OAWP	5M-11	BMPs for Florida Cow/Calf Operations
FDACS OAWP	5M-12	Conservation Plans for Specified Agricultural Operations
FDACS OAWP	5M-13	BMPs for Florida Specialty Fruit and Nut Crop Operations
FDACS OAWP	5M-14	BMPs for Florida Equine Operations
FDACS OAWP	5M-16	BMPs for Florida Citrus
FDACS OAWP	5M-17	BMPs for Florida Dairies
FDACS OAWP	5M-18	Florida Agriculture Wildlife BMPs
FDACS OAWP	5M-19	BMPs for Florida Poultry
FDACS Division of Agricultural Environmental Services	5E-1	Fertilizer
FDACS Division of Aquaculture	5L-3	Aquaculture BMPs
FDACS Florida Forest Service	5I-6	BMPs for Silviculture
FDACS Florida Forest Service	5I-8	Florida Forestry Wildlife BMPs for State Imperiled Species
SWFWMD	40D-26	Facilitating Agricultural Resource Management Systems (FARMS) Program
DEP	62-330	Environmental Resource Permitting

Section 2: Implementation to Achieve TMDLs

2.1 Allocation of Pollutant Loads

DEP collected and evaluated credible scientific information on the effect of nutrients, particularly forms of nitrogen, on Weeki Wachee Spring.

2.1.1 Nutrients in the Springs and Spring Systems

DEP developed the Nitrogen Source Inventory Loading Tool (NSILT) to provide information on the major sources of nitrogen in the groundwater contributing area and spring contributing area for the OFS. In addition, this tool is used to estimate nitrogen loads to groundwater from these sources in the spring contributing area. The NSILT is a GIS- and spreadsheet-based tool that provides spatial estimates of the relative contribution of nitrogen from major nitrogen sources and accounts for the transport pathways and processes affecting the various forms of nitrogen as they move from the land surface through the soil and geologic strata.

The first major factor to be considered in estimating the loading to groundwater in the NSILT is the attenuation of nitrogen as it moves from its source through the environment, before it reaches the Upper Floridan aquifer (UFA). Biological and chemical processes that occur as part of the nitrogen cycle, as well as hydrogeological processes, control the movement of nitrogen from the land surface to groundwater. Many of these processes attenuate (impede or remove) the amount of nitrogen transported to groundwater. An understanding of how water moves through the subsurface and the processes that transform the different forms of nitrogen is essential for estimating nitrogen loading to groundwater from various sources.

A second major factor to consider in estimating the loading to groundwater is the geological features in the springshed and the related recharge rate to the aquifer. Water movement between the shallow groundwater (surficial aquifer, where present) and the deeper aquifer (UFA) is slowed by a low permeability layer of clay, silt, and fine sand that retards the vertical movement of infiltrating water from the surface. The UFA occurs in limestone that can be prone to dissolving and, over geologic time, the development of numerous karst features (sinkholes, caves, and conduits). These features allow water from the land surface to move directly and relatively rapidly into the aquifer and in some areas for groundwater in the aquifer to move rapidly to the springs.

Potential recharge rates from the surface to the UFA are affected by variations in the geologic materials and the presence of karst features. DEP estimated the recharge rate ranges and grouped them into three rate categories, which were applied to the NSILT:

- Low recharge (Less than 3 inches per year [in/yr]).
- Medium recharge (3 to 10 in/yr).
- High recharge (greater than 10 in/yr).

In the NSILT, DEP applies different attenuation factors to different types of sources, so that various biological, chemical, and hydrogeological effects can be estimated. The attenuation that is applied means that the amount of nitrogen leaving a source (such as a livestock operation or a just-fertilized yard), reduces the amount of nitrogen predicted to reach the aquifer. In the NSILT estimates, the average attenuation rates range from 90 % (for atmospheric deposition) to 25 % (for wastewater disposal in a RIB). This means that, for these examples, only 10 % of nitrogen from atmospheric deposition is expected to reach the aquifer, while 75 % of nitrogen from a RIB is expected to reach groundwater, because the remainder is attenuated by various chemical and biological processes.

Phosphorus is naturally abundant in the geologic material underlying much of Florida and is often present in high concentrations in surface water and groundwater. Monitoring and evaluation of phosphorus and influences on the springs continues as the nitrate TMDLs are implemented.

2.1.2 Estimated Nitrogen Loads

Table 3 lists the estimated nitrogen loads to groundwater by source. Note that urban stormwater loads are included in urban turfgrass fertilizer (UTF) estimates, while agricultural stormwater loads are included in farm fertilizer (FF) and livestock waste (LW) estimates. Nitrogen loading to surface water will be reduced through the activities and strategies for the sources identified in this chapter for groundwater loading.

Table 3. Estimated nitrogen load to groundwater by source in the BMAP area

Nitrogen Source	Total Nitrogen Load to Groundwater in Pounds of Nitrogen Per Year (lb-N/yr)	% Contribution
OSTDS	282,875	30
UTF	209,833	22
Atmospheric Deposition	93,208	10
FF	163,935	17
Sports Turfgrass Fertilizer (STF)	53,841	6
LW	91,347	10
Wastewater Treatment Facility WWTF	45,105	5
Total	**940,144**	**100**

2.1.3 Assumptions and Considerations

The NSILT estimates are based on the following assumptions and considerations:

- **NSILT Nitrogen Inputs** – The methods used to calculate nitrogen inputs for each pollutant source were based on a detailed synthesis of information, including direct water quality measurements, census data, surveys, WWTF permits, published scientific studies and reports, and information obtained in meetings with agricultural producers. For some pollutant source categories, the nitrogen inputs were calculated using assumptions and extrapolations. As a result, these estimated inputs could be subject to further refinement if more detailed information becomes available.

- **OSTDS Load Contribution** – A per capita contribution to an OSTDS of 9.012 lb-N/year was used to calculate loading from OSTDS. The average household contribution was estimated based on 2010 U.S. Census Bureau data on average number of people per household by county (2.41 in Hernando County and 2.45 in Pasco County) and additional information on the time spent away from home by the school-age population and labor force (adjusted effective persons per household of 2.08 for Hernando County and 2.07 for Pasco County).

- **Nitrogen Attenuation Factors** – To estimate the amount of nitrogen loading to the aquifer, DEP applied two nitrogen attenuation factors. Biological and chemical processes that occur as part of the nitrogen cycle, as well as hydrogeological processes that control the movement of nitrogen from the land surface to groundwater. Biochemical attenuation accounts for biochemical processes that convert or transform the different forms of nitrogen, while hydrogeological attenuation accounts for spatial variations that affect the rate of water infiltrating through geological media to recharge the UFA. Given the relatively large range of literature-reported values of biochemical nitrogen attenuation for each source category, DEP used an average biochemical attenuation factor for each source based on land use practices and hydrogeological conditions in the contributing areas.

Other assumptions and considerations for BMAP implementation include the following:

- **Unquantified Project Benefits** – Nitrogen reductions for some of the projects and activities listed in this BMAP cannot currently be quantified. However, because of their positive impact, it is assumed that these actions will help reduce pollutant loads and estimated loading reductions may be determined at a later date and assigned to these activities.

- **Atmospheric Deposition** – Atmospheric sources of nitrogen are local, national, and international. Atmospheric sources are generally of low nitrogen concentration compared with other sources and are further diminished through additional biological and chemical processes before they reach groundwater. Atmospheric deposition sources and trends will be reevaluated periodically.

- **OSTDS Inventory and Loading Calculations** – The total number of OSTDS in the basin is estimated based on local information and Florida Department of Health (FDOH) data. Future BMAPs and the associated OSTDS loading calculations may be adjusted based on improved data on the number, location, and type (conventional and enhanced nitrogen reducing) of existing septic systems, and may include additional OSTDS installed since BMAP adoption.

- **PFA** – The PFA provides a guide for focusing strategies where science suggests efforts will best benefit the springs. The PFA boundary may be adjusted in the future if additional relevant information becomes available.

- **Project Collection Period –** The BMAP project collection period is limited to projects after a certain date, based on the data used to calculate the reductions needed. Reductions from older projects are already accounted for in the baseline loading. Projects completed in the springshed after January 1, 2013, were considered for inclusion in this BMAP.

- **Legacy Sources** – Land uses or management practices not currently active in the basin may still be affecting the nitrate concentration of the springs. The movement of water from the land surface through the soil column to the UFA and through the UFA to the spring system varies both spatially and temporally and is influenced by local soil and aquifer conditions. As a result, there may be a lag between when nitrogen input to the UFA occurs and ultimately when that load arrives at the Weeki Wachee Spring Group. The impact of this delay is not fully known.

- **Implementation Schedule** – BMAP implementation is intended to be a 20-year process. This plan defines nitrogen reduction milestones for 5-year (30 %), 10-year (50 %), and 15-year (20 %) implementation, so that the TMDLs will be met no later than the 20-year goal (see **Section 2.1.6** for further details). Further, the total reductions and the project credits may be adjusted under the adaptive management approach used for the BMAP. This approach requires regular follow-up to ensure that management strategies are carried out and that their incremental effects are assessed. The process acknowledges that there is some uncertainty associated with the outcomes of proposed management strategies and the estimated response in nitrogen concentration at the springs. As more information is gathered and progress towards each 5-year milestone is reviewed, additional management strategies to achieve the TMDLs will be developed or existing strategies refined to better address the sources of nitrogen loading.

- **Changes in Spring Flows** – The role of this BMAP is specifically to promote the implementation of projects that reduce nitrogen load to groundwater while the minimum flows and levels (MFLs) established for specific springs address water

flows and levels. To maximize efforts between the two programs, spring protection projects should provide both water quality and quantity benefits.

2.1.4 Loading by Source

Based on the NSILT results, the pie chart in **Figure 2** depicts the estimated percentage of nitrogen loading to groundwater by source in the springshed. Septic systems represent 30 % of the total nitrogen loading to groundwater, agriculture 27 %, and UTF 22 % of the total loading. Stormwater loading to groundwater is incorporated into the various source categories.

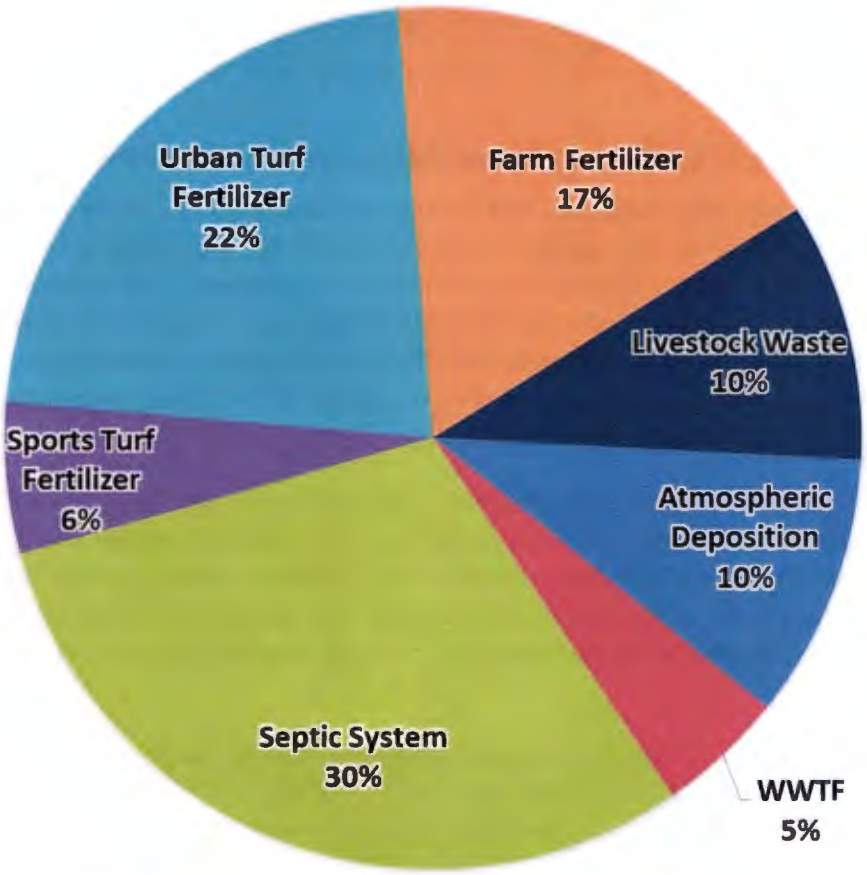

Figure 2. Loading to groundwater by source in the Weeki Wachee Springshed

2.1.5 Loading Allocation

The nitrogen source reductions are based on the measured nitrate concentrations and flows at the vent, along with the TMDL target nitrate concentration. **Table 4** lists the measured nitrate (as nitrogen) loads at the spring vents compared with the TMDL loading based on a target nitrate concentration of 0.28 mg/L. The difference between the spring vent loading and the TMDL loading calculations is the required reduction to meet the TMDLs. The total load that is required

to be reduced in the basin is being allocated to the entire basin and actions defined by the BMAP to reduce loading to the aquifer are needed to implement this allocated load.

Table 4. Total reduction required to meet the TMDLs

Description	Nitrogen Loads (lb-N/yr)	Notes Regarding Data Used
Total Load at Spring Vents	289,000	Upper 95% confidence interval - nitrate data and flow data from 2000 to 2017 (170 cubic feet per second [cfs])
TMDL Load	93,800	TMDL target is 0.28 mg/L and using the same flow data from 2000 to 2017
Required Reduction	**195,200**	

2.1.6 Description of 5-, 10-, and 15-year Milestones/Reduction Schedule

The overall load reduction targets are 30 % of the total within 5 years; 80 % of the total within 10 years; and 100 % of the total within 15 years. DEP will evaluate progress towards these milestones and will report to the Governor and Florida Legislature. DEP will adjust management strategies that reduce loading to the aquifer to ensure the target concentrations are achieved. This may include expanding the area to which the OSTDS remediation policies apply; any such change, however, would be incorporated into an updated BMAP through a formal adoption process.

Table 5 lists the estimated nitrogen reduction schedule by milestone. Progress will be tracked yearly and adjustments made as needed. At the five-year milestone, progress will be assessed and load reductions adjusted as necessary. Entities have flexibility in the types and locations of projects as long as they achieve the overall required load reductions. The monitoring of existing groundwater and springs sampling locations is essential. **Section 2.3** describes detailed source reduction strategies.

Table 5. Nitrogen reduction schedule (lb-N/yr)

5-Year Milestone (30 % of Total)	10-Year Milestone (50 % of Total)	15-Year Milestone (20 % of Total)	Total Nitrogen Reduction (100 %)
58,560	97,600	39,040	195,200

2.2 Prioritization of Management Strategies

The management strategies listed in **Appendix B, Appendix E,** and **Appendix F** are ranked with a priority of high, medium, or low. In 2016, the Florida Legislature amended the Watershed Restoration Act (Section 403.067, F.S.), creating additional requirements for all new or revised BMAPs. BMAPs must now include planning-level details for each listed project, along with their priority ranking.

Project status was selected as the most appropriate indicator of a project's priority ranking. Projects with a "completed" status were assigned a *low priority*. Projects classified as

"underway" were assigned a *medium priority* because some resources have been allocated to these projects, but some work still needs to be completed. *High priority* was assigned to projects listed as "planned" as well as certain "completed" projects that are ongoing each year (any project with one of these project types: "street sweeping," "catch basin inserts/inlet filter cleanout," "public education efforts," "fertilizer cessation," "fertilizer reduction," or "aquatic vegetation harvesting"), and select projects that are elevated because substantial, subsequent project(s) are reliant on their completion.

2.3 Load Reduction Strategy

A precise total load reduction to groundwater needed to meet the TMDL is unknown and dependent on a number of complex factors. Ultimately there must be a reduction at the spring vent of at least 195,200 lb-N/yr. Based on the totals of all the credits from BMAP actions and policies, the range of total reductions to groundwater is between 396,220 - 552,102 lb-N/yr (see **Table 6**). However, due to the proximity of these reductions to the spring and the uncertainties of fate and transport in the karst geology, additional actions may be necessary to ensure that the loading at the vent is achieved within the timeline of the BMAP.

To achieve reductions outside the scope of the policies listed, additional project options are available to local entities but have not been planned. Other efforts could be pursued to further reduce the nitrogen load to groundwater in the basin.

Table 6. Summary of potential credits for the Weeki Wachee BMAP to meet the TMDLs

Note: No reductions are estimated for atmospheric deposition sources

Nitrogen Source	Credits to Load to Groundwater (lb-N/yr)	Description
OSTDS	195,668 - 285,977	Credits are based on lots of all sizes inside the PFA being remediated by either enhancing onsite system or connecting to sewer. An estimated 27,538 lb-N/yr have been provided as OSTDS remediation projects which may be on these lots or in the larger BMAP area. Any projects outside the PFA would add additional reductions to the estimates listed.
UTF	12,590	DEP approved credits (6%) for public education activities as well as credits identified for stakeholder stormwater projects.
STF	5,342	6% BMP credit for sports fields and 10% BMP credit for golf courses on STF load to groundwater, assuming 100% BMP implementation on golf courses and sports fields.
FF	24,590	15% BMP credit on FF load to groundwater, assuming 100% owner-implemented and verified BMPs on all fertilized lands.
LW	9,135	10% BMP credit on LW load to groundwater, assuming 100% owner-implemented and verified BMPs at all livestock facilities.
WWTF	33,058	Achieved by BMAP WWTF policy if BMAP-wide (achieving 3 or 6 mg/L).
WWTF - Decommission	46,171	Hernando County Spring Hill WRF Decommissioning Project (Project HC-20).
WWTF – Biological Application	53,272	Pasco County Crews Lake Restoration Project (Project PC-02).
Total Credits from BMAP Policies and Submitted Projects	**379,826 - 470,134**	
Advanced Agricultural Practices and Procedures	16,394 – 81,968	Includes 10%-50% reduction from 100% of fertilized acres with a change in practice
Total Credits	**396,220 – 552,102**	**Load reduction to meet TMDL at the spring vent is 195,200 lb-N/yr.**

2.4 OSTDS Management Strategies

Overall there are currently around 35,000 OSTDS in the PFA, based on FDOH estimates. This BMAP lists 5 specific projects (**Appendix B**) that reduce nitrogen loading from existing OSTDS on variably sized parcels by a total of 27,538 lb-N/yr. **Figure 3** shows the locations of all OSTDS in the BMAP area.

In addition to the 5 listed projects, DEP assessed the overall OSTDS loading compared with other nitrogen sources in the PFA, as well as the relative loading in the wider BMAP area. Based on these assessments, DEP has determined that for the Weeki Wachee BMAP area, OSTDS contribute more than 20 % of nonpoint source nitrogen pollution to the OFS. Per the Weeki Wachee NSILT, septic systems contribute 30 % pollutant loading in the springshed area and approximately 44 % of the nitrogen loading in the PFA. Cumulatively, nitrogen loading from

OSTDS within this springshed result in the significant degradation of groundwater that impacts the Weeki Wachee BMAP area. Therefore, the comprehensive remediation of OSTDS, consistent with the requirements of this BMAP, is necessary to prevent associated groundwater and surface water contamination so that the TMDLs can ultimately be achieved and so that increases in nitrogen loads from future growth are limited. The OSTDS remediation plan is incorporated as **Appendix D**.

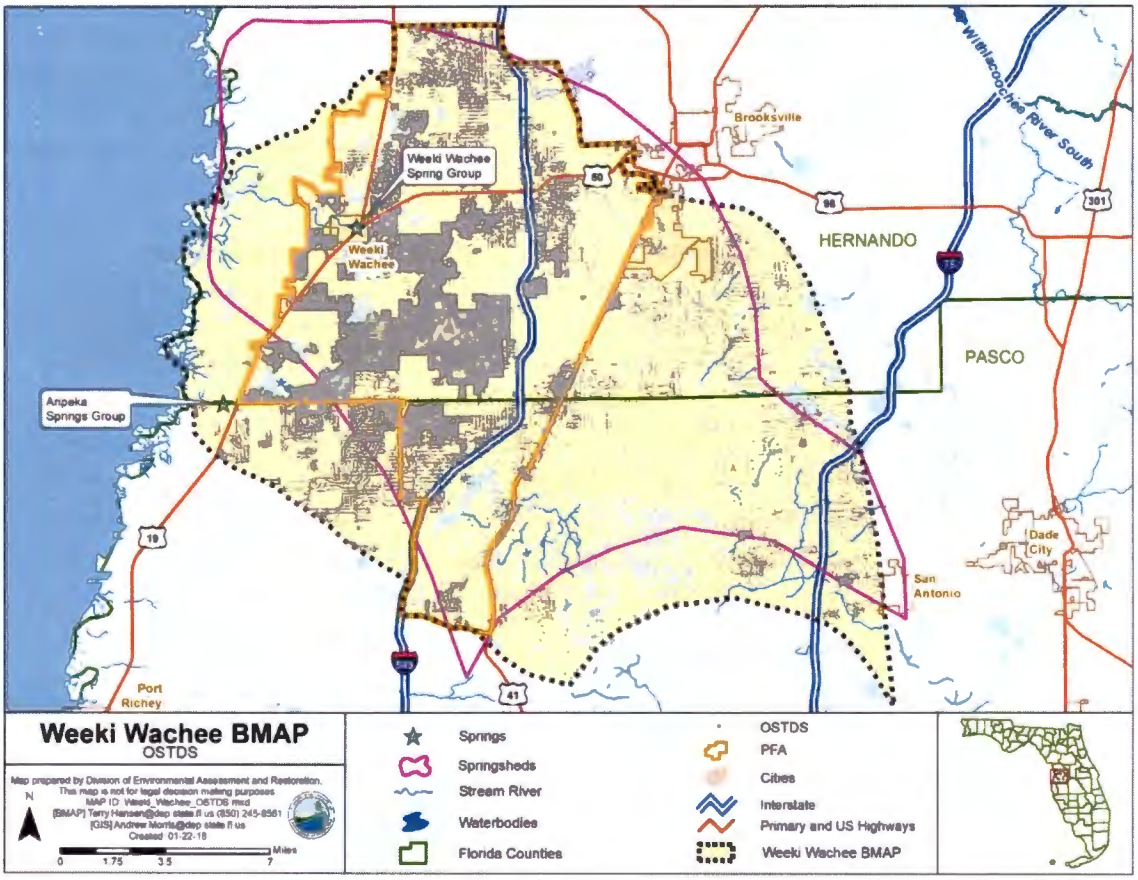

Figure 3. OSTDS locations in the Weeki Wachee BMAP area and PFA

In addition to the actions outlined in the OSTDS remediation plan (incorporated into this BMAP as **Appendix D)**, remedial efforts on existing conventional OSTDS could achieve nitrogen reductions. **Table 7** summarizes the nitrogen inputs, attenuation and recharge factors, and loads to groundwater for a conventional OSTDS. The conventional OSTDS nitrogen input is based on a per capita contribution of 9.012 lb-N/yr. This value is multiplied by the effective population, which is the estimated number of people per household with consideration to age distribution to account for school or working age population who likely have access to sewer connected facilities during away from home hours (2.08 effective persons per household on average in counties within the BMAP). Percent reductions for enhanced or replaced systems are applied to

the conventional OSTDS nitrogen groundwater loads to evaluate possible improvements to groundwater. Enhanced OSTDS can achieve an estimated 65 % improvement in the load to groundwater compared to a conventional system. OSTDS replaced by sewer reduce the conventional nitrogen inputs by an estimated 95 %, assuming a sewer connection to a WWTF meeting AWT levels.

The results show an estimated nitrogen reduction (i.e., credit) of 5.5 in high recharge areas, 3.0 in medium recharge areas, and 0.6 in low recharge areas for each enhanced OSTDS and an estimated nitrogen reduction of 8.0 in high recharge areas, 4.5 in medium recharge areas, and 0.9 in low recharge areas for each replaced OSTDS. Estimated costs for retrofitting (onsite treatment improvements) or removing (sewering) OSTDS range from $10,000 to $20,000 per system, which would be anticipated to be offset somewhat by cost-share from state funds. These costs can be refined as projects are completed and detailed cost data are available.

Table 7. Estimated individual OSTDS improvements to groundwater

Recharge Category	Conventional OSTDS Load to Groundwater (lb-N/yr/OSTDS)	Credit Per System (lb-N/yr/OSTDS) Enhanced OSTDS	Credit Per System (lb-N/yr/OSTDS) Replaced OSTDS
Nitrogen Input	19	–	–
Attenuation (0.5)	9.4	–	–
Low Recharge (0.1)	0.9	0.6	0.9
Medium Recharge (0.5)	4.7	3.0	4.5
High Recharge (0.9)	8.4	5.5	8.0

2.5 UTF Management Strategies

UTF consists of fertilizers applied to the turfgrass typically found in residential and urban areas (including residential lawns and public green spaces). It is applied by either the homeowner or a lawn service company on residential properties, while on nonresidential properties they may be applied by contractors or maintenance staff.

2.5.1 Fertilizer Ordinance Adoption

As required by the Florida Legislature, as described in Subsection 373.807(2), F.S., local governments with jurisdictional boundaries that include an OFS or any part of a springshed or delineated PFA of an OFS, are required to develop, enact, and implement a fertilizer ordinance by July 1, 2017. The statutes require any ordinance to be based, at a minimum, on the DEP model ordinance for Florida-friendly fertilizer use on urban landscapes.

2.5.2 Prioritized Management Strategies and Milestones

Based on the fertilizer ordinances and public education activities in place at the time of BMAP adoption, the associated credits for UTF reductions to groundwater are 4,090 lb-N/yr (see **Table 8**). Additional environmental benefits could be credited if the counties and municipalities implement other public education efforts and source control ordinances, as described below.

Local stormwater projects that treat urban runoff, including nitrogen from urban fertilizer are also in place (see **Appendix B**) for a total estimated reduction to groundwater of 1,140 lb-N/yr.

Table 8. Current project credits to reduce UTF loading to groundwater

Project Category	Project Credits (lb-N/yr) Based on Management Actions in Appendix B
Fertilizer Ordinances and Public Education Activities	4,090
Stormwater Improvements	1,140
Total Project Credits	**5,230**

Since there is uncertainty about the data used in the NSILT to calculate the UTF loading to groundwater, DEP will work toward collecting better data by documenting reductions with the stakeholders. Also, DEP will work with stakeholders to develop additional measures to reduce fertilizer application.

The anticipated reduction from UTF sources is currently limited to 6 % of the estimated load to groundwater. This reduction can be achieved through a 6 % total credit if each local government has an applicable fertilizer ordinance, landscape ordinance, irrigation ordinance, and pet waste ordinance; carries out public education activities; and implements the Florida Yards and Neighborhood (FYN) Program (see **Table 9**).

If all the local governments implement the full suite of public education measures, a 12,590 lb-N/yr reduction can be achieved. Currently, local government public education credits total 4,090 lb-N/yr. Thus, an additional 8,500 lb-N/yr reduction could be achieved through public education and source control efforts.

Table 9. Maximum UTF load reductions based on existing public education credit policies

Urban Turfgrass Source Control Measures	Credit Based on Estimated Load to Groundwater (%)	Possible Nitrogen Credits (lb-N/yr)
Fertilizer Ordinance	0.5	1,049
Pet Waste Ordinance	0.5	1,049
Landscape Ordinance	0.5	1,049
Irrigation Ordinance	0.5	1,049
FYN Program	3.0	6,295
Public Education Program	1.0	2,098
Total Possible Credits	**6.00**	**12,590**

2.6 STF Management Strategies

Sports turfgrass areas fall into two main categories that are evaluated separately: golf courses and sporting facilities (such as baseball, football, soccer, and other fields). There are 14 golf courses covering 1,723 acres in the BMAP area that are the main source of the load to groundwater in this source category. The majority of the golf course acreage is located in high recharge areas (1,703 acres). Sporting facilities account for 88 acres in the BMAP area and are all located in high recharge areas.

2.6.1 Prioritized Management Strategies and Milestones

DEP will work with sports field managers and golf course superintendents to ensure relevant BMP implementation and to estimate reductions associated with these efforts. To improve the golf course loading estimate over a literature-based approach, DEP will also confer with golf course superintendents to identify the actual rate of fertilizer application to update the estimate of the golf course load to groundwater. Golf courses are expected to implement the BMPs described in the DEP BMP manual, *Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses* for an estimated 10 % reduction in loads to groundwater.

Managers of sports fields can assist by reducing fertilizer use, using products that reduce leaching, and more efficiently irrigating sports turf. The estimated credit for better management of non-golf sports turfgrass is 6 % of the starting load to groundwater. Based on these approaches, the initial estimates of reductions from STF sources is 5,342 lb-N/yr, as listed in **Table 10**.

Table 10. Maximum load reductions from STF improvements based on existing credit policies

STF Source Control Measures	Credit Based on Estimated Load to Groundwater (%)	Possible Nitrogen Credits (lb-N/yr)
Golf Course BMP Implementation	10	5,280
Sports Fields BMPs	*6*	*62*
Total Possible Credits		**5,342**

2.7 Agricultural Sources Management Strategies and Additional Reduction Options

Based on the data including Florida Statewide Agricultural Irrigation Demand (FSAID) IV geodatabase land use, FDACS identified agricultural acreage within the BMAP. An estimated 45,701 acres land in the springshed area are considered agricultural, of which 4,738 acres are identified as crop fertilizer lands, 9,391 acres are livestock lands, and 31,572 acres are identified as both crop fertilizer lands and livestock lands.

2.7.1 FF Loading

Nitrogen in agricultural fertilizer is applied at varying rates, depending on the crop and individual farm practices. The NSILT estimated total nitrogen load to groundwater from FF is 163,935 lb-N/year, or 17 % of the total nitrogen load to groundwater in the BMAP area.

2.7.2 LW

Agricultural practices specific to this livestock management were obtained through meetings with University of Florida Institute of Food and Agricultural Sciences (UF-IFAS) extension staff, FDACS field representatives, agricultural producers, and stakeholders. The NSILT estimated total nitrogen load to groundwater from LW is 91,347 lb-N/year, or 10 % of the total nitrogen load to groundwater in the BMAP area.

2.7.3 Prioritized Management Strategies and Milestones

Subsection 403.067, F.S., requires agricultural nonpoint sources in a BMAP either to implement the applicable FDACS-adopted BMPs, which provides a presumption of compliance with water quality standards, or conduct water quality monitoring prescribed by DEP or SWFWMD that demonstrates compliance with water quality standards. Further, based on the Florida Springs and Aquifer Protection Act, Subsection 373.811(5), F.S., prohibits any new agricultural operations within the priority focus areas that do not implement applicable FDACS BMPs, measures necessary to achieve pollution reduction levels established by DEP, or groundwater monitoring plans approved by a WMD or DEP. Failure to implement BMPs or conduct water quality monitoring that demonstrates compliance with pollutant reductions may result in enforcement action by DEP (s. 403.067(7)(b), F.S.)FDACS will work with applicable producers within the BMAP area to implement BMPs. As of December 31, 2017, Notices of Intent (NOIs) to implement BMPs covered 15,349 acres in the Weeki Wachee BMAP area. No producers are conducting water quality monitoring in lieu of implementing BMPs at this time. **Appendix B** lists project information. **Appendix G** provides detailed information on BMPs and agricultural practices in the BMAP area.

With crop-specific BMP enrollment or monitoring for FF areas, an estimated 24,590 lb-N/yr reduction to groundwater can be achieved by owner-implemented crop-specific BMPs, based on an average reduction of 15 % in the nitrogen load to groundwater. While DEP has listed larger percentage reductions in nitrogen from agricultural BMPs in estimating benefits to surface waters, the best data available indicate a 15 % reduction in the load to groundwater, where owner-implemented BMPs are in place. This number could increase as more data are collected on the impact of BMPs to groundwater.

For livestock operations, owner-implemented BMPs are expected to achieve a reduction of 9,135 lb-N/yr, using an estimated 10 % reduction in the load to groundwater from owner-implemented BMPs at livestock operations.

Summarizing the reductions discussed above, the total reduction from BMP implementation of all agricultural sources is 33,725 lb-N/yr.

2.7.4 Additional Agricultural Reduction Options

Further reductions may be achieved through implementing additional agricultural projects or practices, including land acquisition and conservation easements. SWFWMD is implementing projects to encourage low input agriculture and water quality improvement technologies. Examples of these projects include providing incentives for producers to transition to less intensive cropping systems, changing land use to fallow or native landscape, or changing the type of cropping system. Other reductions associated with the implementation and modification of BMPs may be realized through ongoing studies and data collection. Basin-specific studies are underway to evaluate and demonstrate the effectiveness of BMPs on a site-specific basis.

Table 11 identifies possible projects and practices and the estimated acreages. FDACS used FSAID IV to identify crop types and acreages where projects and practices could potentially be implemented.

Table 11. Estimated acreages for additional agricultural projects or practices

Action	Acreage
Controlled Release Fertilizer	1,382
Cover Crops	1,021
Precision Fertilization	2,617
Precision Irrigation	1,882
Soil Moisture Probes	3,006

The projects and practices listed in **Table 11** are a component of the reductions to groundwater that could be achieved through changes in practices (**Table 12**). For example, a 75 % reduction of fertilizer loss to groundwater on 25 % of the fertilized lands would result in an estimated reduction of 30,738 lb-N/yr. Note that these estimates are averaged over the entire basin, and the recharge characteristics of a specific site and the fertilization practices for specific crops may change the estimated reduction for specific acres with a conservation easement or change in fertilization.

Table 12. Calculations for additional load reductions to groundwater

% of Fertilized Acres with a Change in Practice	Amount of Fertilized Acres with a Change in Practice	100% Reduction in Load to Ground-water (lb-N/yr reduced)	75% Reduction in Load to Ground-water (lb-N/yr reduced)	50% Reduction in Load to Ground-water (lb-N/yr reduced)	25% Reduction in Load to Ground-water (lb-N/yr reduced)	10% Reduction in Load to Ground-water (lb-N/yr reduced)
100	36,111	163,935	122,951	81,968	40,984	16,394
75	27,083	122,951	92,213	61,476	30,738	12,295
50	18,056	81,968	61,476	40,984	20,492	8,197
25	9,028	40,984	30,738	20,492	10,246	4,098
10	3,611	16,394	12,295	8,197	4,098	1,639

Beyond enrolling producers in the FDACS BMP Program and verifying implementation, FDACS will work with DEP to improve the data used to estimate agricultural land uses in the springshed. FDACS will also work with producers to identify a suite of agricultural projects and research agricultural technologies that could be implemented on properties where they are deemed technically feasible and if funding is made available. The acreages provided by FDACS are preliminary estimates of the maximum acreages and need to be evaluated and refined over time. As presented here, these projects are based on planning-level information. Actual implementation would require funding as well as more detailed designs based on specific information, such as actual applicable acreages and willing landowners.

2.8 WWTF Management Strategies

In the Weeki Wachee BMAP area, treated effluent containing nitrogen is discharged to sprayfields, RIBs, and percolation ponds, and is reused for irrigation water. The estimated nitrogen load from WWTFs is 45,105 lb-N/year. The discharge location (such as proximity to the spring, highly permeable soils, etc.) and level of wastewater treatment are important factors to consider when calculating loadings to groundwater. Additionally, addressing the nitrogen loading from OSTDS could increase the volume of effluent treated and disposed of by WWTFs.

2.8.1 Summary of Facilities

There are several WWTFs located in the Weeki Wachee BMAP area, including 7 domestic WWTFs permitted to discharge more than 100,000 gallons of treated effluent per day (or 0.1 million gallons per day [mgd]). **Figure 4** shows the locations of domestic WWTFs in the Weeki Wachee Basin with discharges greater than 0.1 mgd and those with discharges less than 0.1 mgd.

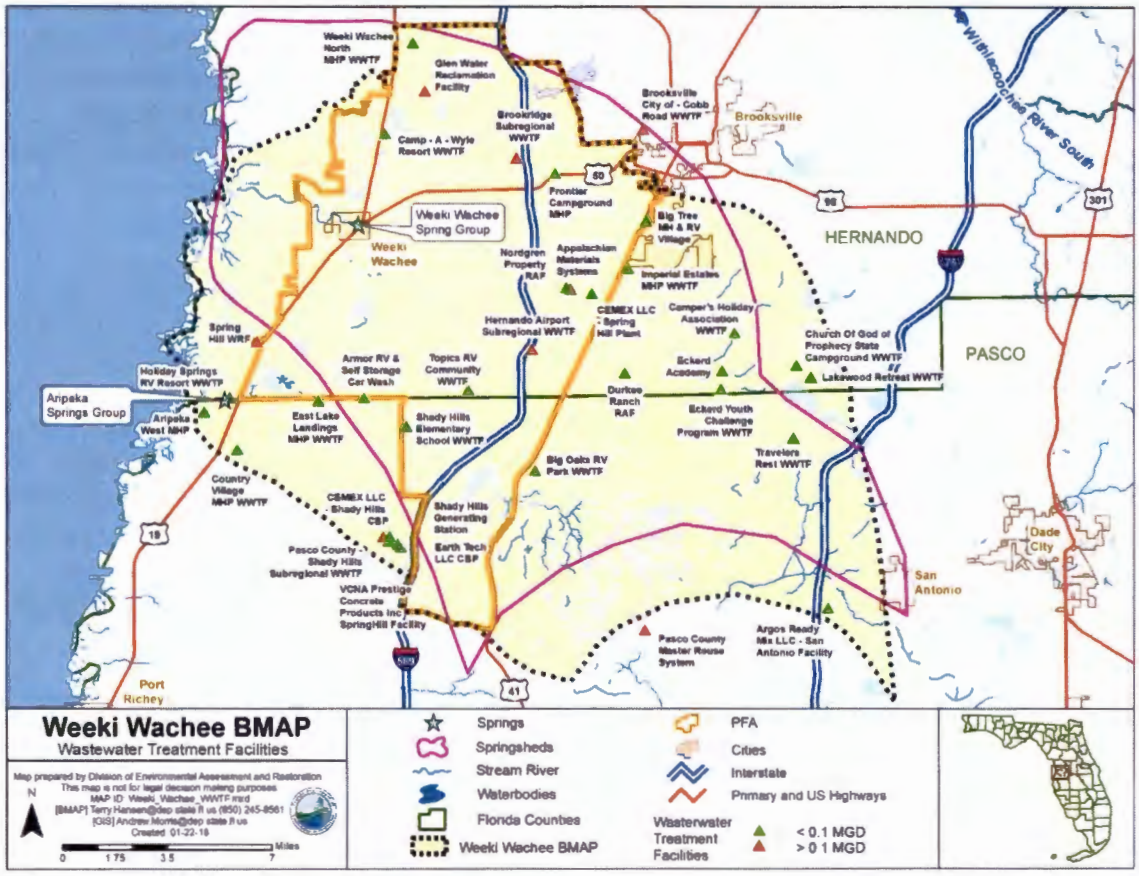

Figure 4. Locations of domestic WWTFs in the Weeki Wachee BMAP area

2.8.2 Wastewater Management Standards and Reuse Management

The Florida Springs and Aquifer Protection Act prohibits new domestic wastewater disposal facilities in the PFA, including RIBs, with permitted capacities of 100,000 gpd or more, except for facilities that provide AWT that reduces total nitrogen in the effluent to 3 mg/L or lower, on an annual permitted basis.

DEP requires the nitrogen effluent limits listed below in any new or existing wastewater permit, unless the utility/entity can demonstrate reasonable assurance that the reuse or land application of effluent would not cause or contribute to an exceedance of the nitrate concentrations established by the Weeki Wachee Spring Group, Magnolia-Aripeka Springs Group, Wilderness-Mud-Salt Springs Group, and Jenkins Creek Spring TMDLs. To demonstrate reasonable assurance, the utility/entity shall provide relevant water quality data, physical circumstances, or other site-specific credible information needed to show their facility would not cause a nitrate concentration that would be greater than 0.28 mg/L at the Weeki Wachee spring vents and 0.23 mg/L at the Magnolia-Aripeka spring vents. This demonstration may include factors such as dilution, site-specific geological conditions, research/studies, including dye tracer tests, and

groundwater transport modeling. Should DEP concur with the reasonable assurance demonstration request, the TN effluent requirements established here may be modified for the applicant or waived.

The nitrogen effluent limits set forth in **Table 13** will be applied as an annual average to all new and existing WWTFs with a DEP-permitted discharge or disposal area within the BMAP. New effluent standards will take effect at the time of permit renewal or no later than five years after BMAP adoption, whichever is sooner.

Table 13. Wastewater effluent standards for the BMAP area

95 % of the Permitted Capacity (gpd)	TN Concentration Limits for RIBs and Absorption Fields (mg/L)	TN Concentration Limits for All Other Land Disposal Methods, Including Reuse (mg/L)
Greater than 100,000	3	3
20,000 to 100,000	3	6
Less than 20,000	6	6

Additionally, new or existing wastewater permits in the BMAP area must require at least quarterly sampling of the effluent discharge for TN and must report these sampling results in the discharge monitoring reports (DMRs) submitted to DEP.

DEP encourages the reuse of treated wastewater for irrigation as a water conservation measure. The expansion of reuse water for irrigation can reduce reliance on the Floridan aquifer for water supply. The nitrogen load to groundwater from reuse water is expected to be reduced through these WWTF policies, as improvements in reuse water quality will both reduce loads from this source and limit future increases in loading from reuse because of higher treatment levels.

2.8.3 Prioritized Management Strategies and Milestones

Based on the current volumes of discharge and effluent concentrations, the estimated reductions to be achieved through the implementation of these revised wastewater standards are 33,058 lb-N/yr. **Appendix B** contains detailed information on projects that have been completed, are underway, or are planned to reduce nitrogen loading from WWTFs.

Two WWTF projects identified in **Appendix B,** Hernando County's Decommissioning of the Spring Hill Water Reclamation Facility (WRF) (Project HC-20) and Pasco County's Crews Lake Natural Systems Restoration Project (Project PC-02), are estimated to achieve reductions of 46,171 lb-N/yr and 53,272 lb-N/yr, respectively.

2.9 Atmospheric Deposition Management Strategies

2.9.1 Summary of Loading

Atmospheric deposition is largely a diffuse, albeit continual, source of nitrogen. Nitrogen species and other chemical constituents are measured in wet and dry deposition at discrete locations around the U.S. In 2014, Schwede and Lear developed a hybrid model for estimating the total

atmospheric deposition of nitrogen and sulfur for the entire U.S., referred to as the total atmospheric deposition model or "TDEP." Deposition data from several monitoring networks—including the Clean Air Status and Trends Network (CASTNET), the National Atmospheric Deposition Program (NADP) Ammonia Monitoring Network, the Southeastern Aerosol Research and Characterization Network, and modeled data from the Community Multiscale Air Quality (CMAQ) Modeling System—are combined in a multistep process with National Trends Network (NTN) wet deposition values to model total deposition. The TDEP model run used for the NSILT included data from 2011 to 2013.

2.9.2 Description of Approach

Atmospheric sources of nitrogen are local, national, and international. Atmospheric sources are generally of low nitrogen concentration compared with other sources and are further diminished through additional biological and chemical processes before they reach groundwater. Atmospheric deposition sources and trends will be re-evaluated periodically.

2.10 Future Growth Management Strategies

New development primarily falls into to two general source categories: new urban development and new agriculture. Nutrient impacts from new development are addressed through a variety of mechanisms outlined in this BMAP as well as other provisions of Florida law. For instance, wastewater from all new and existing urban development is treated through either domestic WWTFs or OSTDS. New WWTFs must meet the stringent nitrogen limitations set forth in this BMAP. Existing WWTFs also must be upgraded to meet these same BMAP requirements. Florida law requires new development to connect to WWTFs where sewer lines are available. Where sewer is not available within the PFA, this BMAP still prohibits the installation of new OSTDS on lots of less than one-acre unless the system includes enhanced treatment of nitrogen, as described in **Appendix D**. Likewise, all new agricultural operations must implement FDACS-adopted BMPs and potentially other additional measures (**Section 2.7**), or must conduct water quality monitoring that demonstrates compliance with water quality standards.

Other laws such as local land development regulations, comprehensive plans, ordinances, incentives, environmental resource permit requirements, and consumptive use permit requirements, all provide additional mechanisms for protecting water resources and reducing the impact of new development and other land use changes as they occur (see **Appendix G**). Through this array of laws and the requirements in this BMAP, new development must undertake nitrogen-reduction measures before the development is complete.

2.11 Protection of Surface Water and Groundwater Resources through Land Conservation

Maintaining land at lower intensity uses through land purchases or easements for conservation and recreational use is one strategy that can help reduce water quality impacts in the Weeki Wachee Basin. **Table 14** identifies land conservation purchases in the BMAP area since 2012, which is the last year of the period of record used for developing the Weeki Wachee TMDLs.

Table 14. Stakeholder conservation land purchases

TBD – To be determined

Lead Entity	Name of Conservation Purchase	Description	Purchase Status	Cost	Acreage Acquired	Year Acquired
Pasco County	Jumping Gully/Crews Lake Phase I	Protect identified ecological corridor between Starkey Wilderness Park and Cross Bar Ranch.	Completed	$6,600,000	1,600	2015
Pasco County	Aripeka Heights	Coastal Ecological Planning Unit	Completed	$2,400,000	210	2012
Pasco County	Jumping Gully/Crews Lake Phase II	Protect identified ecological corridor between Starkey Wilderness Park and Cross Bar Ranch.	Planned	$1,100,000	100	2017
Pasco County	Connerton to Cross Bar	Protect identified ecological corridor between Connerton and Cross Bar.	Planned	TBD	800	TBD
Pasco County	Coastal Ecological Planning Unit	Conservation program to acquire land identified along the coast.	Planned	TBD	TBD	TBD
Hernando County	Norfleet Property	Provide a greenway corridor connection from Hernando County to Pasco County that conserves habitat and listed species, buffers a spring run and coastal spring, minimizes flood hazards, and maintains natural stormwater treatment for Hammock Creek.	Planned	$250,000	60	TBD
SWFWMD	Boat Spring	Protect the water resources of the Hammock Creek system, link existing SWFWMD ownerships, and enhance the natural systems of the Weeki Wachee Preserve	Completed	$1,370,000	81	2015

2.12 Commitment to Implementation

Successful BMAP implementation requires commitment, dedicated state funding, and follow-up. Stakeholders have expressed their intention to carry out the plan, monitor its effects, and continue to coordinate within and across jurisdictions to achieve nutrient reduction goals. As the TMDLs must be achieved within 20 years, DEP, WMDs, FDOH, and FDACS will implement management strategies using the annual Legacy Florida appropriation from the legislature of at least $50 million to reduce nitrogen in impaired OFS. DEP, working with the coordinating agencies, will continue to invest existing funds and explore other opportunities and potential funding sources for springs restoration efforts.

Section 3: Monitoring and Reporting

3.1 Methods for Evaluating Progress

DEP will work with stakeholders to track project implementation and organize the monitoring data collected each year. The project and monitoring information will be presented in an annual update. Stakeholders have agreed to meet annually after the adoption of the BMAP to follow up on plan implementation, share new information, and continue to coordinate on TMDL restoration related issues. The following activities may occur at annual meetings:

Implementation data and reporting:

- Collect project implementation information from stakeholders, including FDACS agricultural BMP enrollment and FDOH-issued permits, and compare with the BMAP schedule.
- Discuss the data collection process, including any concerns and possible improvements to the process.
- Review the monitoring plan implementation, as detailed in **Section 3.3**.

Sharing new information:

- Report on results from water quality monitoring and trend information.
- Provide updates on new management strategies in the basin that will help reduce nutrient loading.
- Identify and review new scientific developments on addressing nutrient loads and incorporate any new information into annual progress reports.

Coordinating on TMDL restoration-related issues:

- Provide updates from DEP on the basin assessment cycle and activities related to any impairments, TMDLs, and BMAP.
- Obtain reports from other basins where tools or other information may be applicable to the Weeki Wachee Spring Group, Magnolia-Aripeka Springs Group, Wilderness-Mud-Salt Springs Group, and Jenkins Creek Spring TMDLs.

3.2 Adaptive Management Measures

Adaptive management involves making adjustments in the BMAP when circumstances change or monitoring indicates the need for additional or more effective restoration strategies. Adaptive management measures may include the following:

- Implementing procedures to determine whether additional cooperative strategies are needed.

- Using criteria/processes for determining whether and when plan components need revision because of changes in costs, project effectiveness, social effects, watershed conditions, or other factors.

- Revising descriptions of stakeholders' roles during BMAP implementation and after BMAP completion.

- Updating information on corrective actions (and any supporting documentation) being implemented as data are gathered to refine project implementation schedules and performance expectations.

Key components of adaptive management to share information and expertise are tracking plan implementation, monitoring water quality and pollutant loads, and holding periodic meetings.

3.3 Water Quality and Biological Monitoring

3.3.1 Objectives

Focused objectives are critical for a monitoring strategy to provide the information needed to evaluate implementation success. Since the BMAP implementation involves an iterative process, the monitoring efforts are related to primary and secondary objectives. The primary objectives focus on achieving water quality targets, while the secondary objectives focus on water quality parameters that can be used to provide information for future refinements of the BMAP. The monitoring strategy may be updated as necessary.

Primary objectives:

- Measure the water quality and biological response in the impaired springs, river, and/or groundwater at the beginning of the BMAP period and during implementation.

- Document nutrient trends in the Weeki Wachee Basin and associated springs and groundwater.

- Focus BMP efforts by using water quality results combined with appropriate project information and land use in conjunction with statistical and spatial analysis tools.

Secondary objectives:

- Identify areas where groundwater data and modeling might help in understanding the hydrodynamics of the system.

- Confirm and refine nutrient removal efficiencies of agricultural and/or urban BMPs.

- Identify and implement more effective nutrient reduction strategies.
- Use nitrogen isotope and tracer sampling for evaluating nitrogen contributions from organic and inorganic sources.

3.3.2 Water Quality Parameters, Frequency, and Network

To achieve the objectives listed above, the monitoring strategy focuses on two types of indicators to track improvements in water quality: core and supplemental (**Tables 15** and **16**, respectively). The core indicators are directly related to the parameters causing impairment in the river or associated springs. Supplemental indicators are monitored primarily to support the interpretation of core water quality parameters. The monitoring network is established for a variety of purposes.

For this BMAP, nitrate is considered to be the key core parameter measured, to track progress in decreasing nitrogen concentrations in groundwater and the water flowing from the spring vent. The other parameters are considered supplementary parameters for the BMAP, as they build information about groundwater and the spring but are not direct measurements of impairment.

At a minimum, the core parameters will be tracked to determine the progress made towards meeting the TMDLs and/or achieving the numeric nutrient criteria (NNC). Resource responses to BMAP implementation may also be tracked. A significant amount of time may be needed to observe changes in water chemistry.

Table 15. Core water quality indicators and field parameters

Core Parameters
Chloride
Sulfate
Potassium
Ammonia as Nitrogen
Total Kjeldahl Nitrogen
Nitrate/Nitrite as Nitrogen

Table 16. Supplemental water quality indicators and field parameters

Supplemental Parameters
Specific Conductance
Dissolved Oxygen (DO)
pH
Temperature
Total Suspended Solids (TSS)
Nitrate and Oxygen Isotopes

Initially, data from the ongoing sampling effort being conducted by SWFWMD will be used to meet the primary objectives. Surface water and groundwater monitoring network locations were selected to track changes in water quality and allow the annual evaluation of progress toward achieving the TMDL. **Figure 5** shows the location of the river and spring stations currently being sampled that will be used for the BMAP monitoring in the Weeki Wachee Basin.

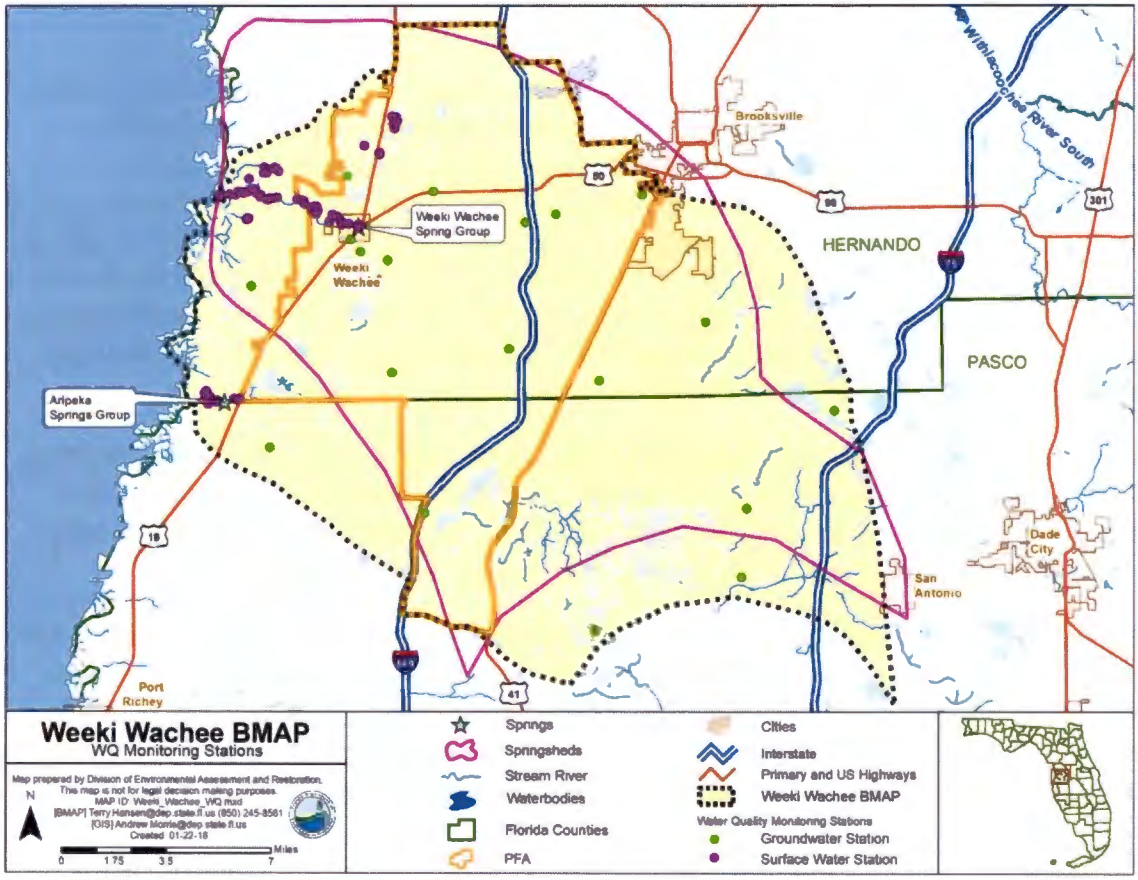

Figure 5. Groundwater and surface water stations sampled in the Weeki Wachee Basin

3.3.3 Biological Monitoring

Biological resource responses represent improvements in the overall ecological health of the Weeki Wachee Basin (see **Table 17**).

Table 17. Biological response measures for spring runs

Resource Responses
Increase in Stream Condition Index (SCI) score
Increase in Linear Vegetation Survey (LVS) score
Increase in Rapid Periphyton Survey (RPS) score
Increase in key fish populations

An RPS will be conducted to assess the abundance and variety of algae in the river. An LVS will be conducted to assess the types and density of vegetation present in the river and to identify the native versus non-native species. An SCI will be conducted to measure the number of different organisms present in the river. In addition, habitat assessments (HAs) will be conducted to assess the river conditions and habitat present to support the SCI evaluation. Water quality samples will also be collected with the biological monitoring.

3.3.4 Data Management and Assessment

As of June 30, 2017, water quality data in Florida are entered by the entity collecting the data into the Florida Watershed Information Network (WIN) Database, which has replaced the Florida Storage and Retrieval System (STORET). DEP pulls water quality data directly from WIN and U.S. Geological Survey (USGS) databases for impaired waters evaluations and TMDL development. Data providers are required to upload their data regularly, so the information can be used as part of the water quality assessment process and for annual reporting. Data providers should upload their data to WIN, upon completion of the appropriate quality assurance/quality control (QA/QC) checks. All data collected in the last quarter of the calendar year should be uploaded no later than April 1 of the following year.

Biological data collected by DEP are stored in the DEP Statewide Biological (SBIO) database. Biological data should be collected and regularly provided to DEP following the applicable standard operating procedures. All biological data collected in the last quarter of the calendar year should be uploaded or provided no later than April 1 of the following year.

The water quality will be analyzed during BMAP implementation to determine trends in water quality and the health of the biological community. A wide variety of statistical methods are available for the water quality trend analyses. The selection of an appropriate data analysis method depends on the frequency, spatial distribution, and period of record available from existing data. Specific statistical analyses were not identified during BMAP development.

3.3.5 QA/QC

Stakeholders participating in the monitoring plan must collect water quality data in a manner consistent with Chapter 62-160, F.A.C., and the DEP standard operating procedures (SOPs) for QA/QC required by rule. The most current version of these procedures is available on the DEP website. For BMAP-related data analyses, entities should use National Environmental Laboratory Accreditation Conference (NELAC) National Environmental Laboratory Accreditation Program (NELAP)–certified laboratories or other labs that meet the certification and other requirements outlined in the SOPs.

Appendices

Appendix A. Important Links

The links below were correct at the time of document preparation. Over time, the locations may change and the links may no longer be accurate. None of these linked materials are adopted into this BMAP.

- DEP Website: http://www.floridadep.gov
- DEP Map Direct Webpage: https://ca.dep.state.fl.us/mapdirect/
- Searchable online version of PFA maps: https://www.floridadep.gov/pfamap
- Florida Statutes: http://www.leg.state.fl.us/statutes:
    - Florida Watershed Recovery Act (Section 403.067, F.S.)
    - Florida Springs and Aquifer Protection Act (Part VIII of Chapter 373, F.S.)
- DEP Model Ordinances: http://fyn.ifas.ufl.edu/fert_ordinances.html
- DEP Standard Operating Procedures for Water Quality Samples: https://floridadep.gov/dear/quality-assurance/content/dep-sops
- NELAC NELAP: https://fldeploc.dep.state.fl.us/aams/index.asp
- FDACS BMPs: https://www.freshfromflorida.com/Business-Services/Best-Management-Practices-BMPs/Agricultural-Best-Management-Practices
- FDACS BMP and Field Staff Contacts: http://www.freshfromflorida.com/Divisions-Offices/Agricultural-Water-Policy
- Florida Administrative Code (Florida Rules): https://www.flrules.org/
- SWFWMD 2017 Weeki Wachee River Surface Water Improvement and Management SWIM Plan: http://www.swfwmd.state.fl.us/files/database/calendar/Weeki_Wachee_GB_FINAL_SWIM_Plan_v2.pdf
- SWFWMD Springs: http://www.swfwmd.state.fl.us/springs/
- SWFWMD Social Research: http://www.swfwmd.state.fl.us/projects/social_research/
- UF-IFAS Research: http://research.ifas.ufl.edu/

Appendix B. Projects to Reduce Nitrogen Sources

Prioritization of Management Strategies

The management strategies in **Table B-1** are ranked with a priority of high, medium, or low. In 2016, the Florida Legislature amended the Watershed Restoration Act (Section 403.067, F.S.), creating additional requirements for all new or revised BMAPs. BMAPs must now include planning-level details for each listed project, along with their priority ranking.

Project status was selected as the most appropriate indicator of a project's priority ranking based primarily on need for funding. Projects with a "completed" status were assigned a low priority. Projects classified as "underway" were assigned a medium priority because some resources have been allocated to these projects, but additional assistance may be needed for the project to be completed. High priority was assigned to projects listed with the project status "planned" as well as certain "completed" projects that are ongoing each year (any project with one of these project types: "street sweeping," "catch basin inserts/inlet filter cleanout," "public education efforts," "fertilizer cessation," "fertilizer reduction," or "aquatic vegetation harvesting"), and select projects that are elevated because substantial, subsequent project(s) are reliant on their completion.

Description of the Management Strategies

Responsible entities submitted these management strategies to the department with the understanding that the strategies would be included in the BMAP, thus requiring each entity to implement the proposed strategies in a timely way and achieve the assigned load reduction estimates. However, this list of strategies is meant to be flexible enough to allow for changes that may occur over time. Any change in listed management strategies, or the deadline to complete these actions, must first be approved by the department. Substituted strategies must result in equivalent or greater nutrient reductions than expected from the original strategies.

While the 20-year planning period for this BMAP is 2018 to 2038, projects completed since January 1, 2013, count toward the overall nitrogen reduction goals.

Estimated nitrogen reductions are subject to refinement based on DEP verification and/or on adjustment to calculations based on loading to groundwater rather than surface water. Agriculture load reductions (FDACS-01 and FDACS-02) assume 100 % enrollment and verification. Projects with a designation of TBD (to be determined) denotes information is not currently available, but will be provided by the stakeholder when it is available. Projects with a designation of N/A (not applicable) indicates the information for that category is not relevant to that project. Projects with a designation of "Not Provided" denotes that information was requested by DEP but was not provided by the lead entity.

Table B-1. Stakeholder projects to reduce nitrogen sources

**Denotes project that is applicable in another Springs Coast BMAP. The dollar amount is the total project amount (not split among the BMAPs).*

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
City of Brooksville	COB-01	Public Education Activities	Adopt fertilizer ordinance in 2017; website, public service announcements, brochures, etc.	Public Education	Underway	2017	2018	UTF	22	TBD	County	TBD
City of Brooksville	COB-02	Septic to Sewer Conversion	Connect approximately 75 septic systems to central sewer system.	Wastewater Service Area Expansion	Planned	2019	2021	OSTDS	TBD	$1,400,000	City/DEP	TBD
City of Brooksville	COB-03	Septic to Sewer Conversion	Connect approximately 300 septic systems to central sewer system.	Wastewater Service Area Expansion	Planned	2027	2030	OSTDS	TBD	$6,000,000	City/DEP/ Other	TBD
City of Brooksville	COB-04	Reuse Water to Hernando Oaks Golf Course	Connect Brooksville reclaim transmission line to Hernando Oaks Golf Course for irrigation purposes.	Reuse Project	Planned	2018	2019	STF	TBD	$490,000	DEP	DEP: $490,000
Hernando County	HC-01	Package Plant Connection Project	Connect several private wastewater package plants to the county's central wastewater collection system.	Wastewater System Upgrade	Underway	2016	2019	WWTF	Not Provided	$3,689,270	County/ DEP	DEP: $3,432,970 County $256,300
Hernando County	HC-02	Oakley Island Sewer Infrastructure	Design, permit, and construct a municipal sewer system to eliminate 15 septic systems and connect the county park to the sewer system.	Wastewater Service Area Expansion	Underway	2016	2019	OSTDS	338	$578,760	County/ DEP	DEP: $491,160 County: $87,600
Hernando County	HC-03	Septic to Sewer Conversion Study	Quantified and studied the feasibility of converting approximately 30,000 septic systems within 19 districts to central sewer in the Spring Hill area.	Study	Completed	2016	2017	OSTDS	N/A	$240,000	Fish & Wildlife Foundation/County	Foundation$ 138,000 County: $102,000
Hernando County	HC-04	District A - Phase I Septic to Sewer Conversion	Convert 450 septic systems to central sewer.	Wastewater Service Area Expansion	Planned	2019	2021	OSTDS	5,500	$10,000,000	County/ DEP	TBD
Hernando County	HC-05	District A - Phase II Septic to Sewer Conversion	Convert 450 septic systems to central sewer.	Wastewater Service Area Expansion	Planned	2021	2023	OSTDS	5,500	$10,000,000	County/ DEP	TBD
Hernando County	HC-06	District B - Phase I Septic to Sewer Conversion	Convert 650 septic systems to central sewer.	Wastewater Service Area Expansion	Planned	2023	2026	OSTDS	8,100	$14,000,000	County/ DEP	TBD
Hernando County	HC-07	District B - Phase II Septic to Sewer Conversion	Convert 660 septic systems to central sewer.	Wastewater Service Area Expansion	Planned	2025	2027	OSTDS	8,100	$14,000,000	County/ DEP	TBD

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
Hernando County	HC-08	Pine Island Park Septic to Sewer Conversion	Convert 90 septic systems to central sewer.	Wastewater Service Area Expansion	Planned	2018	2020	OSTDS	TBD	$2,135,960	County/ DEP	TBD
Hernando County	HC-09	Mary's Fish Camp Septic to Sewer Conversion	Convert 25 recreation vehicle lot septic systems to central sewer.	Wastewater Service Area Expansion	Planned	2020	2021	OSTDS	TBD	$717,800	County/ DEP	TBD
Hernando County	HC-10	U.S. 19 Reclaimed Water Transmission - Phase I	This is the first phase of a reclaimed water main loop around western Hernando County. The project will initially provide 1.7 MGD of reclaimed water to the Timber Pines Subdivision and Golf Course, with future utilization up to 4.5 MGD.	Wastewater System Upgrade	Underway	2016	2018	WWTF	Reduction included in HC-20	$12,000,000	DEP/ SWFWMD/ County	DEP: $6,000,000 County: $3,000,000 SWFWMD $3,000,000
Hernando County	HC-11*	Reclaimed Water Master Plan Revision	Revision to current reclaimed water plan to identify future growth and needed interconnections. The increased use of reclaimed water will reduce fertilizer application.	Study	Underway	2016	2018	UTF	N/A	$150,000	County/ SWFWMD	SWFWMD $75,000 County: $75,000
Hernando County	HC-12	Public Education Activities	Adopted fertilizer ordinance; pet waste ordinance; website, brochures, public service announcements, etc.	Public Education	Completed	2013	2013	UTF	3,772	Not Provided	County	County: $20,000
Hernando County	HC-13	Drainage Retention Area Retrofits	Conceptual planning for the retrofitting of 10 drainage retention areas within two miles of the Weeki Wachee Spring using bioabsorption activated media. Construction should occur in 2020 depending on funding.	Wet Detention Pond	Planned	2017	2021	UTF	200	$750,000	County/ DEP/ SWFWMD	Not Provided
Hernando County	HC-14	BMAP Manager	Proposed position to be filled by a high-level staff person to lead all aspects of BMAP implementation for Hernando County. This position will be responsible for intergovernmental coordination with agencies to fulfill BMAP requirements.	Other	Planned	2017	2031	Other	N/A	$150,000	TBD	TBD

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
Hernando County	HC-15	South Brooksville BMP 5 Dauson Stormwater Project	Construction of a stormwater pond providing water quality treatment and flood storage for runoff from untreated existing urban area.	Wet Detention Pond	Completed	2012	2014	UTF	179	$498,625	County/ SWFWMD	SWFWMD$ 175,000 County: $323,625
Hernando County	HC-16	South Brooksville BMP 6 Josephine Street Stormwater Project	Construction of a stormwater pond providing water quality treatment and flood storage for runoff from untreated existing urban area.	Wet Detention Pond	Underway	2015	2018	UTF	36	$612,000	County/ SWFWMD	SWFWMD$ 175,000 County: $437,000
Hernando County	HC-17	South Brooksville BMP 7 Russell Street Stormwater Project	Construction of a stormwater pond providing water quality treatment and flood storage for runoff from untreated existing urban area.	Wet Detention Pond	Underway	2015	2017	UTF	80	$1,115,612	County/ SWFWMD	SWFWMD $475,000 County: $640,612
Hernando County	HC-18	Peck Sink Preserve Stormwater Management Facility	Construction of stormwater treatment train providing water quality pretreatment of surface discharges to Peck Sink.	BMP Treatment Train	Completed	2010	2014	UTF	Not Provided	$3,200,000	County/ SWFWMD/ DEP/ USDA	Not Provided
Hernando County	HC-19	Decommissionin g of the Berkeley Manor WTF	Diverting wastewater flow to Airport Wastewater Treatment Plant (WWTP) that achieves better nitrogen removal and demolishing the Berkeley Manor WTF.	Wastewater Treatment Facility Upgrade	Underway	2012	2017	WWTF	Not Provided	$1,100,000	County	County: $1,100,000
Hernando County	HC-20	Decommissionin g of the Spring Hill Water Reclamation Facility (WRF)	Diverting wastewater flow to other county treatment facilities that achieve better nitrogen removal and demolishing the Spring Hill WRF.	Wastewater Treatment Facility Upgrade	Planned	2019	2020	WWTF	46,171	$11,277,000	County	County: 11,277,000
Hernando County	HC-21	Airport WWTP Upgrade	Add filtration and expand capacity; allow public access reuse.	Wastewater Treatment Facility Upgrade	Planned	2020	2022	WWTF	TBD	$35,000,000	County/ DEP	TBD
Hernando County	HC-22	Rogers Park Low Impact Development (LID) Improvements	Design, permit, and construct stormwater improvements at Rogers Park to reduce sediment, nutrient, and other contaminant loads to the Weeki Wachee River.	Low Impact Development	Underway	2014	2018	UTF	12	$525,000	SWFWMD/Hernando Co	SWFWMD$ 225,000 Hernando Co.: $300,000
Hernando County	HC-23	Street Sweeping	Street sweeping of 46 miles of urban roadways	Street Sweeping	Underway	Not Provided	Not Provided	UTF	320	$8,000	County	County: $8,000/yr

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
Hernando County	HC-24	Septic Drain Field Enhancement Rulemaking	Coordinate with the Florida Department of Health (FDOH) on rulemaking and permitting process for septic system enhancements.	Other	Planned	2017	2020	OSTDS	N/A	TBD	TBD	TBD
Hernando County	HC-25	Weeki Wachee Prairie Watershed Management Plan	Completion of watershed management plan that included a stormwater level of service analysis, surface water resource assessment, and BMP alternative analysis.	Studies	Underway	2015	2017	Other	N/A	$227,500	County/ SWFWMD	SWFWMD$ 165,000 County: $62,500
Hernando County	HC-26	Peck Sink Watershed Master Plan	Comprehensive watershed master plan to remedy water quality issues associated with stormwater runoff entering the Floridan aquifer via the Peck Sink complex in Hernando County.	Studies	Completed	2002	2017	Other	N/A	$297,410	SWFWMD/Hernando Co	SWFWMD$ 242,410 Hernando Co.: $55,000
Hernando County	HC-27	Powell Sink Watershed Master Plan	Comprehensive engineering analysis, water quality assessment, watershed model development, and conceptual BMP designs.	Studies	Completed	2014	2016	Other	N/A	$150,000	SWFWMD/Hernando Co	SWFWMD $75,000 Hernando Co.: $75,000
Hernando County	HC-28	Spring Hill Lakes Resource Assessment and BMP Plan	Comprehensive engineering analysis, water quality assessment, watershed model development, and conceptual BMP designs.	Studies	Underway	2015	2017	Other	N/A	$200,000	SWFWMD/Hernando Co	SWFWMD $100,000 Hernando Co.: $100,000
Hernando County	HC-29	Squirrel Prairie Resource Assessment and BMP Plan	Comprehensive engineering analysis, water quality assessment, watershed model development, and conceptual BMP designs.	Studies	Underway	2015	2017	Other	N/A	$200,000	SWFWMD/Hernando Co	SWFWMD$ 100,000 Hernando Co.: $100,000
Hernando County	HC-30	Oman/Indian Creek Resource Assessment and BMP Plan	Comprehensive engineering analysis, water quality assessment, watershed model development, and conceptual BMP designs.	Studies	Completed	2013	2015	Other	N/A	$100,000	SWFWMD/Hernando Co	SWFWMD$ 50,000 Hernando Co.: $50,000
Hernando County	HC-31	Willow Sink Watershed Master Plan	Comprehensive engineering analysis, water quality assessment, watershed model development, and conceptual BMP designs.	Studies	Completed	2013	2015	Other	N/A	$150,000	SWFWMD/Hernando Co	SWFWMD$ 75,000 Hernando Co.: $75,000

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
Hernando County	HC-32	Wiscon Watershed Master Plan	Comprehensive engineering analysis, water quality assessment, watershed model development, and conceptual BMP designs.	Studies	Completed	2014	2016	Other	N/A	$150,000	SWFWMD/Hernando Co	SWFWMD: 75,000 Hernando Co.: $75,000
Hernando County	HC-33	High Point Stormwater Improvement	Construction of a stormwater pond providing water quality treatment and flood storage for runoff from untreated existing residential area.	Wet Detention Pond	Completed	2013	2014	UTF	20	$175,000	County	County: $175,000
Hernando County	HC-34	Coastal Way Shopping District Parking Lot Water Quality Retrofit	Retrofit a water quality system with enhanced nitrogen removal technology that serves an existing commercial district discharging into Weeki Wachee springshed.	Wet Detention Pond	Planned	TBD	2021	UTF	73	$350,000	TBD	TBD
Hernando County	HC-35	Brentlawn Street Enhanced Treatment Stormwater Improvements	Construction of treatment train with enhanced nitrogen removal technology to provide water quality pretreatment of groundwater discharges to Weeki Wachee springshed.	BMP Treatment Train	Planned	TBD	2022	UTF	19	$160,000	TBD	TBD
Hernando County	HC-36	Harper Street Enhanced Treatment Stormwater Improve-ments	Construction of treatment train with enhanced nitrogen removal technology to provide water quality pretreatment of groundwater discharges to Weeki Wachee springshed.	BMP Treatment Train	Planned	TBD	2022	UTF	89	$80,000	TBD	TBD
Pasco County	PC-01	Central Pasco County Beneficial Water Reuse Project	Design, permit, and construct a wetland infiltration system that uses excess reclaimed water quality polishing and groundwater recharge. Up to 5 MGD of surplus reclaimed water will be delivered to the site with up to 1.6 MGD expected to infiltrate into the Upper Floridan aquifer.	Reuse Project	Underway	2015	2021	Other	Not Provided	$13,224,955	SWFWMD/County	Not Provided

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
Pasco County	PC-02	Crews Lake Natural Systems Restoration Project	Construction of infrastructure providing reclaimed water and restoring approximately 200 acres of wetlands in and adjacent to Crews Lake. Nutrient flows that are currently delivered to the RIB complex will be diverted to the Crews Lake site where biological process will remove nitrogen to background levels.	Other	Underway	2017	2021	WWTF	53,272	$8,497,770	DEP/ SWFWMD/ County	DEP: $4,248,885 SWFWMD $2,124,442 County: $2,124,443
Pasco County	PC-03	Street Sweeping	This project includes street sweeping in 500,000 square feet in collector roads, located within the springsheds. Six sweeping events a year.	Street Sweeping	Planned	2019	2021	UTF	100	$10,000	Pasco County	County: $10,000
Pasco County	PC-04	Public Education Activities	Adopted fertilizer ordinance; website, brochures, public service announcements, etc.	Public Education	Completed	2013	2014	UTF	296	Not Provided	Pasco County	Not Provided
Pasco County	PC-05	Pet Waste Ordinance	Pasco County staff intend to present the Board of County Commissioners a pet waste ordinance for adoption.	Public Education	Planned	2019	2021	UTF	TBD	TBD	Pasco County	TBD
Pasco County	PC-06	Heritage Pines Reclaimed Water Service	Provide reclaimed water to 1,300 homes for residential irrigation.	Reuse Project	Completed	2013	2016	UTF	Not Provided	$1,266,600	DEP/ SWFWMD/ County	DEP: $300,000 SWFWMD $333,300 County: $633,300
FDACS	FDACS-01	Agricultural BMPs - Farm Fertilizer	Implementation of existing BMPs on applicable acreage. Up to 15 % reduction in load to groundwater.	BMPs	Underway	Underway	TBD	FF	24,590	TBD	TBD	TBD
FDACS	FDACS-02	Agricultural BMPs - Livestock Waste	Implementation of existing BMPs on applicable acreage. Up to 10 % reduction in load to groundwater.	BMPs	Underway	Underway	TBD	LW	9,135	TBD	TBD	TBD
SWFWMD	SWF-01	Weeki Wachee SWIM Plan	Implementation and periodic review and update of the Weeki Wachee SWIM Plan.	Study	Completed	2015	2017	Other	N/A	$200,000	SWFWMD	SWFWMD $200,000
SWFWMD	SWF-02	Weeki Wachee River Canoe Launch and Parking Area	Stabilization of soils at the ramp entrance and improvements to the parking area near the launch to reduce stormwater pollutants entering the Weeki Wachee River.	Shoreline Stabilization	Completed	2012	2017	UTF	12	$350,000	SWFWMD	SWFWMD $350,000

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
SWFWMD	SWF-03*	Facilitating Agricultural Resource Management Systems (FARMS) Program	The FARMS Program is an agricultural BMP cost-share program to promote improved water quality in spring systems through approved precision nutrient application technologies.	BMPs	Underway	Prior to 2012	2021	FF	Not Provided	$6,000,000	SWFWMD	SWFWMD $6,000,000
SWFWMD	SWF-04*	Evaluation of Nitrogen Leaching from Reclaimed Water	This project will determine typical nitrogen leaching rates from reclaimed water application to lawns, spray fields, and rapid infiltration basins. This information can be used to refine estimates of nitrogen loading to the aquifer and springs, and identify the best reclaimed water disposal methods to minimize nitrogen loading to groundwater.	Studies	Underway	2014	2018	UTF	N/A	$294,000	SWFWMD	SWFWMD $294,000
SWFWMD	SWF-05*	Springs Coast Wastewater Disposal Treatment Wetlands	This project will assess areas to determine sites appropriate for construction of wetlands to treat WWTF effluent.	Studies	Underway	2014	2017	WWTF	N/A	$400,000	SWFWMD	SWFWMD $400,000
UF-IFAS	IFAS-01*	Development of Landscape Fertilizer BMPs	The objective of this project is to verify the accuracy of the Florida Yards and Neighborhoods (FYN) and Florida Green Industries BMPs fertilizer recommendations.	Studies	Underway	2012	2018	UTF	N/A	$274,429	SWFWMD	SWFWMD $274,429
UF-IFAS	IFAS-02*	Composting at Animal Stock Facilities	Evaluate the nutrient removal efficiency from composting animal waste. The project will compare nutrient leaching efficiency for manure stockpiling and composting facilities	Studies	Underway	2016	2018	LW	N/A	$175,000	SWFWMD	SWFWMD $175,000
Golf Courses	GC-01	Golf Course Reduction Credits	6% BMP credit on golf course load to groundwater, assuming 100% BMP implementation by golf course owners.	BMPs	Planned	TBD	TBD	STF	5,280	TBD	TBD	TBD
Sports Fields	SF-01	Sports Field Reduction Credits	10% BMP credit on sports field load to groundwater, assuming 100% BMP implementation by sports field owners.	BMPs	Planned	TBD	TBD	STF	62	TBD	TBD	TBD

Lead Entity	Project Number	Project Name	Project Description	Project Type	Project Status	Start Date	Estimated Completion Date	Nitrogen Source Addressed by Project	Estimated Nitrogen Load Reduction (lb-N/yr)	Cost Estimate	Funding Source	Funding Amount
Wastewater Utilities	WU-01	Wastewater Treatment Facility Reduction Credits	Achieved by WWTF policy if implemented BMAP-wide, achieving 3 or 6 mg/L.	Wastewater Treatment Facility Upgrade	Planned	TBD	TBD	WWTF	33,058	TBD	TBD	TBD
Various	OSTDS-01	Enhancement of Existing OSTDS - Voluntary	Repair, upgrade, replacement, drainfield modification, addition of effective nitrogen reducing features, initial connection to a central sewerage system, or other action to reduce nutrient loading, voluntarily taken by the owner of an OSTDS within the BMAP.	OSTDS Enhancement	Underway	2018	N/A	OSTDS	TBD	TBD	DEP	TBD
Various	OSTDS-02	Enhancement of Existing OSTDS - Required	Repair, upgrade, replacement, drainfield modification, addition of effective nitrogen reducing features, initial connection to a central sewerage system, or other action taken to comply with the OSTDS Remediation Plan for the group of systems identified for remediation (see Appendix D).	OSTDS Enhancement	Planned	TBD	TBD	OSTDS	TBD	TBD	DEP	TBD

Appendix C. Weeki Wachee PFA Report

A PFA (Weeki Wachee Spring, October 2016) is defined as the area(s) of a basin where the Floridan aquifer is generally most vulnerable to pollutant inputs and where there is a known connectivity between groundwater pathways and an OFS. As required by the Florida Springs and Aquifer Protection Act, DEP delineated a PFA for the Weeki Wachee Spring Group. This PFA is adopted and incorporated by reference into this BMAP. Information on this and other springshed PFAs is available in report format at the following link: http://publicfiles.dep.state.fl.us/dear/PFAs.

Appendix D. OSTDS Remediation Plan

The Florida Aquifer and Springs Protection Act specifies that if during the development of a BMAP for an OFS, DEP identifies OSTDS as contributors of at least 20 % of nonpoint source nitrogen pollution in a PFA or if DEP determines remediation is necessary to achieve the TMDLs, the BMAP shall include an OSTDS remediation plan. Based on the Weeki Wachee NSILT and GIS coverages, OSTDS contribute approximately 44 % pollutant loading in the PFA. Irrespective of the percent contribution from OSTDS, DEP has determined that an OSTDS remediation plan is necessary to achieve the TMDLs and to limit the increase in nitrogen loads from future growth.

D.1 Plan Elements

D.1.1 Installation of New OSTDS

Per statute, new OSTDS on lots of less than one acre are prohibited within PFAs, if the addition of the specific systems conflicts with an OSTDS remediation plan incorporated into an OFS BMAP (see Section 373.811(2), F.S.). This OSTDS remediation plan prohibits new conventional systems on lots of less than one acre within the PFA, unless the OSTDS includes enhanced treatment of nitrogen or unless the OSTDS permit applicant demonstrates that sewer connections will be available within 5 years. Local governments and utilities are expected to develop master wastewater treatment feasibility analyses to identify specific areas to be sewered within 20 years of BMAP adoption. To aid in implementation, the DEP Map Direct webpage includes a detailed downloadable springs PFA boundary shapefile. DEP also maintains on its website an interactive map of the PFA and BMAP boundaries; the map can be easily searched for specific street address locations. FDOH permits the installation of new OSTDS pursuant to Chapter 64E-6, F.A.C., which includes not only systems installed on a property where one has not previously been installed, but also systems installed to replace illegal systems, systems installed in addition to existing systems, and other new systems. FDOH permitting requirements with respect to the definition of "new" or "less than one acre" will be followed for this remediation plan. To meet the enhanced treatment of nitrogen requirement the system must include at least one of the following nitrogen reducing enhancements:

- Features allowed pursuant to FDOH rule, such as in-ground nitrogen-reducing biofilters (media layer systems).

- Features consistent with and identified in the FDOH Florida Onsite System Nitrogen Removal Strategy Studies report, such as in-tank nitrogen-reducing biofilters.

- Other FDOH-approved treatment systems capable of meeting or exceeding the NSF International (formerly National Sanitation Foundation [NSF]) Standard 245 nitrogen removal rate before disposing the wastewater in the drain field, such as aerobic treatment units (ATU) and performance-based treatment systems (PBTS). For FDOH-approved treatment systems that meet NSF 245, but do not meet or exceed the minimum treatment

level expected from the in-ground nitrogen-reducing biofilters, the drain fields, at minimum, shall be installed with a 24-inch separation between the bottom of the drain field and the seasonal high-water table.

D.1.2 Modification or Repair of Existing OSTDS

Per statute, the OSTDS remediation plan must provide loading reductions consistent with achieving the TMDL within 20 years of plan adoption (see Section 373.807(1)(b)8., F.S.). This plan therefore establishes the following remediation policy for existing systems, based on (a) the potential for reducing nitrogen loads by converting existing OSTDS to enhanced nitrogen removing systems or by connecting homes to central sewer, (b) the total amount of nitrogen load that must be reduced to achieve the TMDL, and (c) the relative contribution of nitrogen load from existing OSTDS.

- Where does the remediation policy for existing systems apply? It applies to all existing OSTDS within the PFA on lots of all sizes.

- When is the remediation policy for existing systems effective? The remediation policy for existing systems does not go into effect upon BMAP adoption. The requirements begin following completion of the master wastewater treatment feasibility analyses, FDOH rulemaking, and funding program to help offset the costs to homeowners, but no later than five years after BMAP adoption.

- What will be required by the remediation policy for existing systems when it becomes effective? Upon the need for repair or replacement, an existing OSTDS must include at least one of the following nitrogen reducing enhancements, unless the OSTDS permit applicant demonstrates that sewer connections will be available within 5 years.

    - Enhanced treatment of nitrogen means inclusion of features allowed pursuant to FDOH rules, such as in-ground nitrogen-reducing biofilters (media layer systems); features consistent with and identified in the FDOH Florida Onsite System Nitrogen Removal Strategy Studies report, such as in-tank nitrogen-reducing biofilters; or other FDOH-approved treatment systems capable of meeting or exceeding the NSF Standard 245 nitrogen removal rate before disposing the wastewater in the drain field, such as ATUs and PBTSs. For FDOH-approved treatment systems that meet NSF 245, but do not meet or exceed the minimum treatment level expected from the in-ground nitrogen-reducing biofilters, the drain fields, at minimum, shall be installed with a 24-inch separation between the bottom of the drain field and the seasonal high-water table.

    - FDOH permitting requirements with respect to defining "modification," "repair," and lot size (i.e., acreage) will be followed for this remediation plan

- In addition, a utility is required to provide written notice to OSTDS owners of the availability of sewer lines for connection, no later than 1 year prior to the date the utility's sewerage system will become available, which triggers an obligation for OSTDS owners to comply with the requirements of Section 381.00655, F.S.

D.1.3 Achieving Necessary Load Reductions

All conventional OSTDS in areas subject to the remediation policy for existing systems are required to adopt enhanced treatment of nitrogen or connect to central sewer no later than 20 years after BMAP adoption.

D.1.4 Other Plan Elements

Statutes also require that OSTDS remediation plans contain the following elements.

- An evaluation of credible scientific information on the effect of nutrients, particularly forms of nitrogen, on springs and spring systems. (See **Section D.2**.)
- Options for repair, upgrade, replacement, drain field modification, the addition of effective nitrogen-reducing features, connection to a central sewer system, or other action. (See **Section D.3**.)
- A public education plan to provide area residents with reliable, understandable information about OSTDS and springs. (See **Section D.4**.)
- Cost-effective and financially feasible projects necessary to reduce the nutrient impacts from OSTDS. (See **Section 2** and **Appendix B**.)
- A priority ranking for each project for funding contingent on appropriations in the General Appropriations Act. (See **Section 2** and **Appendix B**.)

The Florida Springs and Aquifer Protection Act defines an OSTDS as a system that contains a standard subsurface, filled, or mound drain field system; an aerobic treatment unit; a graywater system tank; a laundry wastewater system tank; a septic tank; a grease interceptor; a pump tank; a solids or effluent pump; a waterless, incinerating, or organic waste–composting toilet; or a sanitary pit privy that is installed or proposed to be installed beyond the building sewer on land of the owner or on other land on which the owner has the legal right to install such a system. The term includes any item placed within, or intended to be used as a part of or in conjunction with, the system. The term does not include package sewage treatment facilities and other treatment works regulated under Chapter 403, F.S.

D.2 Collection and Evaluation of Credible Scientific Information

As discussed in **Section 2,** DEP developed the Weeki Wachee NSILT, a planning tool that provides estimates of nitrogen loading sources to groundwater based on best available scientific

data at the time the tool is used for a particular geographic area. The NSILT results were peer-reviewed by SWFWMD, FDOH, and FDACS. Additional technical support information concerning the NSILT can be found in **Appendix E**.

DEP also consulted the Weeki Wachee River SWIM Plan adopted by SWFWMD in March 2017 for science-related OSTDS actions and projects. At a public meeting on August 23, 2016, DEP presented and obtained concurrence from stakeholders for actions and projects that include the following (lead entities are listed in parentheses):

Monitoring and research:

- Improve understanding of the ecological responses to nutrient enrichment and reductions (DEP/SWFWMD/universities).
- Maintain and expand water quality monitoring programs (SWFWMD/DEP).
- Report annual status and trends (SWFWMD).
- Evaluate new and emerging technologies (SWFWMD).
- Research and develop advanced septic systems (FDOH/DEP/UF-IFAS).

Completed project:

- Florida Onsite Sewage Nitrogen Reduction Strategies Study (FDOH).

Ongoing projects:

- Quarterly springs water quality monitoring (SWFWMD).
- Stream water quality monitoring (SWFWMD).
- UFA nutrient modeling (SWFWMD).
- Springs Initiative modeling (SWFWMD).
- Project COAST (collect and analyze monthly surface water quality data at 50 fixed stations along the coasts of Hernando, Citrus, and Levy Counties) (SWFWMD/University of Florida).
- USGS Groundwater Data Collection (USGS/SWFWMD).
- USGS Surface Water Data Collection (USGS/SWFWMD).

Proposed projects:

- Nutrient hot-spot loading identification (DEP/SWFWMD).
- Groundwater quality monitoring for BMAP assessment (DEP/SWFWMD).

DEP developed calculation methods to estimate nitrogen reductions associated with septic system enhancement and replacement projects, WWTF projects, golf course BMPs, other sports turfgrass BMPs, and urban turfgrass BMPs.

D.3 Remediation Options

The NSILT estimates that OSTDS contribute approximately 44 % of the pollutant loading to groundwater in the PFA. **Table D-1** lists the number of existing OSTDS in the PFA and the estimated nitrogen reductions associated with enhancement or connection to sewer. **Figure D-1** shows the areas where OSTDS are located.

Table D-1. Estimated reduction credits for additional OSTDS enhancement or sewer *

*Estimated reductions are for either enhancement or sewer per parcel classification. Reductions cannot be combined for the same parcel classification, but can be combined between the different classifications. For example, the sewer credit associated with parcels less than one acre in size can be combined with the sewer credit associated with parcels one acre or greater in size.

Recharge Area	OSTDS Parcels Less Than One Acre in PFAs	Credit for Enhancement (lb-N/yr)	Credit for Sewer (lb-N/yr)	OSTDS Parcels One Acre and Greater in PFAs	Credit for Enhancement (lb-N/yr))	Credit for Sewer (lb-N/yr)
High	29,840	158,152	229,768	5,847	30,989	45,022
Medium	0	0	0	0	0	0
Total	**29,840**	**158,152**	**229,768**	**5,847**	**30,989**	**45,022**

As required by statute, this OSTDS remediation plan identifies remediation options for existing OSTDS, including repair, upgrade, replacement, drain field modification, the addition of effective nitrogen-reducing features, connection to a central sewer system, or other action. More simply, remediation options can be classified as enhancement or replacement. Enhancement options consist of systems identified in either existing FDOH rules or existing and ongoing FDOH studies, or systems not otherwise prohibited by FDOH. Examples of enhancements include in-ground nitrogen-reducing biofilters (media layer systems); in-tank nitrogen-reducing biofilters; and ATU or PBTS capable of meeting or exceeding the NSF Standard 245 nitrogen removal rate before disposing wastewater in the drain field.

Nitrogen impacts from new development could also be reduced through prohibiting new conventional OSTDS on all lot sizes, throughout the BMAP area.

DEP, FDOH, and local governments will develop programs to help fund the additional costs required to upgrade existing OSTDS by adding nutrient reducing features. The funding program

will be designed to prioritize OSTDS where it is most economical and efficient to add nutrient reducing features (i.e., systems needing a permit for a repair or modification, within the PFA, and on lots of less than one acre).

To facilitate incorporation of nitrogen reducing features at the time of a permit to repair or modify an existing OSTDS, FDOH will pursue regulatory solutions to accomplish the following objectives:

- Update OSTDS rule language regarding permits, variances, and waivers to include consideration of DEP-adopted OSTDS remediation plans.
- Update OSTDS rules to allow installation of passive remediation systems, including but not limited to systems featuring liners, nitrogen reducing material, or both underneath the drain field.

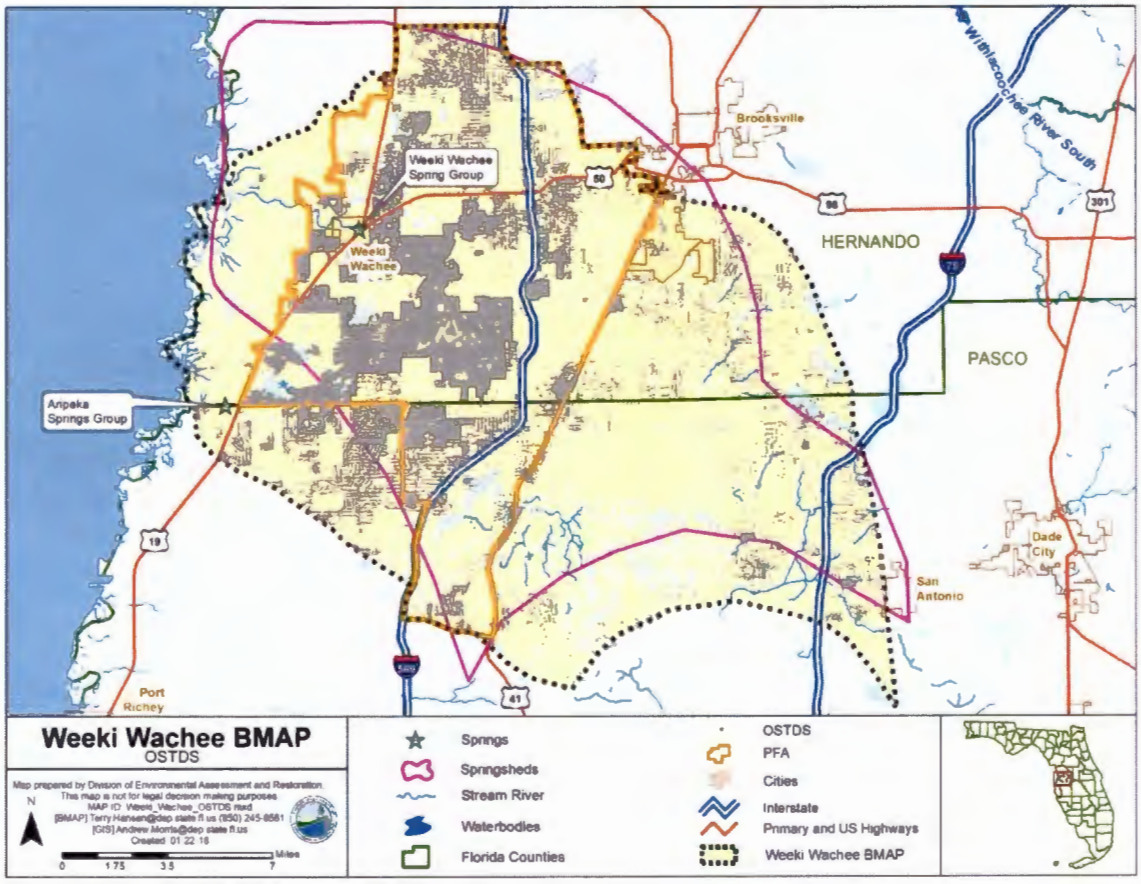

Figure D-1. Locations of OSTDS in the PFA in the Weeki Wachee BMAP area

D.4 Public Education Plan

DEP and FDOH will develop and disseminate educational material focused on homeowners and guidance for builders and septic system contractors. The materials will identify the need for advanced, nitrogen reducing OSTDS along with the requirements for installing nitrogen reducing technologies under this OSTDS remediation plan. DEP will coordinate with industry groups such as Florida Home Builders Association and Florida Onsite Wastewater Association (FOWA).

DEP hosted a brainstorming session on July 19, 2016 to gather local input on the primary facets of a public education plan, including key audiences, the identification of major themes for communication/education, and the identification of misconceptions about septic systems.

Based on this discussion and one-on-one coordination with local governments and other stakeholders with interest in public education, prioritized target audiences, messaging, and materials/resources (see **Table D-2**) were presented at a public meeting.

- Step 1 – Understand the data and issues associated with OSTDS.
- Step 2 – Identify existing and short-term activities to address the issues.
- Step 3 – Undertake a pilot project outreach and social marketing campaign
- Step 4 – Identify future actions for basinwide implementation.

Table D-2. Prioritized target audiences, messaging, and materials/resources

Audience	Messaging	Materials/Resources
Schools	Convey cost of doing nothing	Public Service Announcements (PSAs)
Residents	Preserving our waterways	SWFWMD springs education webpage
Builders/realtors/developers/ community	Conventional septic systems provide minimal nitrogen treatment; septic system enhancement is needed	Social media

The management strategies listed in **Table D-3** are ranked with a priority of high, medium, or low. In 2016, the Florida Legislature amended the Watershed Restoration Act (Section 403.067, F.S.), creating additional requirements for all new or revised BMAPs. BMAPs must now include planning-level details for each listed project, along with their priority ranking.

Project status was selected as the most appropriate indicator of a project's priority ranking based primarily on need for funding. Projects with a "completed" status were assigned a low priority. Projects classified as "underway" were assigned a medium priority because some resources have been allocated to these projects, but additional assistance may be needed for the project to be completed. High priority was assigned to projects listed with the project status "planned" as well as certain "completed" projects that are ongoing each year (any project with one of these project

types: "street sweeping," "catch basin inserts/inlet filter cleanout," "public education efforts," "fertilizer cessation," "fertilizer reduction," or "aquatic vegetation harvesting"), and select projects that are elevated because substantial, subsequent project(s) are reliant on their completion.

Table D-3. Stakeholder educational activities to implement the OSTDS remediation plan

*Denotes activity that is applicable in all Springs Coast BMAPs. The dollar amount is the total project amount (not split among the BMAPs).

Lead Entity	Activity Number	Activity Name	Description of Activity	Activity Status	Partners	Estimated Start Date	Estimated Completion Date	Cost Estimate	Funding Source	Funding Amount
City of Brooksville	COB-E-1	Public Service Announcements (PSAs)	Include FDOH PSAs in septic system utility bills twice per year.	Planned	N/A	2018	2018	$5,000	City	$5,000
City of Brooksville	COB-E-2	Think About Personal Pollution (TAPP) Program	Transfer or deploy City of Tallahassee TAPP Program in Brooksville.	Planned	N/A	2018	2020	$5,000	City	$5,000
City of Brooksville	COB-E-3	City Website	Post springs-related and OSTDS-related information on city website.	Planned	N/A	2018	2018	$5,000	City	$5,000
Hernando County	HC-E-1	OSTDS Enhancement Education Campaign	Develop education campaign in conjunction with identified partners on OSTDS enhancement options.	Planned	Not Provided	2018	2021	$50,000	Not Provided	Not Provided
Hernando County	HC-E-8	Drain Field Enhancement Demonstration Project	Implement drain field enhancement demonstration project on public property.	Planned	N/A	2022	2025	$250,000	Not Provided	Not Provided
Hernando County	HC-E-10	Training on Septic Drain Field Enhancements	Conduct training for local government permitting staff on the availability and permitting process for septic system drain field enhancements.	Planned	N/A	2022	2022	$1,000	County	$1,000
UF-IFAS	IFAS-E-1*	OFS OSTDS Campaign, Phase 1	Implement social marketing campaign that links septic systems to springs.	Planned	N/A	2018	2020	$30,000	TBD	TBD
UF-IFAS	IFAS-E-2*	OFS OSTDS Campaign, Phase 2	Create on-line clearinghouse of fact sheets, videos, public service announcements, etc.	Planned	N/A	2018	2018	$7,000	TBD	TBD
UF-IFAS	IFAS-E-3*	OFS OSTDS Campaign, Phase 3	Presentations to realtors and distribution of information kits for home buyers.	Planned	N/A	2018	2018	$10,000	TBD	TBD
UF-IFAS	IFAS-E-4*	OFS OSTDS Campaign, Phase 4	Six to eight septic system workshops for elected officials.	Planned	N/A	2018	2019	$5,000	TBD	TBD
UF-IFAS	IFAS-E-5*	OFS OSTDS Campaign, Phase 5	Homeowner workshops with field demonstrations.	Planned	N/A	2018	2020	$25,000	TBD	TBD

Appendix E. Technical Support Information

E.1 NSILT Data

An NSILT was completed on the Weeki Wachee Spring and River Contributing Area for the Weeki Wachee BMAP. This technical support information identifies the data sources relied upon during NSILT development and documents all the major assumptions used by DEP when applying the NSILT approach to the Weeki Wachee BMAP.

The general NSILT approach involves estimating the nitrogen load to the surface for various source categories based on land use. The NSILT subjects the surface loading to recharge and attenuation to derive the estimated load to groundwater at the top of the aquifer. The estimated load to groundwater determines the scope of reduction strategies needed in the BMAP for each source category. For additional information about the general NSILT approach, see any of the NSILT reports posted online at http://publicfiles.dep.state.fl.us/DEAR/NSILT.

E.1.1 Source Category General Data Inputs

Hydrogeology and Aquifer Recharge
Information on recharge to the UFA is from a groundwater flow model that was developed in 2002 by the USGS based on well data from 1993-94. The raster-based model was smoothed and classified into three recharge categories, discharge, medium recharge, and high recharge.

Land Use
Land use information is from SWFWMD based on the 2011 Florida Land Use Cover and Forms Classification System (FLUCCS) and 2014 Hernando County and Pasco County property appraiser data.

E.1.2 Estimating Nitrogen Inputs to the Land Surface (NSILT Section 2.0)

Atmospheric Deposition
Atmospheric deposition information is derived from the TDEP hybrid model that inputs wet and dry monitoring network data for the U.S. and calculates an estimated TN deposition load (Schwede and Lear 2014). The data set is comprised of data from 2011 to 2013.

WWTFs
The average annual input of nitrogen to the land surface was estimated for each effluent land application site in the BMAP area using TN concentration and discharge volume data available in the DEP Wastewater Facility Regulation (WAFR) database. Smaller WWTFs are not always required to monitor and report TN effluent concentrations, and therefore may not have data available in the WAFR database. For these, DEP estimated TN concentrations based on nitrate-N (NO3-N) data (assuming the NO3-N concentration was 38.5 % of the TN, based on a 2009 cooperative study with the Water Reuse Foundation of 40 domestic WWTFs across the state).

The range of years for which data were available varied with the individual WWTFs; however, the majority of the data were from 2013 to 2014.

OSTDS

The number of OSTDS was initially estimated from the 2009 FDOH model which was correlated with current property appraiser land use information (Hall and Clancy 2009). The results were corrected for parcels identified with more than one OSTDS and the proximity of sewer lines. After the NSILT was produced, FDOH released an updated OSTDS inventory for Hernando and Pasco Counties; the data sets were compared and minimal differences identified.

The population served by the OSTDS was estimated using the 2010 U.S. Census Bureau data for Hernando and Pasco Counties. Data were used to estimate the effective population and OSTDS usage. The 2010 persons per household (adjusted for time spent away from home) for Hernando and Pasco Counties were 2.08 and 2.07, respectively. Several literature sources have reported a per capita contribution of 9.012 lb-N/yr, and this value was multiplied by the number of people using septic tanks within the different regions of the BMAP area (U.S. Environmental Protection Agency [EPA] 2002; Toor et al. 2011; Viers et al. 2012).

UTF

The UTF application rate is estimated based on the results of a 2008 SWFWMD study (Martin 2008). The results provide input data on percent of the population that fertilize, the applicator (i.e., landscape professional versus homeowner), and application rates.

The type of property where fertilizer is applied is estimated for nonresidential and residential parcels. The acreage receiving fertilizer is estimated the same for both parcel types by using county property appraiser data and zoning data. Impervious and pervious land areas are determined for each parcel.

Fertilizer application on commercial and public green spaces was assumed to be performed by lawn service professionals or trained staff using application rates and frequencies similar to those recommended in the *Green Industries BMP Manual (DEP 2010)*. Nonresidential parcels are assumed to be fertilized by a commercial service provider at a rate of 21.78 lb-N/acre (ac). Residential parcels are evaluated by estimating the percentage of the property fertilized and the probability of fertilization. For residential parcels, these factors are determined by utilizing property values (higher valued properties fertilize more often and in greater amounts) and parcel type (single-family residences fertilize more frequently than other residence types).

STF

Sports turfgrass areas include golf courses and sporting facilities. DEP sent golf course mangers surveys to provide basic information on fertilizer application. Responses were received from 46 % of the managers and an input of 43 lb-N/ac/yr was used by DEP. The remaining 54 % was estimated using the statewide application rate of 141.1 lb-N/ac/yr (assuming 72 % of the course area is fertilized) (Sartain 2002; DEP 2007).

Sporting facilities were assessed based on property appraiser data and contacting the responsible entity to determine application rates. The fertilizer application rate for nonresidential parcels was used (21.78 lb-N/ac).

LW

Livestock operation practices are obtained through meetings with producers. For cow-calf operations, a stocking rate of 1 cow per 6 to 8 acres is used and the estimated quantity of pasture acreage is based on property appraiser data. For other livestock animals, populations are estimated from the U.S. Department of Agriculture (USDA) census of agriculture and SWFWMD land use coverage adjusted by percent of land use type in the BMAP area. The nitrogen waste factor for each animal type is based on published literature values (listed in NSILT) and subdivided into locations and recharge area.

FF

Agricultural fertilizer is applied at varying rates depending on crop type and farm practices. Estimated application rates are based on UF-IFAS recommendations, and types of crops likely grown are estimated from the county property appraiser database.

Estimated Nitrogen Inputs to Land Surface

The estimated input from each source category above is summed and a relative percent calculated.

E.1.3 Attenuation and Groundwater Loading

The two types of attenuation that are evaluated are biochemical attenuation factors (BAFs) and hydrogeological attenuation (i.e., recharge).

BAFs and Uncertainty Factors

The BAFs used to account for the processes affecting the movement of nitrogen from each source category in the subsurface are based on literature review of studies in Florida and similar areas. The BAFs in **Table E-1** are the result of this evaluation. The BAF is used to estimate what percent of the surface input could infiltrate to groundwater. For example, if 70 % of urban fertilizer is biologically attenuated, then the remaining 30 % could infiltrate to the groundwater.

The environmental attenuation of nitrogen from specific sources within the categories can vary substantially, both spatially and with depth in the subsurface, and will affect the amount of nitrogen leaching to groundwater and the relative contribution of nitrogen from each source category. The range in nitrogen attenuation can result from variability in soil properties, crop types, agricultural practices, nitrogen storage, volatilization of ammonia to the atmosphere, uptake by vegetation, denitrification, and other removal processes.

The potential range in nitrogen attenuation for each source is shown in **Table E-1.**

Table E-1. Range of environmental attenuation of nitrogen from a detailed literature review

N Source Category	Low-Level Attenuation (%)	Attenuation Used for This Analysis (%)	High-Level Attenuation (%)
Atmospheric Deposition	85	90	95
WWTFs-RIBs	10	25	40
WWTFs-Sprayfields	50	60	75
WWTF-Reuse	50	75	85
Septic Systems	40	50	75
Livestock Operations	80	90	95
Farm Fertilizer	50	70	85
Urban Fertilizer	50	70	85

Hydrogeological Attenuation (i.e., Recharge)

The recharge rate for the area where the surface input is calculated is based on the composite recharge map previously described. To account for variations in recharge rates to the UFA, non-attenuated nitrogen inputs in high rate recharge areas are multiplied by a weighting factor of 0.9, while nitrogen inputs are multiplied by a weighting factor of 0.5 for medium rate recharge areas and 0.1 for low. Groundwater discharge areas were not included in the calculations of nitrogen loads to the groundwater contributing area, as these areas do not contribute nitrogen to the aquifer.

Estimated Nitrogen Loads to Groundwater

The surface inputs by source category are adjusted by applying the BAFs for the appropriate source category and location-based recharge factors to estimate the load to groundwater by source category.

It is important to note that this load is estimated for the top of the aquifer. As the load interacts with the aquifer, additional factors likely modify it prior to discharge at the spring vents.

E.2 References

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Appendix F. Educational Activities to Implement the UTF Management Strategies

Prioritization of Management Strategies

The management strategies in **Table F-1** are ranked with a priority of high, medium, or low. In 2016, the Florida Legislature amended the Watershed Restoration Act (Section 403.067, F.S.), creating additional requirements for all new or revised BMAPs. BMAPs must now include planning-level details for each listed project, along with their priority ranking.

Project status was selected as the most appropriate indicator of a project's priority ranking based primarily on need for funding. Projects with a "completed" status were assigned a low priority. Projects classified as "underway" were assigned a medium priority because some resources have been allocated to these projects, but additional assistance may be needed for the project to be completed. High priority was assigned to projects listed with the project status "planned" as well as certain "completed" projects that are ongoing each year (any project with one of these project types: "street sweeping," "catch basin inserts/inlet filter cleanout," "public education efforts," "fertilizer cessation," "fertilizer reduction," or "aquatic vegetation harvesting"), and select projects that are elevated because substantial, subsequent project(s) are reliant on their completion.

Table F-1. Stakeholder educational activities to implement UTF management strategies

*Denotes activity that is applicable in all Springs Coast BMAPs. The dollar amount is the total project amount (not split among the BMAPs).

Lead Entity	Activity Number	Activity Name	Description of Activity	Activity Status	Partners	Estimated Start Date	Estimated Completion Date	Cost Estimate	Funding Source	Funding Amount
City of Brooksville	COB-E-4	PSAs	Include PSAs on fertilizer use on utility bills twice per year.	Planned	N/A	2018	2018	$5,000	City	$5,000
City of Brooksville	COB-E-5	City Website	Post springs-related and fertilizer-related information on city website.	Planned	N/A	2018	2017	$5,000	City	$5,000
Hernando County	HC-E-2	Fertilizer Survey	Mass mailing to single family residences with request to take on-line survey regarding fertilizer ordinance and activities.	Completed	N/A	2016	2017	$16,844	Fish & Wildlife Foundation/County	Foundation: $14,511 County: $2,333
Hernando County	HC-E-3	Water's Journey: Kass Circle to Weeki Wachee Springs	Educate residents and business owners of the Kass Circle community on how stormwater runoff affects Weeki Wachee Springs.	Underway	N/A	2018	2018	$2,250	Not Provided	Not Provided
Hernando County	HC-E-4	Stormwater Nutrient Reduction Education	Stormwater education per National Pollutant Discharge and Elimination System (NPDES) permit requirements.	Underway	N/A	Prior to 2012	2031	$15,000/yr	FDOT/County	$15,000/yr
Hernando County	HC-E-5	Hernando County Groundwater Guardians	Annual public workshop on water quality and water resources.	Planned	N/A	2018	2021	$2,000/yr	County	$2,000/yr
Hernando County	HC-E-6	Fertilizer Ordinance Education	Public education campaign on existing fertilizer ordinance.	Underway	UF-IFAS	2012	2021	$30,000	Not Provided	Not Provided
Hernando County	HC-E-7	Public Outreach on Fertilizer Use	Outreach by county extension staff on the Florida-Friendly Landscaping Program.	Planned	UF-IFAS	2018	2021	Not Provided	Not Provided	Not Provided
Hernando County	HC-E-9	Update "Water's Journey" Public Education Campaign	Potential multi-partner and multi-jurisdiction effort to update the existing "Water's Journey" campaign.	Planned	Not Provided	2022	2026	$100,000	Not Provided	Not Provided
Hernando County	HC-E-11	Training on Green Industries Best Management Practices	Train professionals and master gardener volunteers on exemptions from the fertilizer ordinance.	Underway	UF-IFAS	2013	2021	Not Provided	Not Provided	Not Provided
Hernando County	HC-E-12	Expert Lawn Care and Landscaping Course	Conduct classes to homeowners on a variety of topics including irrigation and fertilization.	Underway	UF-IFAS	2016	2021	Not Provided	Not Provided	Not Provided

Lead Entity	Activity Number	Activity Name	Description of Activity	Activity Status	Partners	Estimated Start Date	Estimated Completion Date	Cost Estimate	Funding Source	Funding Amount
Hernando County	HC-E-13	Social Media Awareness Campaign	Education for residents on urban turfgrass fertilizer through a variety of social media platforms.	Planned	UF-IFAS	2018	2018	$5,000	Not Provided	Not Provided
Hernando County	HC-E-14	Hernando County Water Watch	Citizen-science water quality program that would be part of a statewide coastal water watch program to complement LAKEWATCH.	Planned	Florida Sea Grant Program/UF-IFAS	2018	2031	Not Provided	Not Provided	Not Provided
Hernando County	HC-E-15	Florida Master Naturalist Program (FMNP) in Hernando County	The mission of the FMNP is to promote awareness, understanding, and respect of Florida's natural world among Florida's citizens and visitors.	Underway	Florida Sea Grant Program/UF-IFAS	2017	2031	$5,000	Not Provided	Not Provided
Hernando County	HC-E-16	Florida-Friendly Landscaping Annual Workshop	Conduct annual workshop for residents.	Underway	UF-IFAS	2017	2030	$3,000	County/DEP/SWFWMD	$3,000
Hernando County	HC-E-17	Community Event Education Booth	Sponsor education booth at various community events that focus on fertilizer BMPs.	Underway	UF-IFAS	2017	2031	$3,000	County/DEP/SWFWMD	$3,000
Hernando County	HC-E-18	Springs Workshop	Biannual workshop for local government leaders on springs protection and BMPs	Underway	UF-IFAS	Prior to 2012	2031	$5,000	County/DEP/SWFWMD	$5,000
Hernando County	HC-E-19	Direct Mail Fertilizer Education Brochures	Insert in Hernando County Utility Department customer bill three times per year.	Underway	N/A	Prior to 2012	2031	$9,500	County/WRWSA	$9,500
Hernando County	HC-E-20	Presentations to Homeowner Associations (HOAs)	On-site presentations to HOAs on BMPs.	Underway	UF-IFAS	Prior to 2012	2031	$2,000	County/WRWSA	$2,000
Pasco County	PC-E-1	Public Outreach	Brochures and pamphlets	Planned	N/A	2018	2021	$2,000	County stormwater utility fund	$2,000
Pasco County	PC-E-2	Public Outreach	PSAs on radio and TV	Planned	N/A	2018	2021	$2,000	County stormwater utility fund	$2,000
Pasco County	PC-E-3	Public Outreach	Utility bill inserts	Planned	N/A	2018	2021	$5,000	County stormwater utility fund	$5,000
Pasco County	PC-E-4	Landscape Professionals	Educate landscape industry professionals (i.e., Pasco Co. employees, Pasco Co. School Board employees) on athletic field and park turfgrass fertilization.	Completed	UF-IFAS	2012	Not Provided	Not Provided	University of Florida	Not Provided

Lead Entity	Activity Number	Activity Name	Description of Activity	Activity Status	Partners	Estimated Start Date	Estimated Completion Date	Cost Estimate	Funding Source	Funding Amount
Pasco County	PC-E-5	Florida-Friendly Training for Code Compliance Officers	Train Pasco Co. code compliance officers in Florida-Friendly landscape principles, including proper fertilization.	Planned	UF-IFAS	2018	2021	Not Provided	Not Provided	Not Provided
SWFWMD	SWF-E-2*	Fertilizer Campaign	Fertilizer campaign is in place with existing communication products produced by the District's Public Affairs Bureau.	Underway	Not Provided	Not Provided	Not Provided	$10,000	SWFWMD	$10,000 (annual)
UF-IFAS	IFAS-E-6*	Social Marketing Campaign	Implement social marketing campaign to increase awareness of local fertilizer ordinances and to encourage good fertilizer practices.	Planned	Not Provided	2018	2020	$30,000	Not Provided	Not Provided

Appendix G. FDACS Information on BMPs

G.1 Implementation of Agricultural BMPs

Agricultural nonpoint sources in a BMAP area are required by state law (Subsection 403.067[7], F.S.) either to implement FDACS-adopted BMPs, which provides a presumption of compliance with water quality standards, or to conduct water quality monitoring prescribed by DEP or SWFWMD. Failure either to implement BMPs or conduct monitoring may result in enforcement action by DEP.

Growers who implement BMPs may be eligible for cost-share funding from FDACS, SWFWMD, or others to partially defray the costs of implementation. Through OAWP, the Florida Forest Service, and the Division of Aquaculture, FDACS develops, adopts, and assists producers in implementing agricultural BMPs to improve water quality and water conservation.

FDACS identified potential land for enrollment in the FDACS BMP Program within the Weeki Wachee BMAP area using the FSAID IV geodatabase.

Table G-1 summarizes the agricultural land use data in the Weeki Wachee BMAP area. Based on the FSAID IV geodatabase, the total agricultural lands within the BMAP area is 45,701 acres. **Table G-2** summarizes the agricultural land by crop type that was estimated to be fertilized and the corresponding acreages. The primary fertilized agricultural land use in the BMAP area is Cropland and Pastureland which comprises 87 % of the fertilized land use. **Table G-3** summarizes the agricultural lands with livestock. It is important to note that some of the agricultural lands include more than one agricultural practice.

Figure G-1 shows the approximate location of the agricultural lands based on the FSAID IV geodatabase within the BMAP area.

Table G-1. Agricultural land use in the BMAP area

Agricultural Nitrogen Loading Category	Acres
Crop Fertilizer Lands only	4,738
Livestock Lands only	9,391
Crop Fertilizer and Livestock Lands	31,572
Total	**45,701**

Table G-2. Fertilized crop lands in the BMAP area

Crop Type	Application Rate (lbs/acre)	Acres
Blueberries	100	352
Citrus	600	1,030
Container Nursery	90	190
Cropland and Pastureland	30	31,572
Field Nursery	90	30
Grains	100	174
Grass/Pasture	60	8
Hay	480	429
Other Groves	150	2
Pasture	160	123
Peanuts	0	60
Peppers Fall	240	44
PeppersSpring_PeppersFall	240	83
Small Veg	150	85
Small Veg Spring	150	7
SmallVegFall_SmallVegSpring	150	74
Tomatoes Spring	480	661
TomatoesFall_TomatoesSpring	240	7
Tree Crops	150	1,318
Tree Plantations	0	60
Total	-	**36,311**

Table G-3. Livestock lands in the BMAP area

Livestock Category	Acres
Cropland and Pastureland	31,572
Feeding Operations	773
Other Open Lands (Rural)	5,632
Specialty Farms	2,986
Total	**40,963**

Agricultural land use data are critical for determining agricultural nonpoint source loads and developing strategies to reduce those loads in a BMAP area, but there are inherent limitations in the available data. The time of year when land use data are collected (through aerial photography) affects the accuracy of photo interpretation. Flights are often scheduled during the winter months due to weather conditions and reduced leaf canopies, and while these are

favorable conditions for capturing aerial imagery, they make photo interpretation for determining agricultural land use more difficult (e.g., more agricultural lands are fallow in the winter months) and can result in inappropriate analysis of the photo imagery. There is also a significant variation in the frequency with which various sources of data are collected and compiled, and older data are less likely to capture the frequent changes that often typify agricultural land use. In addition, agricultural activity being conducted on the land is not always apparent. For example, acreage classified as improved pasture may be used for a cow-calf operation, consist of forage grass that is periodically harvested for hay, or simply be a fallow vegetable field awaiting planting. Finally, the classification method itself may be an issue. For example, property appraiser data assigns an agricultural land use designation to an entire parcel, although agricultural production may only be conducted on a portion of the parcel. Because of error in the collection and characterization of land use data and changes in land use over time, agricultural land use acreage estimates are subject to adjustment.

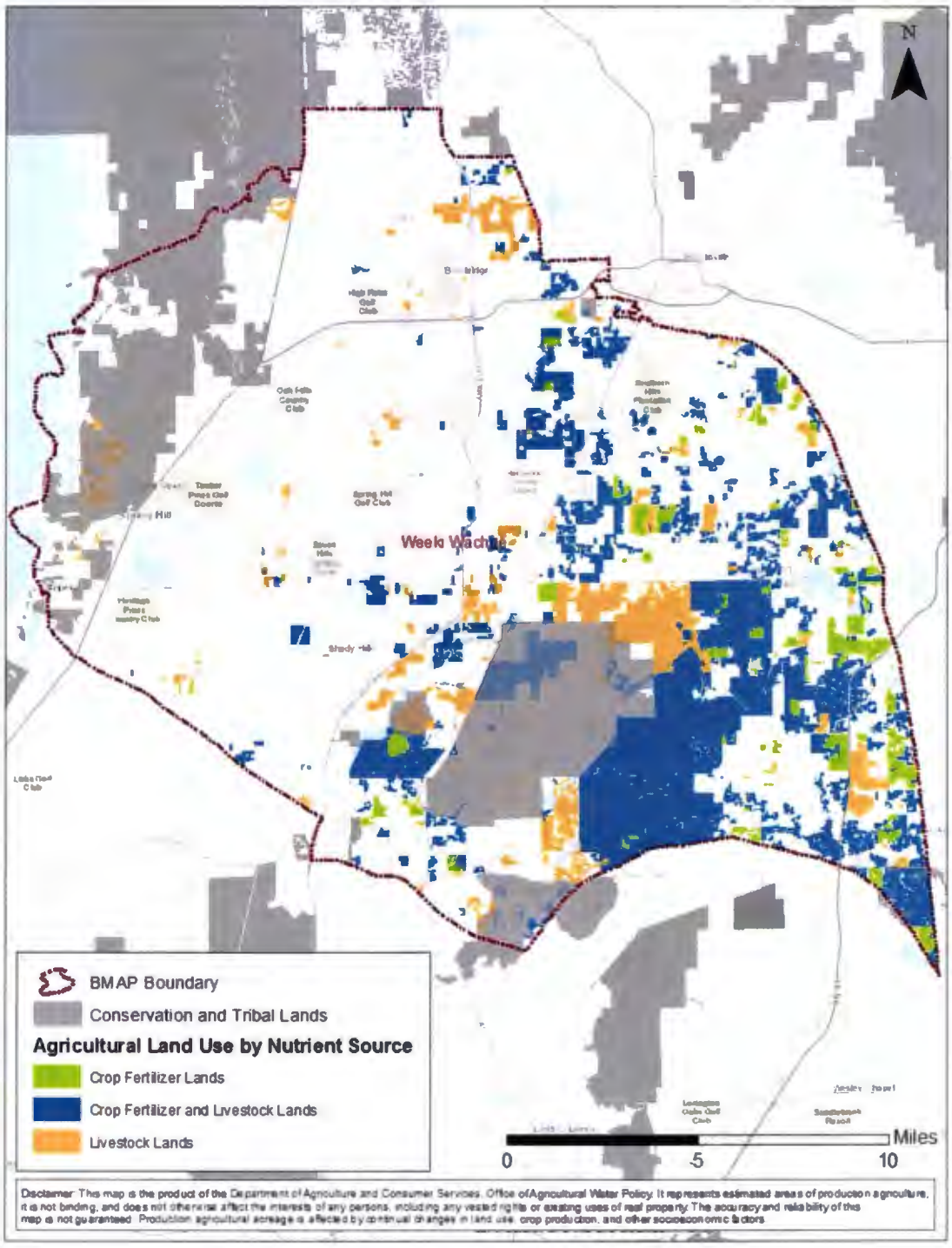

Figure G-1. Agricultural lands in the BMAP area

G.2 Agricultural BMPs

Through the Office of Agricultural Water Policy, the Florida Forest Service, and the Division of Aquaculture, FDACS develops, adopts, and assists producers in implementing agricultural BMPs to improve water quality and water conservation. Adopted BMPs are initially verified by the FDEP as reducing nutrient loss (e.g., total nitrogen and total phosphorus) to the environment. OAWP BMPs are published in commodity-specific manuals that cover key aspects of water quality and water conservation. The BMP categories include:

- Nutrient Management practices that help determine appropriate source, rate, timing, placement of nutrients (including both organic and inorganic sources) to minimize impacts to water resources.
- Irrigation and Water Table Management practices that address methods for irrigating to reduce water and nutrient losses to the environment and to maximize the efficient use and distribution of water.
- Water Resource Protection practices such as buffers, setbacks, and swales to reduce or prevent the transport of nutrients and sediments from production areas to water resources.

The Notice of Intent to Implement (NOI) and BMP checklist are incorporated into each manual.

Information on the BMP manuals and field staff contact information can be obtained here: http://www.freshfromflorida.com/Divisions-Offices/Agricultural-Water-Policy. Printed BMP manuals can be obtained by contacting OAWP field staff.

OAWP outreach to solicit enrollment extends to all types of agricultural operations, but is more intensive in BMAP areas because of the relationship of BMPs to the presumption of compliance with water quality standards in a BMAP area. FDACS field staff works with producers to enroll in the FDACS BMP program by signing a Notice of Intent to Implement BMPs, and enrollment is based on the expectation that producers recognize and address the water quality and conservation issues associated with their operations. Upon completion of all information in the BMP checklist, an NOI must be signed by the landowner or the landowner's authorized agent (who may be the producer if the producer is not the landowner).

G.3 BMP Enrollment

Figure G-2 shows the acres enrolled in the FDACS BMP Program in the Weeki Wachee BMAP area as of December 31, 2017. **Table G-4** lists the acres enrolled in the FDACS BMP Program by manual and the number of NOIs associated with those acres. Given that the enrolled acres where BMPs are implemented can contain nonproduction acres (such as buildings, parking lots, and fallow acres), only the enrollment for the land classified as agriculture based on the FSAID IV geodatabase is included in the tables.

As of December 31, 2017, NOIs cover 15,349 agricultural acres in the BMAP area. No producers are conducting water quality monitoring in lieu of implementing BMPs at this time.

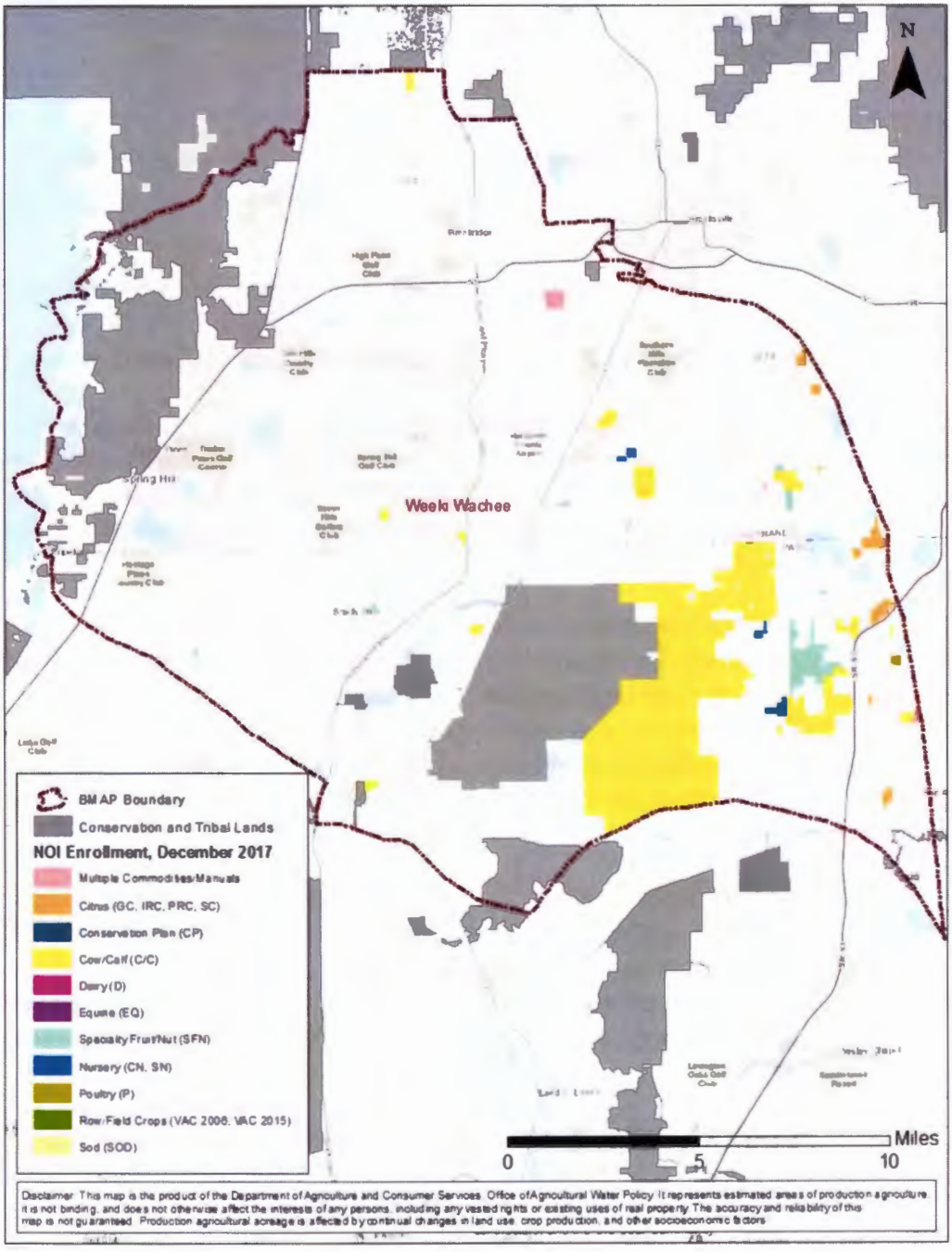

Figure G-2. BMP enrollment in the BMAP area as of December 31, 2017

Table G-4. Agricultural acreage and BMP enrollment in the BMAP area as of December 31, 2017

N/A = Not applicable.

Related FDACS BMP Programs	NOI Acreage Enrolled	Agricultural Land Use Acres within NOIs
Cow/Calf Operations	543	502
Nurseries	13,307	12,414
Specialty Fruit and Nut	205	172
Citrus	210	133
Vegetable and Agronomic Crops	1,065	833
Total	**15,349**	**14,073**

G.4 FDACS OAWP Role in BMP Implementation and Follow-Up

OAWP works with producers to submit NOIs to implement the BMPs applicable to their operations, provides technical assistance to growers, and distributes cost-share funding, as available, to eligible producers for selected practices. OAWP follows up with growers through site visits to evaluate the level of BMP implementation and record keeping, identify areas for improvement, if any, and discuss cost-share opportunities.

When DEP adopts a BMAP that includes agriculture, it is the agricultural producer's responsibility to implement BMPs adopted by FDACS to help achieve load reductions. If land use acreage corrections and BMP implementation do not fully account for the current agricultural load reduction allocation, it may be necessary to develop and implement additional projects and practices that reduce nutrients from agricultural nonpoint sources. In that case, FDACS will work with DEP and SWFWMD to identify appropriate options for achieving further agricultural load reductions.

Section 403.067, F.S. requires that, where water quality problems are demonstrated despite the proper implementation of adopted agricultural BMPs, FDACS must re-evaluate the practices, in consultation with DEP, and modify them if necessary. Continuing water quality problems will be detected through the BMAP monitoring component and other DEP and SWFWMD activities. If a reevaluation of the BMPs is needed, FDACS will also include SWFWMD and other partners in the process.

G.5 OAWP Implementation Verification Program

OAWP established an Implementation Assurance (IA) Program in 2005 in the Suwannee River Basin as part of the multi-agency/local stakeholder Suwannee River Partnership. In early 2014, OAWP began to streamline the IA Program to ensure consistency statewide and across commodities and BMP manuals. The IA Program was based on interactions with producers during site visits by OAWP staff and technicians as workload allowed. For the visits, field staff

and technicians used a standard form (not BMP specific) developed in 2014, that focused on nutrient management, irrigation management, and water resource protection BMPs common to all of the BMPs that were adopted by rule. Once completed, these paper forms were submitted to OAWP staff and compiled into a spreadsheet, and the data were reported annually.

On November 1, 2017, the OAWP's Implementation Verification rule (Chapter 5M-1, F.A.C.) became effective. The Implementation Verification (IV) program provides the basis for assessing the status of BMP implementation and for identifying enrolled producers who require assistance with BMP implementation. The components of the IV program are 1) site visits; 2) implementation status reporting on common practices that apply across all BMP manuals; 3) technical assistance; and 4) external reporting. Implementation verification is confirmed by field staff through site visits and by producers through annual common practices status reports.

Site visits to agricultural operations by OAWP field staff and contract technicians are the most effective means to determine the status of BMP implementation. These visits also provide an opportunity to identify needs for assistance with implementation and explore potential improvements. Resource limitations prevent site visits from occurring on all enrolled operations every year, and for that reason, site visits are prioritized. The program objective is for field staff to conduct site visits for 5-10% of active NOIs each year, with approximately 10% of the site visit locations selected randomly.

Per the implementation verification rule, each year, producers participating in the BMP program will be requested to participate in reporting on the status of implementation of common practices only for their operations. Lack of response from enrollees with parcels in a BMAP area raises the priority of the operation for a site visit from field staff. Where a need is identified, the OAWP may facilitate technical assistance for the producer from UF/IFAS or other resources, including third-party vendors. In some cases, cost share support may be available. Data from producers and site visits will be used to complete the annual reports on the status of BMP implementation as required by s. 403.0675(2), F.S., beginning July 1, 2018.

G.6 Beyond BMPs

Beyond enrolling producers in the FDACS BMP Program and verifying implementation, FDACS will work with DEP to improve the data used to estimate agricultural land uses in the springshed. FDACS will also work with producers to identify a suite of agricultural projects and research agricultural technologies that could be implemented on properties where they are deemed technically feasible and if funding is made available. Acreages provided by FDACS are preliminary estimates that are the maximum acreages and need to be evaluated and refined over time.

As presented here, these projects are based on planning-level information. Actual implementation would require funding as well as more detailed design based on specific information, such as actual applicable acreages and willing landowners. **Table G-5** summarizes these efforts. It is important to note that the research projects listed in the table are being

conducted in the Suwannee River Basin. At some future point, the findings of these studies may be applicable to the Weeki Wachee BMAP.

Table G-5. Beyond BMP implementation

Category	Name	Description
Practices	Precision Irrigation	Deployment of equipment, procedures, and training to improve location, volume, and timing of irrigation to match crop needs more precisely.
Practices	Soil Moisture Probes	Deployment, training, technical support, and use of soil moisture probes to manage irrigation systems.
Practices	Cover Crops	Planting of cover crops between production cycles to increase soil organic content, improve nutrient retention, and reduce erosion.
Research	Bioreactors	Bioreactors/denitrification walls and onsite capture and reuse of high-N water.
Research	Rotational Production	Conversion of conventional production operations to planned rotational production incorporating grass and cover crops. May include cattle.
Research	Soil Moisture Sensor Deployment and Calibration	Installation, training, monitoring, and research on use of electronic soil moisture sensors, including correlations to nutrient movement through the root zone.
Research	Controlled Release Fertilizer	Application of new and developing fertilizer products that become available to crops via dissolution over longer periods in the growing season.
Research	Reuse of High Nutrient Value Water Sources	Study of potential sources of high nutrient value water, potential beneficial reuse sites, legal and regulatory obstacles, and costs.

Appendix H. Future Growth Strategies of Local Jurisdictions

Table H-1. Future growth strategies of local jurisdictions

Local Jurisdiction	Strategy Name	Description	Strategy Type	Status
Pasco County	Ecological Corridors Ordinance	Ordinance 16-13 was adopted on June 21, 2016, which amended the land development code to designate seven ecological corridors to maintain a contiguous network of wildlife habitat between existing public lands.	Ordinance	Completed
Pasco County	Conservation Element Policy 1.6.1	Pasco County shall continue to require mandatory setbacks around the Anclote, Hillsborough, Pithlachascotee, and Withlacoochee Rivers; Outstanding Florida Waters; Classified Shellfish Harvesting Areas; and post development wetlands; i.e., wetland mitigation and natural wetlands.	Comprehensive Plan	Completed
Pasco County	Conservation Element Policy 1.6.16	Pasco County shall require, during the site plan review process, where feasible, consideration of the maintenance of groundwater infiltration through the use of site Best Management Practices.	Comprehensive Plan	Completed
Pasco County	Public Facilities Element Policy SEW 3.1.4	Pasco County shall require connection to a central sanitary sewer system for all proposed projects within Pasco County, when available, as set forth in the guidelines of the Availability Determination Matrix, Table 10-1A.	Comprehensive Plan	Completed
Pasco County	Public Facilities Element Policy SEW 3.1.11	Pasco County shall require connection of all central sewer facilities to regional systems.	Comprehensive Plan	Completed
Pasco County	Public Facilities Element Policy SEW 3.2.1	Pasco County shall replace smaller package plants with regional sewage treatment plants (or enlarge existing plants) by 2025.	Comprehensive Plan	Completed
Pasco County	Public Facilities Element Policy SEW 3.3.1	Pasco County shall require use of reclaimed water for landscape irrigation and nonpotable use where available and permitted by the Florida Department of Environmental Protection and required by the County Code of Ordinances, with a priority for use of reclaimed water to new residential users or other users determined to provide an adequate offset of potable-water usage.	Comprehensive Plan	Completed
Pasco County	Public Facilities Element Policy SEW 3.3.4	Pasco County shall develop a reclaimed water system for irrigation of parks; golf courses; cemeteries; large agricultural, commercial, or governmental complexes; and other potential reclaimed water customers.	Comprehensive Plan	Completed

Local Jurisdiction	Strategy Name	Description	Strategy Type	Status
Pasco County	Public Facilities Element Policy SEW 3.5.4	Pasco County will evaluate extending wastewater treatment facilities to areas within close proximity of existing County utilities. Special attention shall be paid to areas that are determined to have a high concentration of septic systems. Connection to the County system will be based upon the County Health Department's evaluation of septic system problems for those areas that are related to siting, inspection, and maintenance considerations and based upon available funding provided by the individual applicant.	Comprehensive Plan	Completed
Pasco County	Public Facilities Element Objective DGR 6.1	Provide protections for high aquifer-recharge areas.	Comprehensive Plan	Completed
Pasco County	Public Facilities Element Objective DGR 6.2	Develop and adopt, by 2007, a comprehensive stormwater management ordinance, including Best Management Practices.	Comprehensive Plan	Completed
City of Brooksville	Stormwater Management Ordinance	The City will establish and implement BMPs for all activities, operations, and/or facilities within the city which may cause or contribute to pollution or contamination of storm water, the storm drainage system, or waters of the U.S.	Ordinance	Completed
City of Brooksville	Conservation Element Policy 2-2	The City shall consider entering into agreement with Hernando County to establish BMPs for the protection of surface and groundwater quality of water basins within Peck Sink, Blue Sink, and Byster Lake.	Comprehensive Plan	Planned
City of Brooksville	Conservation Element Policy 3-1	Require all development in the city connect to city sewer service, where and when available.	Comprehensive Plan	Completed
City of Brooksville	Future Land Use Element Policy 2-4	High density and intensity growth shall not be permitted in conservation areas, or those areas best suited for continued low density and intensity development.	Comprehensive Plan	Completed
City of Brooksville	Future Land Use Element Policy 2-9	Require central sewer and sewer systems for new urban developments, which are designed to be compatible with future public utility systems.	Comprehensive Plan	Completed
Hernando County	Riverine Buffer Ordinance	Regulates land use within 75 feet of rivers, streams, and wetlands. Addresses septic systems, wastewater treatment systems, petroleum products, solid waste, and agricultural waste	Ordinance	Completed
Hernando County	Low Impact Drainage	New strategies for low impact drainage standards and initiatives.	Comprehensive Plan	Planned

Local Jurisdiction	Strategy Name	Description	Strategy Type	Status
Hernando County	Ecological Linkages	New strategies for prioritizing ecological linkage conservation as one means of recharge and groundwater conservation.	Comprehensive Plan	Planned
Hernando County	Aquifer Recharge	Update strategies to protect high recharge areas and karst areas.	Comprehensive Plan	Planned
Hernando County	Aquifer Protection	Update strategies to protect groundwater through appropriate design of stormwater, sewage treatment, golf course facilities, and landscaping.	Comprehensive Plan	Planned
Hernando County	Aquifer Protection	New strategies for coordination on minimum flows and levels for springs and surface waters.	Comprehensive Plan	Planned
Hernando County	Surface Water Protection	Update strategies to continue the County's riverine ordinance.	Comprehensive Plan	Planned
Hernando County	Erosion Control	Update strategies for erosion control and minimization of sedimentation.	Comprehensive Plan	Planned
Hernando County	Habitat Mitigation	New strategies that require mitigation of loss of large natural communities.	Comprehensive Plan	Planned
Hernando County	Future Land Use Element Policy 1.01T(6)	Water and sewer planning conducted by the County will utilize a public participation process.	Comprehensive Plan	Completed
Hernando County	Sanitary Sewer Element Policy 4.01A(6)	Wastewater service plans developed and updated hereunder, along with the adopted Capital Improvement Plan, shall be utilized to guide the location and timing of land development requiring wastewater service.	Comprehensive Plan	Completed
Hernando County	Sanitary Sewer Element Policy 4.01A(7)	Wastewater facility and service planning conducted by the County will utilize a public participation process.	Comprehensive Plan	Completed
Hernando County	Sanitary Sewer Element Policy 4.01B(2)	As part of the Wastewater Service Plan, establish standards to determine when commercial and industrial septic tanks will be required to connect to central services.	Comprehensive Plan	Completed
Hernando County	Sanitary Sewer Element Policy 4.03A(4)	Advanced secondary and tertiary treatment should be considered for future permanent sewage treatment plants, particularly those which are located near water bodies or in soils which do not have a defined impermeable clay lens or significantly thick sand layers between the surface and the Floridan aquifer.	Comprehensive Plan	Completed
Hernando County	Sanitary Sewer Element Policy 4.03B(3)	Where possible, provide flexibility in public or private facility design to allow for development of reuse systems.	Comprehensive Plan	Completed
Hernando County	Drainage & Natural Groundwater Aquifer Recharge Element Policy 4.10A(1)	Develop an aquifer protection program including public education, coordination with appropriate agencies, provision of adequate collection, and disposal facilities in order to limit the amount of contaminants reaching the surficial or Floridan aquifers.	Comprehensive Plan	Completed

Local Jurisdiction	Strategy Name	Description	Strategy Type	Status
Hernando County	Potable Water Element Policy 4.15B(1)	Implement a strategy to encourage replacement of potable water use with reclaimed water for irrigation purposes of at least 4.3 MGD by the year 2019.	Comprehensive Plan	Completed
Hernando County	Coastal Management Element Objective 5.01E	To protect the water quality and the riverine and native bottom communities of the entire seven-mile length of the Weeki Wachee River and its estuary.	Comprehensive Plan	Completed
Hernando County	Coastal Management Element Objective 5.01F	Participate in, or otherwise encourage the purchase of additional lands along the Weeki Wachee River and the associated riverine habitats, the coastal lands through SWFWMD's Save our Rivers Program.	Comprehensive Plan	Completed
Hernando County	Conservation Element Policy 6.01D(6)	For those areas located within the Weeki Wachee and Withlacoochee River Protection Areas as mapped in the Future Land Use Element, Land Development Regulations shall be developed which include but are not limited to the following concepts: a. Preservation of on-site natural vegetation adjacent to the Weeki Wachee or Withlacoochee Rivers b. Minimum building setbacks from the banks of the Weeki Wachee or Withlacoochee Rivers c. On-site drainage design to prevent the flow of untreated stormwater runoff from entering the Weeki Wachee or Withlacoochee Rivers.	Comprehensive Plan	Completed
Hernando County	Conservation Element Policy 6.01E(3)	Continue to coordinate with Pasco County on the protection and use of Aripeka Bay.	Comprehensive Plan	Completed
Hernando County	Conservation Element Policy 6.01E(4)	Continue to coordinate with the City of Weeki Wachee for the purpose of reviewing and revising agreement on the management, protection and use of the Weeki Wachee River and estuary.	Comprehensive Plan	Completed
Hernando County	Conservation Element Policy 6.02A(9)	The County shall require all new golf courses be designed and maintained using the principles developed by the Institute of Food and Agricultural Sciences (IFAS) for *Best Management Practices for Florida Golf Courses.*	Comprehensive Plan	Completed

Local Jurisdiction	Strategy Name	Description	Strategy Type	Status
Hernando County	Conservation Element Policy 6.02A(10)	The County shall establish guidelines for managing existing and future turf and landscapes at all County owned facilities utilizing the educational guidelines of the University of Florida Extension's Florida Yards & Neighborhoods Program and Best Management Practices. It is the intent of this policy that the County reduce nutrient/pollutant infiltration into ground and surface waters and to encourage best management practices through public education	Comprehensive Plan	Completed
Hernando County	Conservation Element Policy 6.02C(2)	Evaluate any development proposal for its effect on the quantity and quality of surface waters which flow into the Gulf of Mexico, including stormwater runoff, erosion and sedimentation, and septic tank discharge.	Comprehensive Plan	Completed
Hernando County	Conservation Element Policy 6.08A(1)	Minimum lot sizes for septic fields may be further restricted from the minimum ½ acre in prime aquifer recharge areas, sinkhole areas, areas adjacent to lakes or rivers or areas where soils have severe limitations.	Comprehensive Plan	Completed
Hernando County	Conservation Element Policy 6.08A(11)	Development of property shall adhere to green industries Best Management Practices (BMPs), including Integrated Pest Management (IPM) (FDEP & FDEO, 2002. Protecting Florida Springs - Land Use Planning Strategies & Best Management Practices). Florida Yards & Neighborhoods (FYN) education shall be provided for individual lot owners.	Comprehensive Plan	Completed

Exhibit H

Bio-Tech Consulting Inc.
Environmental and Permitting Services

July 31, 2023

Casey Krauser
Oak Development Group
1025 58th Street N.
St. Petersburg, Florida 33710

Proj: Lake Mirage Site – Brooksville, Unincorporated Hernando County, Florida
Section 06, Township 22 South, Range 18 East
(BTC File #1241-17)
Re: Desktop Environmental Assessment Report

Dear Mr. Casey Krauser:

In July of 2023, Bio-Tech Consulting, Inc. (BTC) conducted a desktop environmental assessment of the approximately 54-acre Lake Mirage site. This site is located east of the intersection of Atlanta Avenue and Eakin Street and northwest of the intersection of Mirage Avenue and Lomita Wren Road in Brooksville, unincorporated Hernando County, Florida, within Section 06, Township 22 South, Range 18 East, Some County, Florida (**Figures 1 and 2**). This desktop environmental assessment includes the following elements:

- **general review of site topography;**
- **desktop review of soil types mapped within the site boundaries;**
- **desktop evaluation of land use types/vegetative communities present;**
- **desktop review for protected flora and fauna; and,**
- **an overview of potential development constraints.**

TOPOGRAPHY

Based upon a review of the USGS Topographic Map present in **Figure 3** (Weeki Wachee Spring, Florida Quadrangle), elevations on the subject property range from highs between +40 and +30 feet above the North American Datum of 1927 in the northern portion of the parcel, to below +30 feet NGVD on the southern portion of the property.

Orlando: Main Office
3025 East South Street
Orlando, FL 32803

Jacksonville Office
11235 St Johns Industrial Pkwy N
Suite 2
Jacksonville, FL 32246

Tampa Office
6011 Benjamin Road
Suite 101-B
Tampa, FL 33634

Vero Beach Office
4445 North A1A
Suite 221
Vero Beach, FL 32963

Key West Office
1107 Key Plaza
Suite 259
Key West, FL 33040

La[illegible]quatic Management
38[illegible]se Road
Orlando, FL 32817

407.894.5969
877.894.5969
407.894.5970 fax

The property is generally flat, but it appears that the subject parcel slopes gradually from north to south.

SOILS

According to the Soil Survey of Hernando County, Florida, prepared by the U.S. Department of Agriculture (USDA) and the Natural Resources Conservation Service (NRCS), three (3) soil types occur within the subject property boundaries (**Figure 4**). These soil types include the following:

- **Basinger fine sand, depressional (#10)**
- **Candler fine sand, 0 to 5 percent slopes (#14)**
- **Tavares fine sand, 0 to 5 percent slopes (#49)**

The following presents a brief description of each of the soil types mapped for the subject site:

Basinger fine sand, depressional (#10) is a very poorly drained soil found in depressional areas and flatwoods. Typically, the surface layer of this soil type is black muck about 27 inches thick. The water table for this soil type at or above the surface except for extended dry periods. The permeability of this soil type is rapid in the surface and subsurface layers, very slow to slow in the subsoil, and moderate to rapid in the substratum.

Candler fine sand, 0 to 5 percent slopes (#14) is a nearly level to gently sloping, excessively drained soil in very large to small areas on uplands. Typically, the surface layer of this soil type is grayish brown fine sand about 4 inches thick. The water table for this soil type is below 80 inches. The permeability of this soil type is very rapid in the upper 48 inches of the profile and rapid below.

Tavares fine sand, 0 to 5 percent slopes (#49) is a moderately drained soil found on low ridges and knolls. Typically, the surface layer of this soil type is dark grayish brown fine sand about 4 inches thick. The next 4 inches is brown fine sand. The water table for this soil type is at a depth of 40 to 60 inches except during very dry periods. The permeability of this soil type is very rapid.

The Florida Association of Environmental Soil Scientists (FAESS) considers the main components in the Basinger fine sand, depressional (#10) soil type associated with the site to be hydric. This FAESS also considers inclusions present in the Basinger fine sand, depressional (#10) soil type associated with the site to be hydric. This information can be found in the Hydric Soils of Florida Handbook, Fourth Edition (March 2007).

LAND USE TYPES/VEGETATIVE COMMUNITIES

This desktop review does not constitute an on-site assessment of the land use/vegetative communities present, but rather general land use types mapped by the Florida Natural Areas Inventory Cooperative Land Cover Classification System and land use descriptions of the *Guide to the Natural Communities of Florida 2010 Edition.*

As previously stated, according to a desktop review, the subject site supports five (5) land use types/vegetative communities within its boundaries. These areas were identified utilizing the Florida Natural Areas Inventory Cooperative Land Cover Classification System (FNAI) (**Figure 5**) and *Guide to the Natural Communities of Florida 2010 Edition.* The upland land use types/vegetative communities mapped on the site are classified as Sandhill (1240), Transportation (1840), and Residential, Low Density (18212). The wetland/surface water land use types/vegetative communities mapped on the site are classified as Wet Prairie (2111) and Artificial Impoundment/Reservoir (3220). The following provides a brief description of the land use types/vegetative communities identified mapped on the site.

Uplands:

1240 Sandhill

A majority of the upland areas are described by the FNAI on site as Sandhill. This land use type is described as upland with deep sand substrate; xeric; Panhandle to central peninsula; frequent fire (1-3 years); savanna of widely spaced longleaf pine and/or turkey oak with wiregrass understory.

1840 Transportation

The eastern and westernmost portions of the subject site are described by the FNAI on site as Transportation. This land use type is described as used for the movement of people and goods. Highways include areas used for interchanges, limited access rights-of-way and service facilities. The Transportation category encompasses rail-oriented facilities including stations, round-houses, repair and switching yards and related areas. Airport facilities include runways, intervening land, terminals, service buildings, navigational aids, fuel storage, parking lots and a limited buffer zone and fall within the Transportation category. Transportation areas also embrace ports, docks, shipyards, dry docks, locks and water course control structures designed for transportation purposes. The docks and ports include buildings, piers, parking lots and adjacent water utilized by ships in the loading and unloading of cargo or passengers. Locks, in addition to the actual structures, include the control buildings, power supply buildings, docks and surrounding supporting land use.

18212 Residential, Low Density

The southeastern and northeastern portions of the subject site is described by the FNAI on site as Residential, Low Density. This land use type is described as structures within low intensity urban areas.

Wetland/Surface Water:

2111 Wet Prairie

The southwestern portion of the subject site is described by the FNAI on site as Wet Prairie. This land use type is described as flatland with sand or clayey sand substrate; usually saturated but only occasionally inundated; statewide excluding extreme southern peninsula; frequent fire (2-3 years); treeless, dense herbaceous community with few shrubs; wiregrass, blue maidencane, cutthroat grass, wiry beaksedges, flattened pipewort, toothache grass, pitcherplants, coastalplain yellow-eyed grass.

3220 Artificial Impoundment/Reservoir

In the southeastern portion of the subject site is an area described by the FNAI on site as Artificial Impoundment/Reservoir. This land use type is described as stream or watershed impoundment, water retention ponds, cattle ponds, and borrow pits.

PROTECTED SPECIES

A desktop assessment for listed floral and faunal species that may be located on the property was conducted on July 31, 2023. An on-site assessment for fauna and flora using methodologies outlined in the Florida's Fragile Wildlife (Wood, 2001); Measuring and Monitoring Biological Diversity Standard Methods for Mammals (Wilson, et al., 1996); and Florida Fish and Wildlife Conservation Commission's (FWC's) Gopher Tortoise Permitting Guidelines (April 2023) is recommended prior to any work being conducted on the subject site. For the purposes of this assessment, no on-site assessment was conducted. The assessment focused on species that are listed by the FWC's Official Lists - Florida's Endangered and Threatened Species (December 2022) and listed species that have the potential to occur in Hernando County (**see attached Table 1**).

The FDACS protection of listed plant species centers on preventing the illegal collection, transport and sale of the listed plants. The FDACS will issue permits for collection purposes. There are no regulations that prohibits the destruction of state-listed flora species as a result of proposed development activities.

The following provides a brief description of applicable species as they may relate to the development of the site.

Potential Wildlife

The desktop wildlife assessment conducted does not preclude the potential for any listed species, currently or in the future. The following listed species have the potential to occur in the Sandhill, Transportation, Residential, Low Density, Wet Prairie, and/or Artificial Impoundment/Reservoir areas identified by FNAI **(Figure 5)**. However, no on-site assessment was conducted and therefore, none of these species were observed on-site

Bald Eagle *(Haliaeetus leucocephalus)*
State protected by F.A.C. 68A-16.002 and federally protected by both the Migratory Bird Treaty Act (1918) and the Bald and Golden Eagle Protection Act (1940)

In August of 2007, the US Fish and Wildlife Service (USFWS) removed the Bald Eagle from the list of federally endangered and threatened species. Additionally, the Bald Eagle was removed from FWC's imperiled species list in April of 2008. Although the Bald Eagle is no longer protected under the Endangered Species Act, it is still protected under the Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, and FWC's Bald Eagle rule (Florida Administrative Code 68A-16.002 Bald Eagle (*Haliaeetus leucocephalus*).

In May of 2007, the USFWS issued the National Bald Eagle Management Guidelines. In April of 2008, the FWC adopted a new Bald Eagle Management Plan that was written to closely follow the federal guidelines. In November of 2017, the FWC issued "A Species Action Plan for the Bald Eagle" in response to the sunset of the 2008 Bald Eagle Management Plan. Under the USFWS's management plans, buffer zones are recommended based on the nature and magnitude of the project or activity. The recommended protective buffer zone is 660 feet or less from the nest tree, depending on what activities or structures are already near the nest. As provided within the above referenced Species Action Plan, the USFWS is the regulating body responsible for issuing permits for Bald Eagles. In 2017, the need to obtain a State permit (FWC) for the take of Bald Eagles or their nests in Florida was eliminated following revisions to Rule 68A-16.002, F.A.C. A USFWS Bald Eagle "Non-Purposeful Take Permit" is not needed for any activity occurring outside of the 660-foot buffer zone. No activities are permitted within 330 feet of a nest without a USFWS permit.

BTC conducted a review of FWC's database (2016-2017 Nesting Season) and Audubon's Eagle Watch program database (2022 Nesting Season) for recorded Bald Eagle nests within the surrounding 660 feet of the subject site **(Figure 6)**. This review revealed that there are no Bald

Eagle nests within 660 feet of the project site boundaries. Prior to development of the site, a wildlife survey should be conducted in order to determine if any Bald Eagle nests are located within of within the surrounding 660 feet of the subject site.

In the event that Bald Eagle nests are identified within or within close proximity to the subject site, construction activities proposed to occur between the 330-foot buffer and the 660-foot buffer would be allowed to continue during the Bald Eagle nesting season (October 1 – May 15) as long as monitoring activities per the USFWS Bald Eagle Monitoring Guidelines are conducted.

Monitoring of the Bald Eagle nest must be implemented according to the Bald Eagle Monitoring Guidelines (USFWS 2007). Per these guidelines initial monitoring is to be conducted beginning October 1 until positive direct or indirect evidence that the Bald Eagles have returned to the nesting territory is observed. This is to be conducted for a minimum of 2 hours per day, one day per week. (It should be noted that if no nesting activity is observed by February 1, monitoring may cease as the nest will be determined as inactive for the current nesting season). Once nesting behavior has commenced, monitoring of the nest increases to a minimum of 4 hours per day, 3 days per week. This monitoring sequence continues through 4 weeks post-hatching. Beginning the fifth week post-hatching, monitoring of the nest/ young is reduced to 4 hours per day, one day per week. This continues until fledging occurs, or until May 15, whichever occurs first.

Gopher Tortoise (*Gopherus polyphemus*)
State Listed as "Threatened" by FWC

Currently the gopher tortoise (*Gopherus polyphemus*) is classified as a "Category 2 Candidate Species" by the USFWS, and as of September 2007 is now classified as "Threatened" by FWC, and as "Threatened" by FCREPA. The basis of the "Threatened" classification by the FWC for the gopher tortoise is due to habitat loss and destruction of burrows. Gopher tortoises are commonly found in areas with well-drained soils associated with the pine flatwoods, pastures and abandoned orange groves. Several other protected species known to occur in Hernando County have a possibility of occurring in this area, as they are gopher tortoise commensal species. These species include the eastern indigo snake (*Drymarchon corais couperi*), Florida mouse (*Podomys floridanus*) and the gopher frog (*Rana capito*). However, as only a desktop review was conducted, none of these species were observed.

Prior to construction activities on the subject site, a 100% gopher tortoise survey is recommended and off-site relocation will be required through FWC within the areas proposed for development.

The FWC provides three (3) options for developers that have gopher tortoises on their site. These options include: 1) avoidance (i.e., maintain at least a 25-foot distance from construction activities), 2) preservation of habitat and 3) off-site relocation. The likely option to addressing any

on-site gopher tortoise population is off-site relocation and would require that any gopher tortoise within 25 feet of proposed construction activities be relocated off-site to an approved recipient site. Relocation will need to be permitted through FWC prior to any on-site construction activities. A formal 100% gopher tortoise survey will be required by FWC in order to secure an off-site relocation permit.

If relocation efforts cannot be completed within 90 days of a formal gopher tortoise survey, FWC requires an additional survey to be conducted.

Indigo Snake (*Drymarchon couperi*)
Federally Listed as "Threatened" by USFWS

The indigo snake (*Drymarchon couperi*) is a federally threatened species. The basis for this listing was a result of dramatic population declines caused by over-collecting for the domestic and international pet trade as well as mortalities caused by rattlesnake collectors who gassed gopher tortoise burrows to collect snakes. Since its listing, habitat loss and fragmentation by residential and commercial expansion have become much more significant threats to the eastern indigo snake. This species is widely distributed throughout central and south Florida and primarily occurs in sandhill habitat in northern Florida and southern Georgia.

The FNAI indicates that the majority of upland areas within the subject site consist of sandhill. No wildlife survey was conducted. However, the site does contain at least twenty-five (25) acres of suitable upland or xeric habitat to support this species. Based upon the USFWS's August 2013 Consultation Key for the Eastern Indigo Snake and that the property will result in the removal of more than 25 acres of eastern indigo snake habitat and/or more than 25 gopher tortoise burrows, a key determination would result in a finding of "may affect."

During the ERP, State 404 or USACOE Dredge and Fill permit review process, the USFWS may determine that an Indigo Snake survey is required during the review of the project. The survey can be accomplished from October 1st thru April 30 for a minimum of five (5) surveys with 2 days of optimal weather (overnight low temperature above 60° F). It should also be noted that eastern indigo snake mitigation may be purchased in lieu of conducting the indigo snake survey. A FDEP 404 or USACOE Permit may also require following the Service's Standard Protection Measures for the Eastern Indigo Snake which will include, but not limited to, posting eastern indigo snake identification signage and educational material at the site, inspecting on-site holes and other refugia, as well as stopping construction to allow any indigo snake to safely vacate the project site. In addition, a FWC Conservation Permit to relocate Gopher tortoises will also contain permit conditions relating to the safety of indigo snakes.

Little Blue Heron (*Egretta caerulea*), Reddish Egret (*Egretta rufescens*), Roseate Spoonbill (*Platalea ajaja*), & the Tricolored Heron (*Egretta tricolor*)
State Listed as "Threatened" by FWC

For the purposes of this report, four species of 'wading bird' have been consolidated into one (1) group. Each is listed in the state of Florida as a "Threatened" due to historically aggressive hunting practices and habitat loss. Currently, the majority of wading bird habitat tends to be federally protected wetlands under the 'Clean Water Act' and the Florida's 'Wetland Resource Permitting Program.'

Since this report consists of a desktop review, no Little Blue Heron, Reddish Egret, Roseate Spoonbill, and/or Tricolored Heron were observed located within the subject property. However, these species have the potential to occur in the Wet Prairie and Artificial Impoundment/Reservoirs FNAI mapped areas. These species are listed as colonial nesting birds. There are no protection requirements for these species unless they are observed nesting on the site. BTC recommends a survey be conducted prior to any construction activities to determine if any these species are nesting within the subject property.

USFWS CONSULTATION AREAS

The U.S. Fish and Wildlife Service (USFWS) has established "Consultation Areas" for certain listed species (**Figure 7**). Generally, these consultation areas only become an issue if USFWS consultation is required, which is usually associated with permitting through the U.S. Army Corps of Engineers (USACOE) or Florida Department of Environmental Protections (FDEP). The user of this report should be aware that species presence and need for additional review are often determined to be unnecessary early in the permit review process due to lack of appropriate habitat or other conditions. However, the USFWS makes the final determination.

Consultation areas are typically regional in size, often spanning multiple counties where the species in question is known to exist. Consultation areas by themselves do not indicate the presence of a listed species. They only indicate an area where there is a potential for a listed species to occur and that additional review might be necessary to confirm or rule-out the presence of the species. The additional review typically includes the application of species-specific criteria to rule-out or confirm the presence of the species in question. Such criteria might consist of a simple review for critical habitat types. In other cases, the review might include the need for species-specific surveys using established methodologies that have been approved by the USFWS. The following presents further information pertaining to species in which their USFWS consultation areas covers the subject property.

Florida Scrub-Jay (*Aphelocoma coerulescens*)
Federally Listed as "Threatened" by USFWS

Currently the Florida Scrub-Jay is listed as "Threatened" by the USFWS. Florida Scrub-Jays are largely restricted to scattered, often small and isolated patches of sand pine scrub, xeric oak, scrubby flatwoods, and scrubby coastal stands in peninsular Florida (Woolfenden 1978a, Fitzpatrick et al. 1991). They avoid wetlands and forests, including canopied sand pine stands. Optimal Scrub-Jay habitat is dominated by shrubby scrub, live oaks, myrtle oaks, or scrub oaks from 1 to 3 m (3 to 10 ft.) tall, covering 50% to 90 % of the area; bare ground or sparse vegetation less than 15 cm (6 in) tall covering 10% to 50% of the area; and scattered trees with no more than 20% canopy cover (Fitzpatrick et al. 1991).

Florida Scrub-Jays are most abundant in open, oak-dominated scrub communities of the interior and Atlantic coast sand ridges of the Peninsula. Florida Scrub-Jay habitat is broken down into three (3) types. These habitat types are the following:

- TYPE I HABITAT. Any upland plant community in which the percent cover of the substrate by scrub oak species is 15% or more.
- TYPE II HABITAT. Any plant community not meeting the definition of Type I habitat, in which one or more scrub oak species is represented.
- TYPE III HABITAT. Any upland or seasonally dry wetland within ¼ mile of any designated as Type I or Type II habitat.

In most cases, the Type I habitat is recognized as xeric oak scrub, scrubby pine flatwoods, scrubby coastal strand, or sand pine scrub. Usual classification schemes are not as useful in identifying or predicting habitat type; the presence of scrub oaks is the key indicator. The third habitat type includes many different plant communities where scrub oak species are not represented, but that are nearby or adjacent to Type I or Type II habitat. According to the FNAI, potentially suitable sandhill habitat for this species is mapped within the limits subject site is consistent with Type I or Type II Habitat. Therefore, a formal survey would be required by the USFWS or another agency to determine if Florida Scrub-Jays are utilizing any portions of the site. Surveys should be conducted during 1). Spring (March), 2). Fall (September and October) and 3). Mid-summer (July).

DEVELOPMENT CONSTRAINTS AND PERMITTING

The FNAI map (**Figure 5**) and National Wetlands Inventory (NWI) (**Figure 8**) indicate wetland and/or surface water land uses located on the subject site. Therefore, a wetland delineation is recommended. All wetland/surface water flag locations will need to be approved by the

appropriate regulatory agencies during the permitting process. The subject site is located within the Upper Coastal Areas basin (**Figure 9**).

Hernando County (HC)

Hernando County will rely on the wetland line approved by SWFWMD. Hernando County will require a natural or planted buffer to be provided for all wetlands that remain on-site post development. Hernando County requires mitigation for all wetland impacts regardless of size of quality. Impacts to the project's wetland and/or other surface water communities would be permittable by Hernando County as long as the issues of elimination and reduction of wetland impacts have been addressed and as long as the mitigation offered is sufficient to offset the functional losses incurred via the proposed impacts.

Southwest Florida Water Management District (SWFWMD)

An Environmental Resource Permit (ERP) through the SWFWMD will be required for construction approval on the subject site. This will include a review and approval of the project's proposed stormwater management system and wetland/surface water boundaries. Impacts to the project's wetland and/or other surface water communities would be permittable by SWFWMD as long as the issues of elimination and reduction of wetland impacts have been addressed and as long as the mitigation offered is sufficient to offset the functional losses incurred via the proposed impacts.

According to the SWFWMD ERP website, ERP# 694362 for portions of the property provides an exemption for the paving of 27 roadways. Although only some of the roadways would be located within the subject site, with regards to the roadway construction, an ERP will not be required.

Florida Department of Environmental Protection
State 404 Program

Section 404 of the Clean Water Act (CWA) requires that federal authorization be obtained for all activities that propose the placement of dredged or fill material in "Waters of the United States" (WOTUS). The regulatory program established by CWA Section 404 is jointly implemented by the United States Environmental Protection Agency (EPA) and the United States Army Corps of Engineers (USACE) and applies to regulated activities associated with development, water resource projects (dams, levees, etc.), infrastructure, and mining. Guidelines that outline the conditions under which the implementing agency may, or may not, issue a permit are described in CWA Section 404(b)(1) Guidelines. Included in those guidelines is the mandate that discharges of dredged or fill material into WOTUS are not permissible if (a) a practicable alternative exists that is less damaging to the aquatic environment, or (2) the nation's waters would be significantly degraded. Under that mandate, in most cases, the applicant's burden to justify impacts to jurisdictional wetlands includes an alternative sites analysis, in which the applicant is required to

justify that the subject site is the most viable in the vicinity for the project, and will result in lesser environmental impacts compared to alternative site locations. The applicant is then required to demonstrate on-site avoidance and minimization of impacts, to the maximum practicable extent, while allowing for the project purpose.

CWA Section 404(b)(1) Guidelines also define conditions under which a State may assume the permitting authority under CWA Section 404. In December of 2020, the Florida Department of Environmental Protection (FDEP) assumed federal permitting authority for most wetland and surface water resources regulated exclusively under Section 404 of the Clean Water Act (CWA). The State 404 Program is a separate program and process from the existing State ERP Program described in the SWFWMD section above, and applies only to those waters not regulated under other federal legislation. Wetlands and surface water resources associated with tidal waters or traditional navigable waters are regulated under Section 10 of the Rivers and Harbors Act. For those waters ("retained waters"), including wetlands and/or other surface waters that fall within the 300-foot guideline established from the ordinary high-water mark or mean high tide line of the Section 10 waters, the USACE will retain federal permitting authority. It should be noted that regulated activities proposed in waters assumed by the State 404 Program are still required to meet all standards mandated under the CWA Section 404(b)(1) guidelines.

With respect to the subject site, it does not appear that any wetlands and/or surface waters mapped by FNAI are not associated with Section 10 waters. Therefore, the federal permitting authority will be assumed by the FDEP under Section 404. Currently, FDEP considers all wetland and/or surface water resources to be federally jurisdictional unless the applicant provides documentation proving otherwise. Once a site plan has been created, a Waters of the U.S. (WOTUS) Determination and "No Permit Required" can be submitted to determine jurisdictional and non-jurisdictional systems (interior, isolated). If FDEP concurs with BTC's position that these wetlands and/or other surface waters are non-jurisdictional per WOTUS, no federal permitting will be required and a "No Permit Required" letter can be requested from FDEP. If, however, FDEP disagrees with BTC's position and claims federal jurisdiction, then federal permitting through FDEP will be required. Please be advised that the State ERP is required prior to the issuance of the FDEP 404 Permit.

The environmental limitations described in this document are based on observations and technical information available on the date of the on-site evaluation. This report is for general planning purposes only. The limits of any on-site wetlands/surface waters can only be determined and verified through field delineation and/or on-site review by the pertinent regulatory agencies. The wildlife surveys conducted within the subject property boundaries do not preclude the potential for any listed species, as noted on Table 1 (attached), currently or in the future. Should you have any questions or require any additional information, please do not hesitate to contact our office at (407) 894-5969. Thank you.

Regards,

Matthew Schubart
Project Manager

Attachments:
Figure 1 – Location Map
Figure 2 – Aerial Map
Figure 3 – USGS Topographic Map
Figure 4 – USDA Soils Map
Figure 5 – FNAI Map
Figure 6 – Wildlife Proximity
Figure 7 – USFWS Consultation Map
Figure 8 – National Wetlands Inventory Map
Figure 9 – Basin Map
FWC Eagle Nest Locator
Audubon Florida EagleWatch Nest Map

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Lake Mirage Site
Hernando County, Florida
Figure 1
Location Map

N
W E
S

2
Miles

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Date: 7/25/2023

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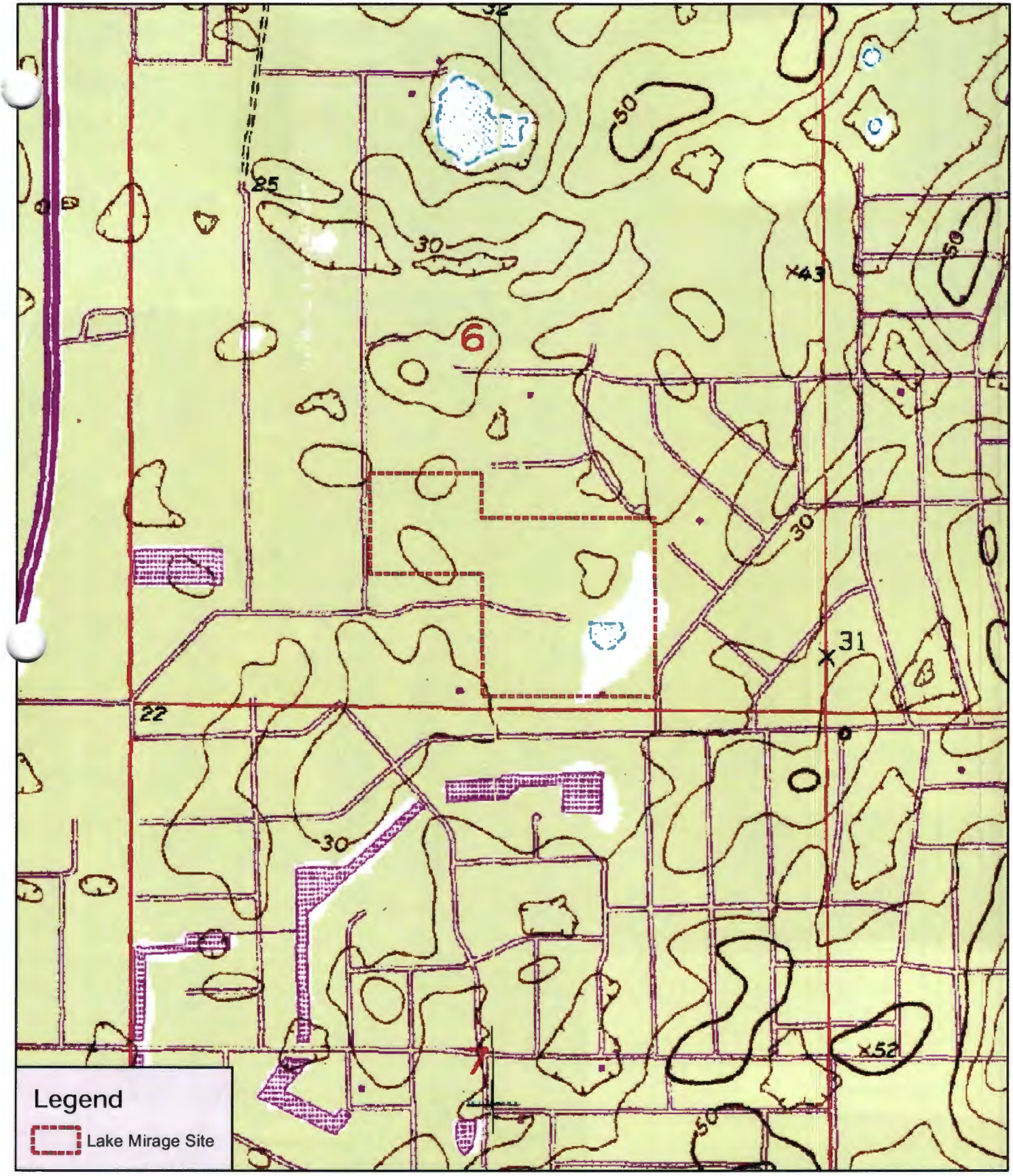
Lake Mirage Site
Hernando County, Florida
Figure 2
2022 Aerial Map

N
W E
S

400

Project #:1241-17
Produced By: JDH
Date: 7/25/2023



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Lake Mirage Site
Hernando County, Florida
Figure 3
USGS Topographic Map

N
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1,000 Feet

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Lake Mirage Site
Hernando County, Florida
Figure 4
SSURGO Soils Map

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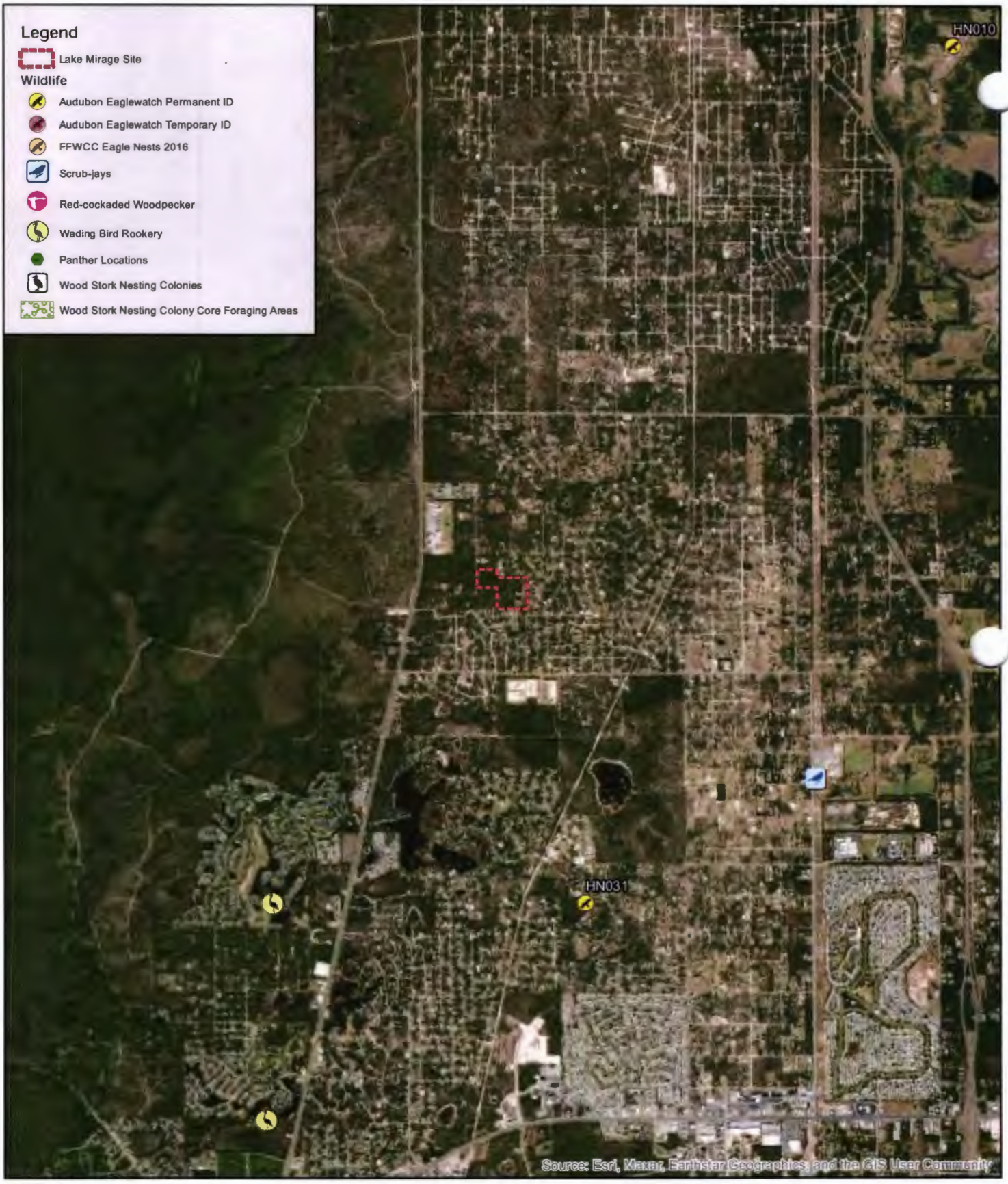
Lake Mirage Site
Hernando County, Florida
Figure 5
FNAI Cooperative Land Cover Map

N W E S

340 Feet

Project #:1241-17
Produced By: JDH
Date: 7/31/2023



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Lake Mirage Site
Hernando County, Florida
Figure 6
Wildlife Proximity

N
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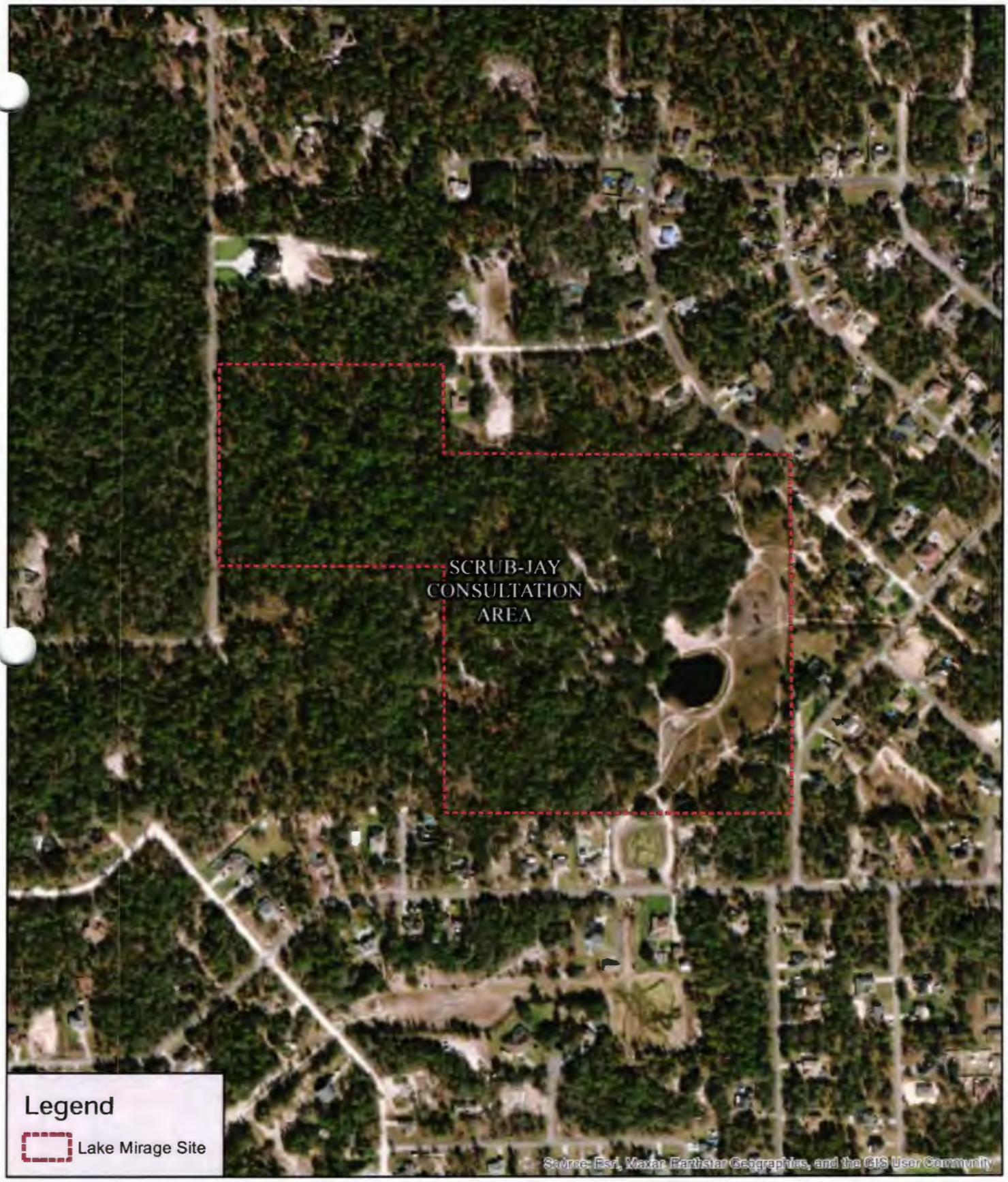
Project #:1241-17
Produced By: JDH
Date: 7/25/2023



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Lake Mirage Site
Hernando County, Florida
Figure 7
USFWS Consultation Areas

N
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500
Feet

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Lake Mirage Site
Hernando County, Florida
Figure 8
National Wetlands Inventory

N
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400

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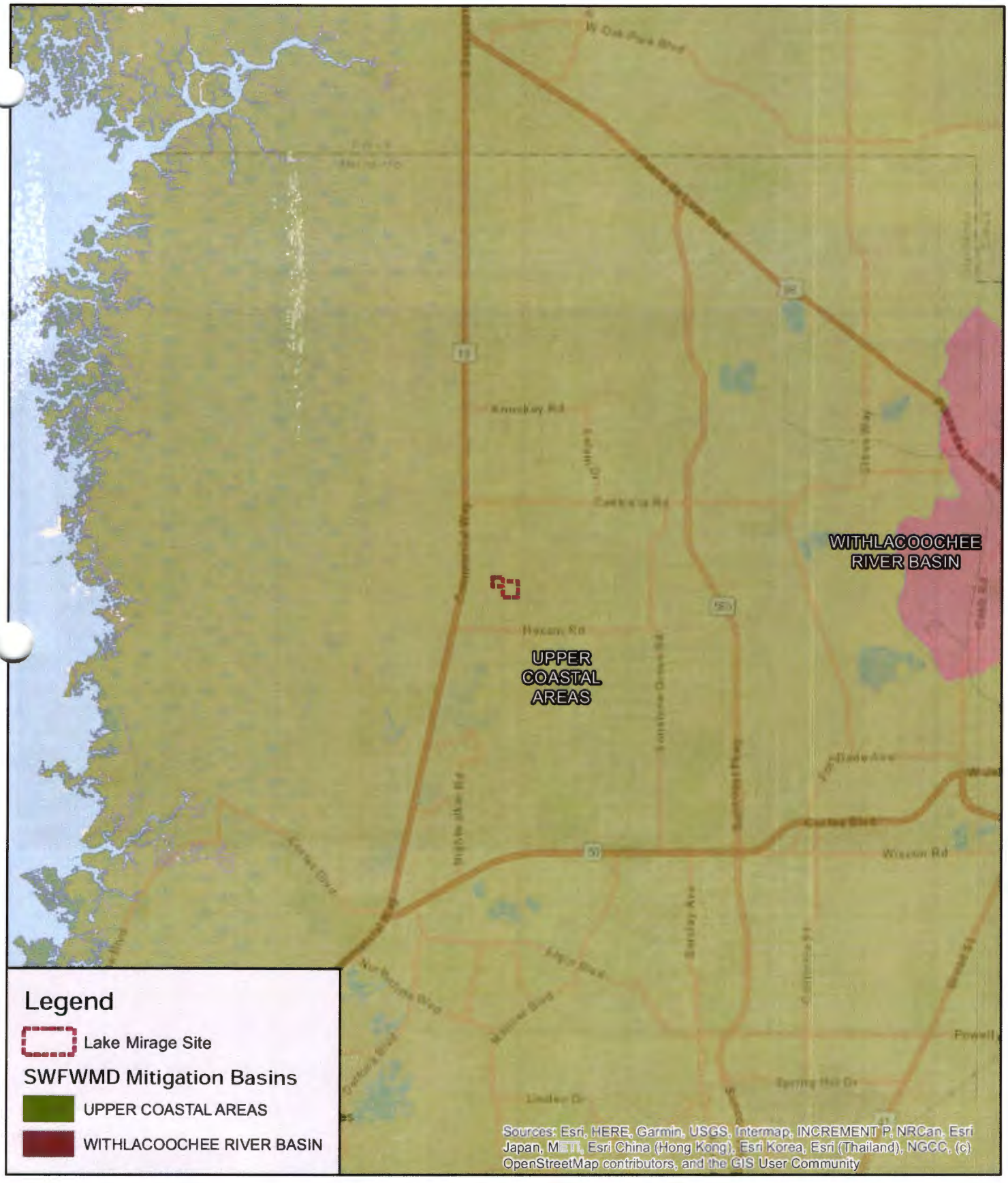
Produced By: JDH
Date: 7/25/2023



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Lake Mirage Site
Hernando County, Florida
Figure 9
SWFWMD Mitigation Basins

N
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2
Miles

Project #:1241-17
Produced By: JDH
Date: 7/25/2023

Florida Fish and Wildlife Conservation Commission

EagleWatch Map

7/31/2023, 1:12:51 PM

1:18,056

0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

Table 1:	Potentially Occuring Listed Wildlife and Plant Species in Hernando County, Florida		
Scientific Name	**Common Name**	**Federal Status**	**State Status**
REPTILES			
Alligator mississippiensis	American alligator	SAT	FT(S/A)
Caretta caretta	Loggerhead Sea Turtle	LT	FT
Chelonia mydas	Green Sea Turtle	LT	FT
Dermochelys coriacea	Leatherback Sea Turtle	LE	FE
Drymarchon corais couperi	Eastern Indigo Snake	LT	FT
Gopherus polyphemus	Gopher Tortoise	C	ST
Lampropeltis extenuata	Short-tailed Snake	N	ST
Pituophis melanoleucus	Pine Snake	N	ST
BIRDS			
Ammodramus maritimus peninsulae	Scott's Seaside Sparrow	N	ST
Antigone canadensis pratensis	Florida Sandhill Crane	N	ST
Aphelocoma coerulescens	Florida Scrub-Jay	LT	FT
Athene cunicularia floridana	Florida Burrowing Owl	N	ST
Egretta caerulea	Little Blue Heron	N	ST
Egretta tricolor	Tricolored Heron	N	ST
Falco sparverius paulus	Southeastern American Kestrel	N	ST
Mycteria americana	Wood Stork	LT	FT
Picoides borealis	Red-Cockaded Woodpecker	LE	FE
Platalea ajaja	Roseate Spoonbill	N	ST
MAMMALS			
Trichechus manatus	West Indian Manatee	LT	FT
VASCULAR PLANTS			
Adiantum tenerum	Brittle Maidenhair Fern	N	E
Agrimonia incisa	Incised Groove-bur	N	T
Asplenium erosum	Auricled Spleenwort	N	E
Asplenium pumilum	Dwarf Spleenwort	N	E
Blechnum occidentale	Sinkhole Fern	N	E
Campanula robinsiae	Brooksville Bellflower	FE	E
Centrosema arenicola	Sand Butterfly Pea	N	E
Coelorachis tuberculosa	Piedmont Jointgrass	N	T
Justicia cooleyi	Cooley's Water-willow	FE	E
Lechea cernua	Nodding Pinweed	N	T
Lechea divaricata	Pine Pinweed	N	E
Malaxis unifolia	Green Adder's-mouth Orchid	N	E
Matelea floridana	Florida Spiny-pod	N	E
Monotropsis reynoldsiae	Pygmy Pipes	N	E
Nolina brittoniana	Britton's Beargrass	FE	E
Pecluma dispersa	Widespread Polypody	N	E
Pecluma plumula	Plume Polypody	N	E
Pecluma ptilota var. bourgeauana	Comb Polypody	N	E
Peperomia humilis	Terrestrial Peperomia	N	E
Pteroglossaspis ecristata	Giant Orchid	N	T
Pycnanthemum floridanum	Florida Mountain-mint	N	T
Schizachyrium niveum	Scrub Bluestem	N	E
Stylisma abdita	Scrub Stylisma	N	E
Triphora craigheadii	Craighead's Nodding-caps	N	E

FEDERAL LEGAL STATUS

LE-Endangered: species in danger of extinction throughout all or a significant portion of its range.
T-Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.
SAT-Endangered due to similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.
C-Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.
XN-Non-essential experimental population
SC-Not currently listed, but considered a "species of concern" to USFWS.
N-Not currently listed, nor currently being considered for listing as Endangered or Threatened.

STATE LEGAL STATUS - ANIMALS

FE- Listed as Endangered Species at the Federal level by the U. S. Fish and Wildlife Service
FT- Listed as Threatened Species at the Federal level by the U. S. Fish and Wildlife Service
FXN- Federal listed as an experimental population in Florida
FT(S/A)- Federal Threatened due to similarity of appearance
ST- State population listed as Threatened by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.
SSC-Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species. (SSC* for Pandion haliaetus (Osprey) indicates that this status applies in Monroe county only.)
N-Not currently listed, nor currently being considered for listing.

***** *State protected by F.A.C. 68A-16.002 and federally protected by both the Migratory Bird Treaty Act (1918) and the Bald and Golden Eagle Protection Act (1940)*

STATE LEGAL STATUS - PLANTS

E-Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act.
T-Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered.
N-Not currently listed, nor currently being considered for listing.