Verdana

Comprehensive Plan Amendment

CPA 2016-00009

June 26, 2017

Project Team

- **Neale Montgomery, Esq.** – Pavese Law Firm
- **Dan DeLisi, AICP** – DeLisi, Inc.
- **Drew Fitzgerald, P.E.** – DeLisi Fitzgerald, Inc.
- **David J. Brown, P.G.** – Progressive Water Resources, LLC
- **Ken Passarella & Tim Durham** – Passarella & Associates, Inc.
- **Mark J. Gillis, AICP** – David Plummer & Associates, Inc.
- **Tina Matte** – Gravina, Smith, Matte & Arnold Marketing and Public Relations

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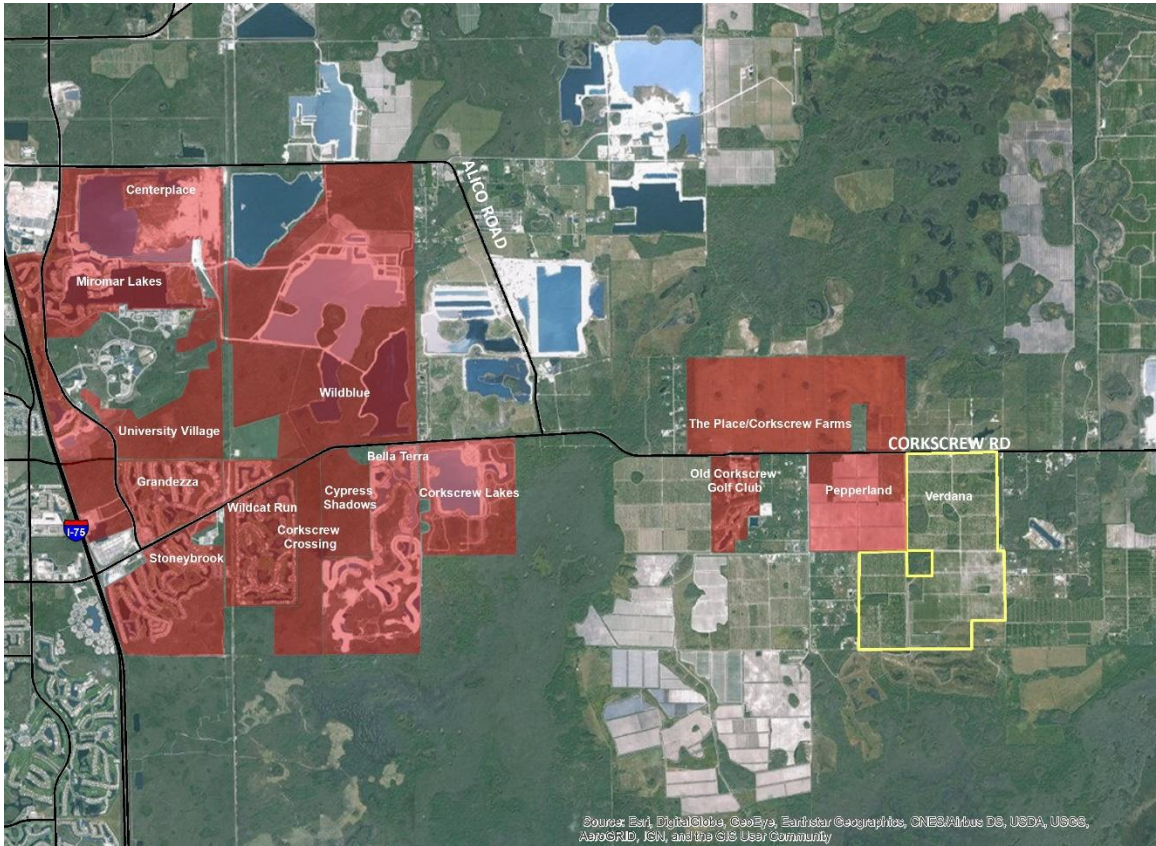
Regional Context/ Project Location

- East of I-75
- On the south side of Corkscrew Road
- Priority Restoration: Tier 1 category of properties in the DRGR



Density Reduction Ground Water Resources (DR/GR)

- DR/GR adopted due to a settlement agreement with DCA
- Density Reduction was included to address rules in 9J-5, FAC, which were eliminated in 2011
- The base and expected population has changed since 1989
- Groundwater Resource was included because the County didn't have a water supply plan at that time
- Water Supply rules have changed; state statute requires water management districts to adopt water supply plans and state statute requires local governments to incorporate alternative water supply into the comprehensive plans within 18 months after the water management district adopts a water supply plan. (Section 163.3177, F.S.)
- The creation of the environmental overlay and the implementation is the first step in 20+ years that will result in meaningful restoration.
- The restoration will be at the expense of the landowner and not the taxpayer

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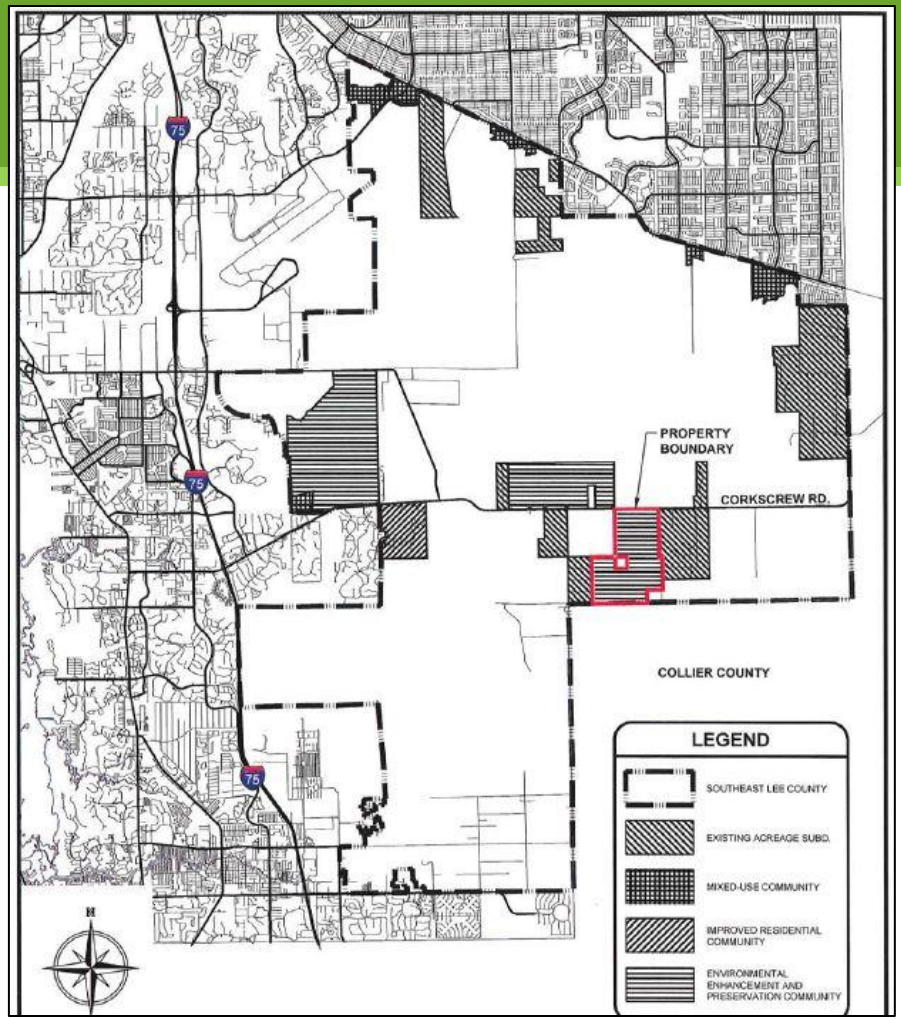
Density Reduction Ground Water Resources (DR/GR)

The DR/GR was applied primarily to lands that had been designated as “Open Lands” which included most of southeast Lee County

- Policy 1.4.5. (DR/GR) applies to upland areas that provide substantial recharge to aquifers most suitable for future wellfield development.
- Policy 1.4.5. without more does not accomplish restoration.
- The changes to state water policy, and existing consumptive use permits for agricultural properties, would not target the property in question for water use, conservation, or restoration.
- Policy 33.3.4. provides for the award winning “Environmental Enhancement and Preservation Communities.”
- These communities do the following:
  - Provide Significant regional hydrological and wildlife connections
  - Improve, preserve and restore regional surface and groundwater resources
  - Provide 60% open space
  - Provide ecological and hydrological restoration



Comprehensive Plan Amendment Request

- Text Amendment: Extend overlay one mile to the south in order to create one of the most significant regional connections between preserve areas to the south (Panther Island), and preserve areas north of Corkscrew road
- Text Amendment: Allow phasing
- Map Amendments: Apply the Environmental Enhancement and Preservation Community Overlay
- Map Amendment: Amend the Water and Sewer Service Area Map

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Existing Condition

- Active citrus operation since the early 1960's
- 78% site planted in citrus (1,134 of 1,460 acres)

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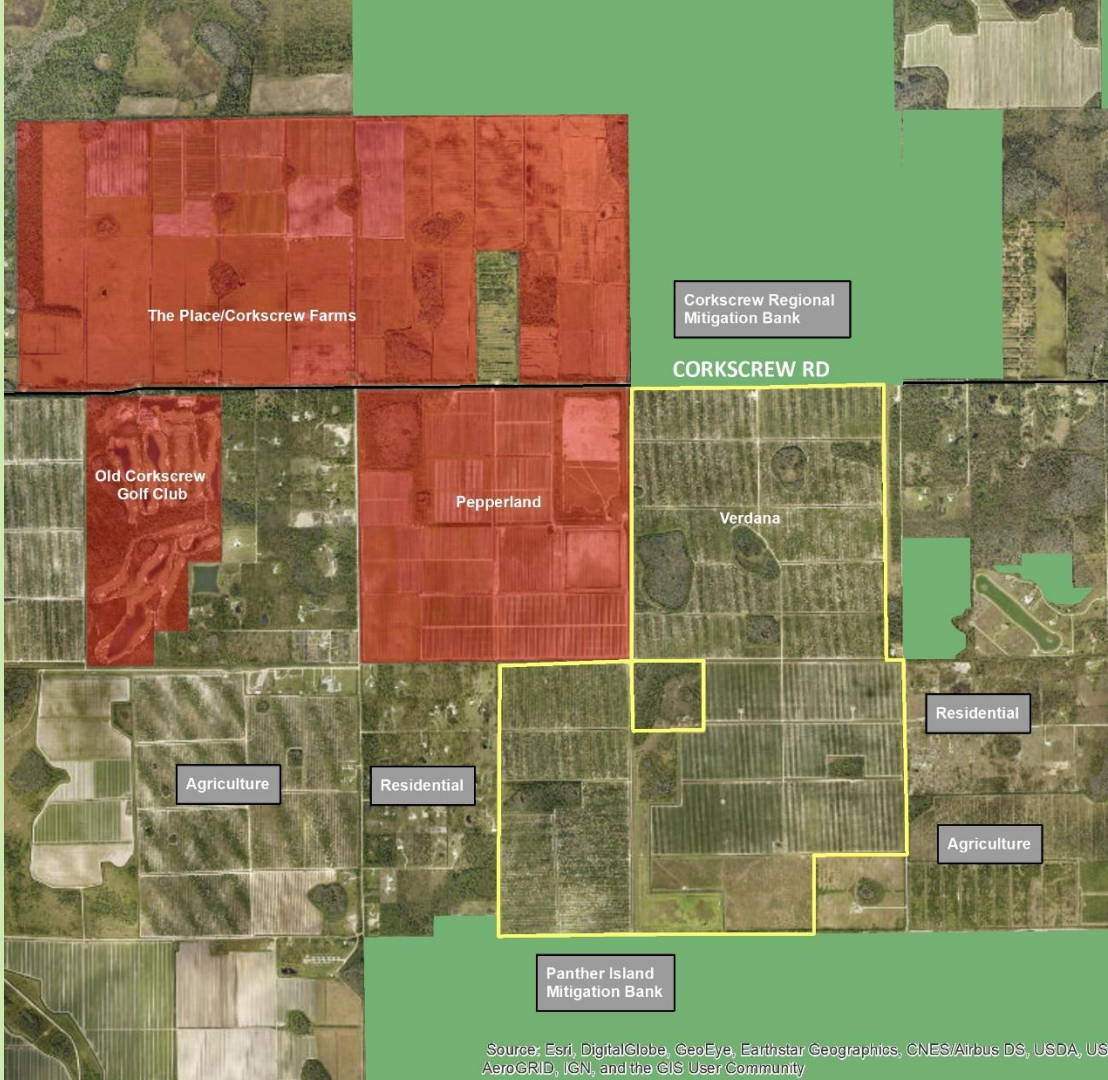
Surrounding Use



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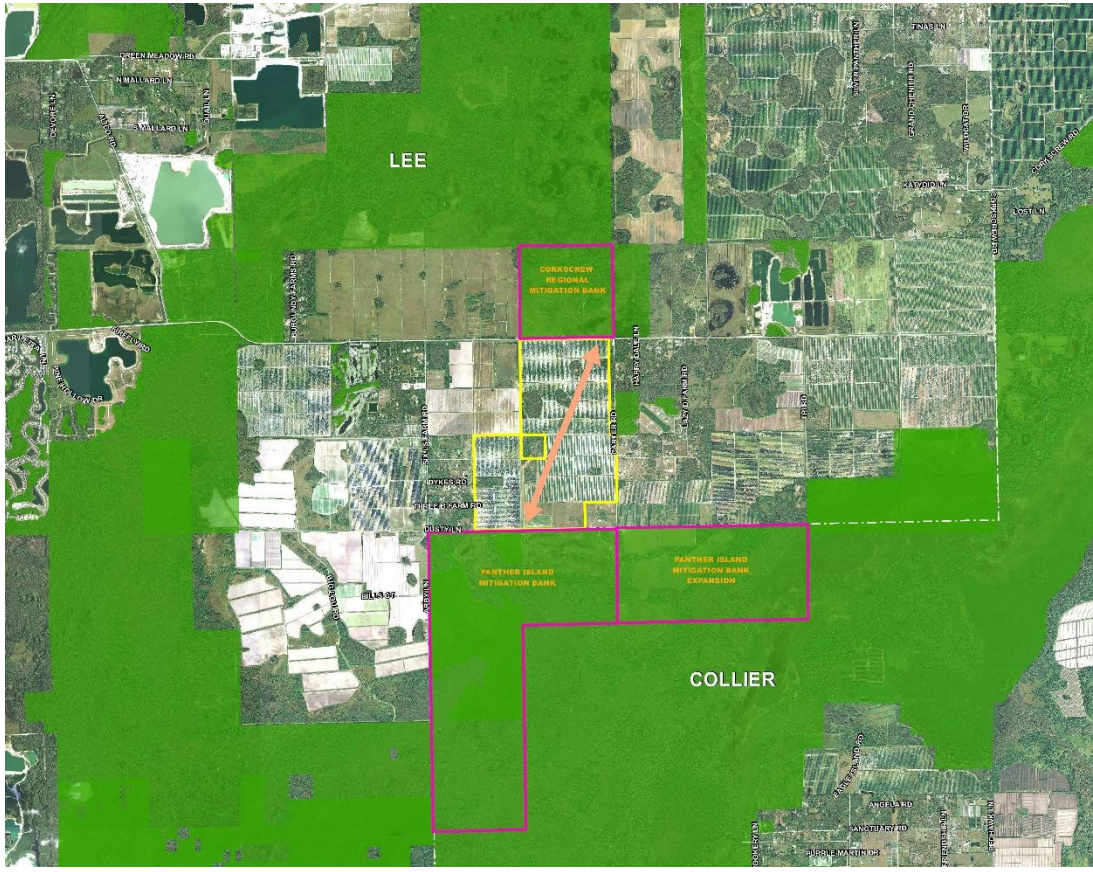
Planning Overview

Dan DeLisi, AICP
DeLisi Inc.

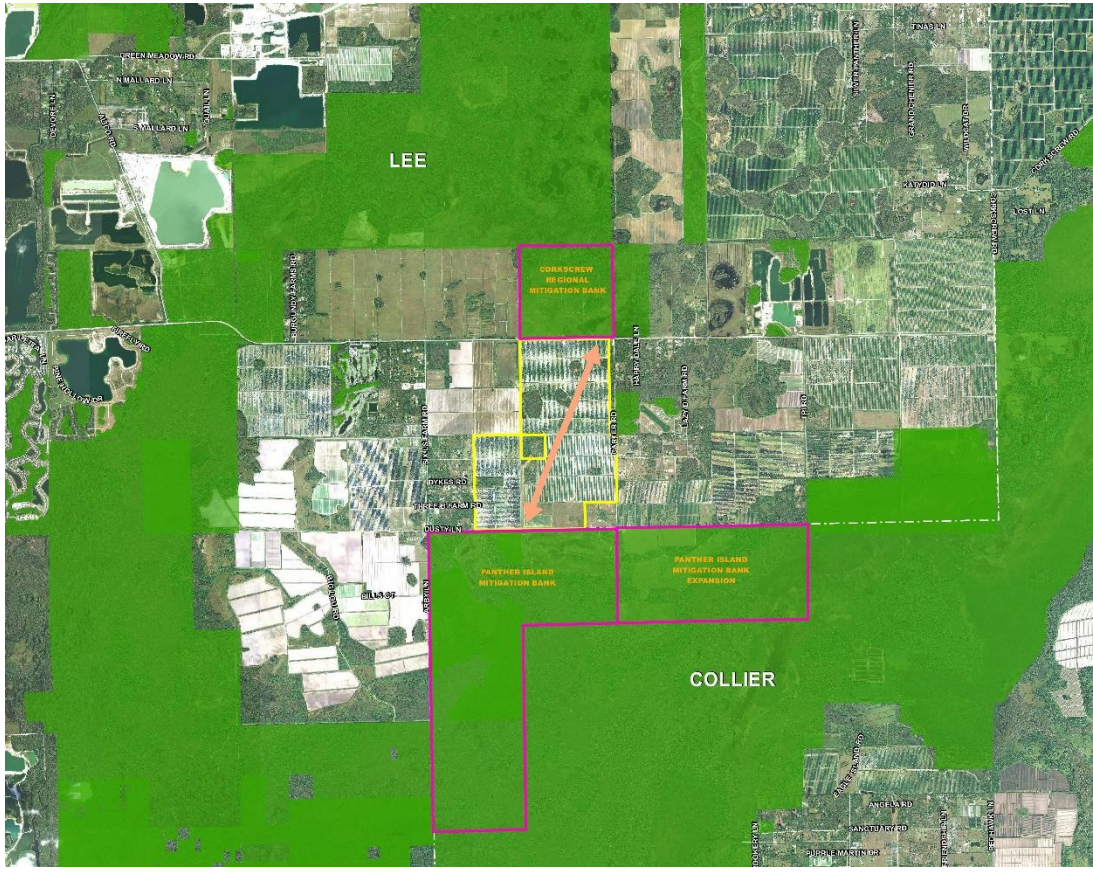
Creation of Restoration/Development Plan

- Regional context
  - Seeking to incorporate strategically located land into the Environmental Enhancement and Preservation Overlay
  - Transforming active agricultural lands making improvements to habitat and hydrology
- Designing community to address the goals of the DR/GR
  - Key environmental link between natural lands to the north (Corkscrew Regional Mitigation Bank) and the south (Panther Island Mitigation Bank – part of the Corkscrew Regional Ecosystem Watershed)
  - Significantly <u>reducing</u> water consumption to allow for an <u>increase</u> in future water supply.



Lee Plan – Priority Restoration Map

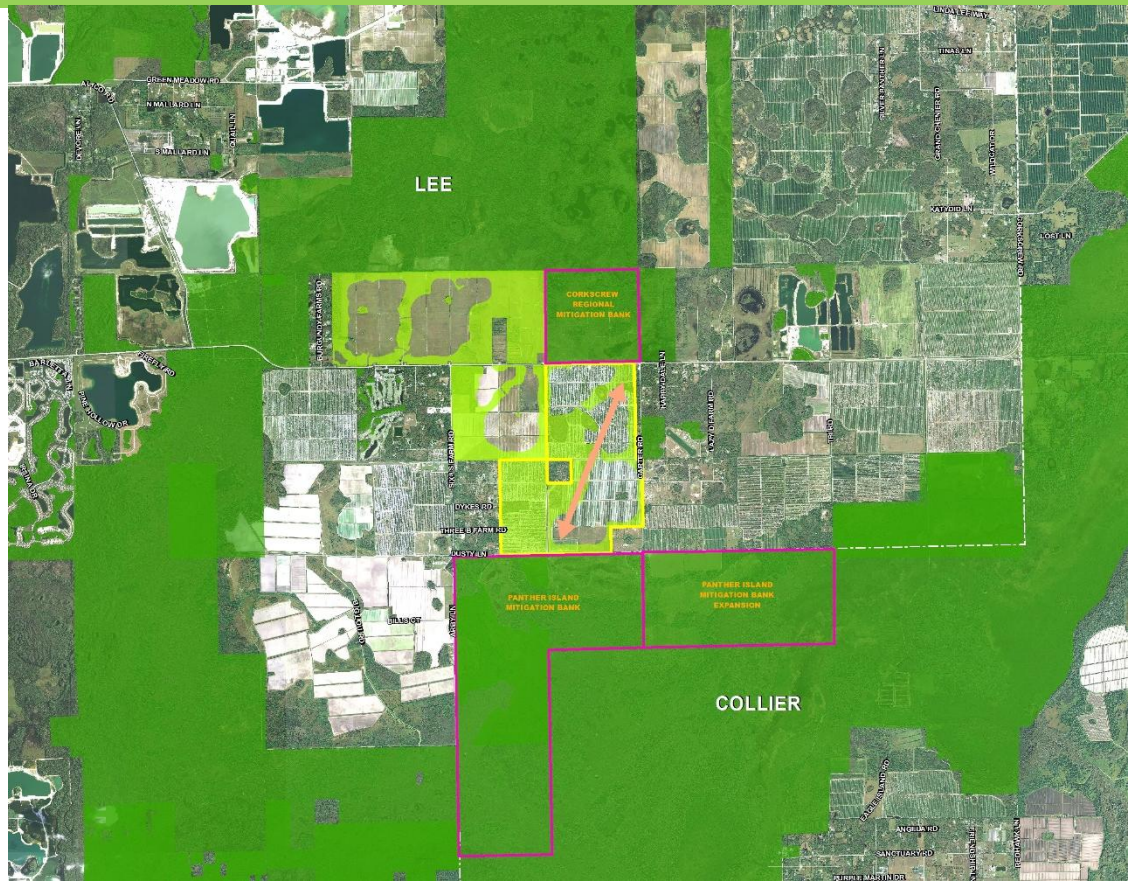
- Tier 1 Property



Original Site Plan

Revisions Based on Stakeholder Input

- Greater setback on the west
- Cross Boarder Coordination
  - Secondary Flowway from the west on Pepperland
- The County is taking a regional view of each application



Original Site Plan

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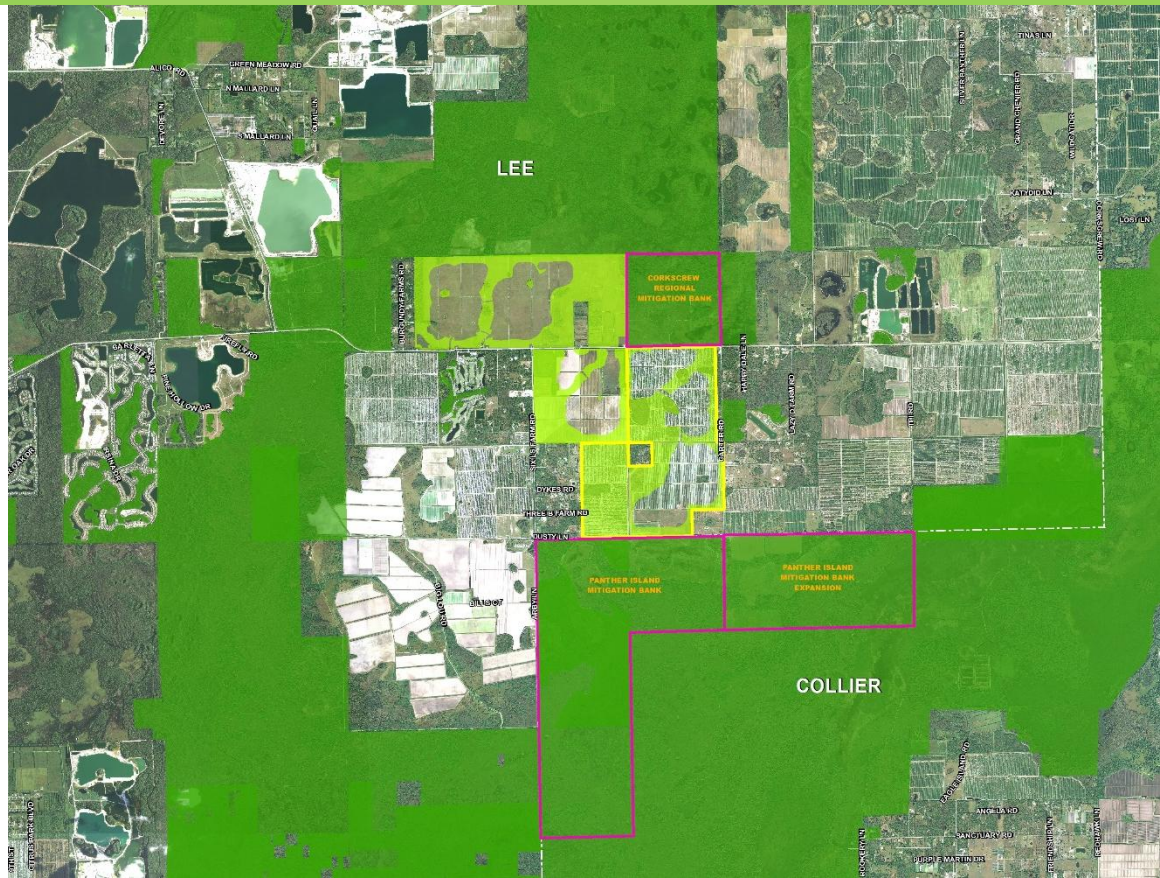
Environmental Aspects & Benefits

Tim Durham
Passarella & Associates, Inc.

Environmental Aspects & Benefits

- Landscape Context
- Regional Issues
  - Hydrology/Wetlands
  - Habitat Functions
  - Wildlife Movement/Corridors
- Restoration Opportunities

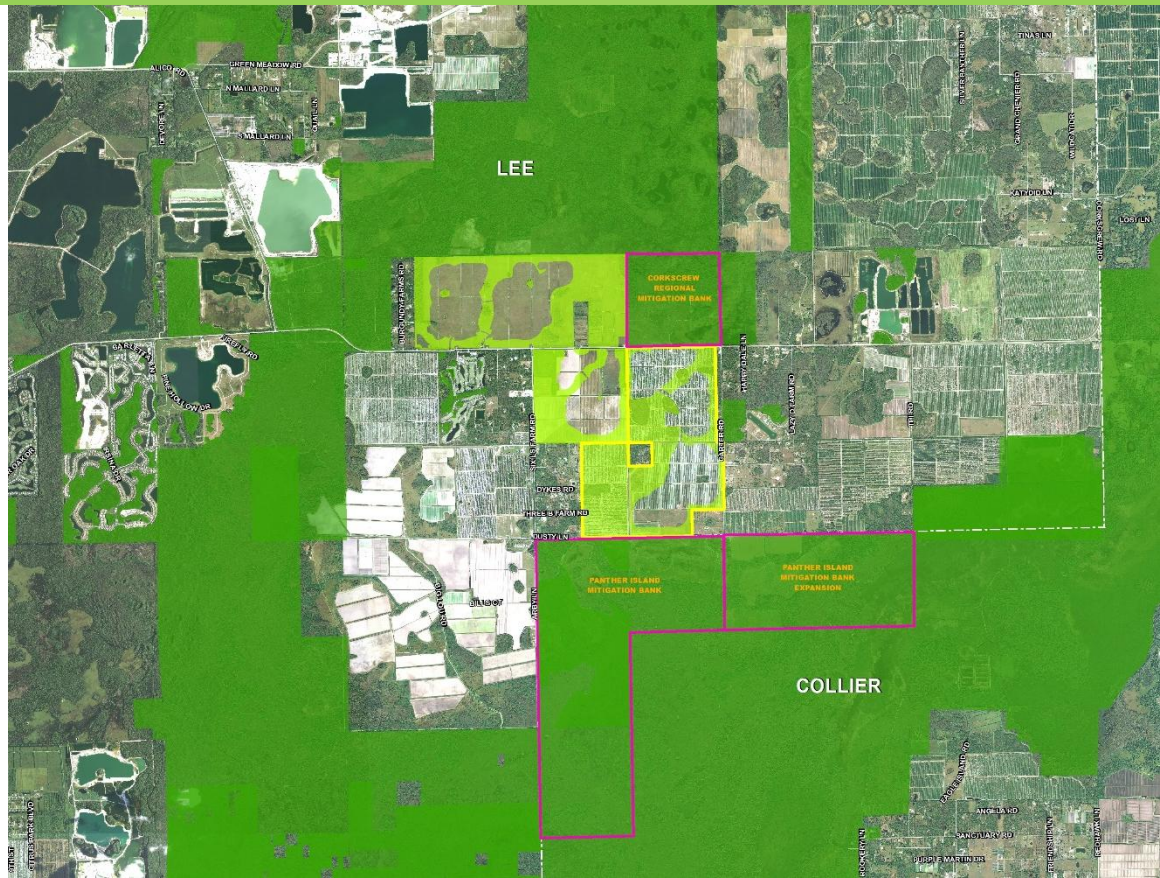


Environmental Aspects & Benefits

- Existing Site Conditions
  - Ongoing Citrus Production
  - Remnant Wetlands
  - Extensive Drainage System
  - Irrigation Wells

Environmental Aspects & Benefits

- Local Context
  - Corkscrew Regional Mitigation Bank to the north
  - Panther Island Mitigation Bank to the south
  - Pepperland project to the west
  - Carter Road to the east

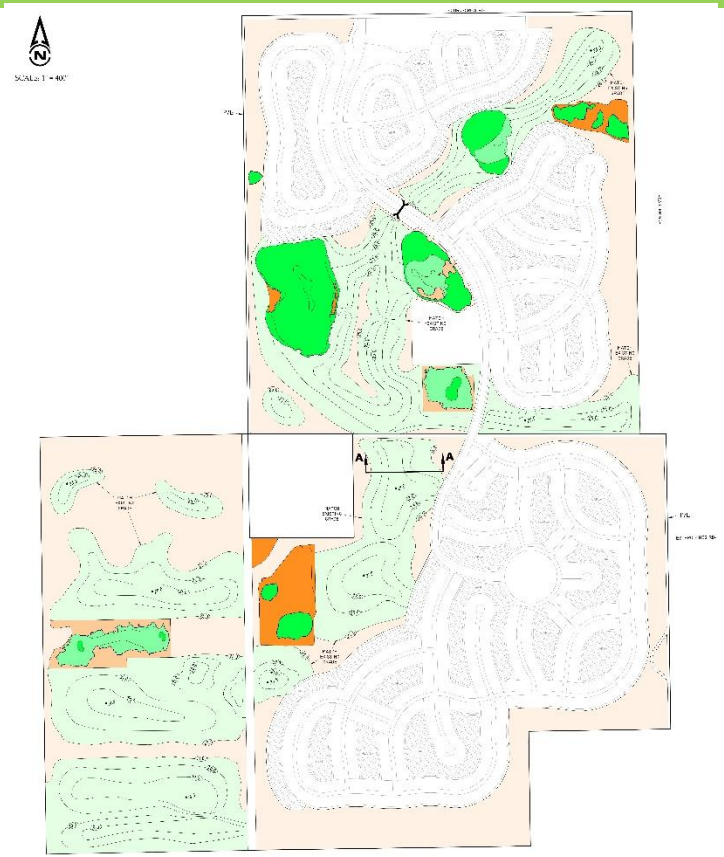


Environmental Aspects & Benefits

- Verdana Restoration Opportunities
  - Wetlands
  - Hydrology
  - Habitat Functionality
  - Habitat Connectivity/Wildlife Corridor

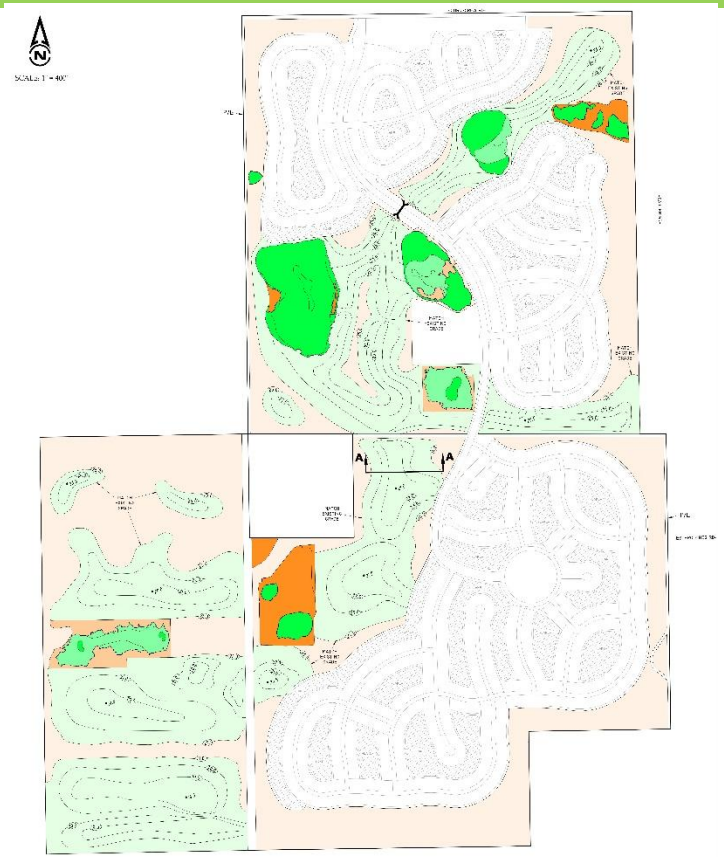
Environmental Aspects & Benefits

- Verdana Restoration Benefits - Wetlands
  - Restore hydrologic and physical interconnections
  - Restore and stabilize hydroperiods for remnant wetlands
  - Eradication of exotic vegetation and supplemental plantings in remnant wetlands
  - Restore citrus areas to functioning wetlands complimentary to wading bird foraging needs



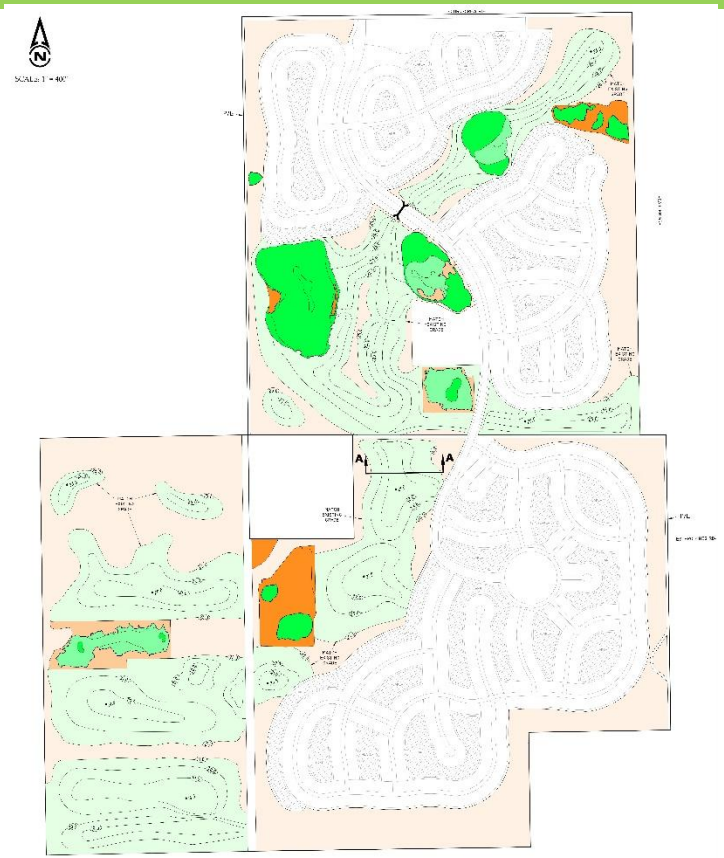
Environmental Aspects & Benefits

- Verdana Restoration Benefits - Hydrology
  - Reduction of Groundwater Impacts
    - Removal of irrigation wells
    - Drainage system elimination
  - Restoration of "controlled" downhill drainage patterns
  - Benefits to Corkscrew Regional Mitigation Bank
    - Stabilized groundwater elevations
  - Benefits to Panther Island Mitigation Bank
    - Water Quality Improvements



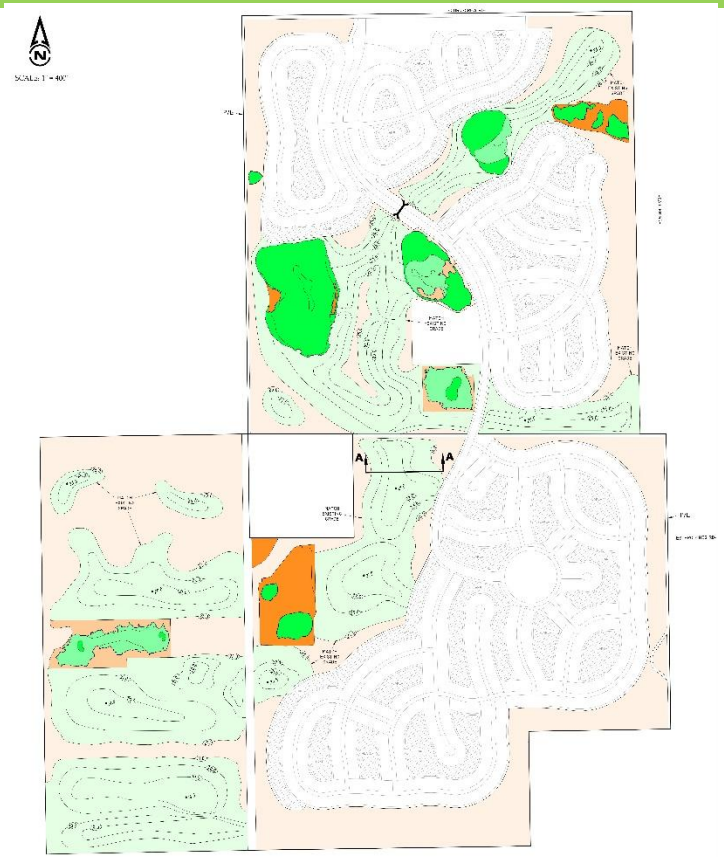
Environmental Aspects & Benefits

- Verdana Restoration Benefits – Habitat Functionality
  - 703 acres of agricultural land restored to native wetland and upland habitat (805 acres of total indigenous presverve)
  - Wetland restoration to improve foraging opportunities for wading birds
  - Uplands restored as shrub and forested communities to benefit wildlife species



Environmental Aspects & Benefits

- Verdana Restoration Benefits – Habitat Connectivity/ Wildlife Corridor
  - Restoration plan interconnects habitats across the whole site and directly to Panther Island Mitigation Bank
  - Restoration plan provides the opportunity to connect habitats north of Corkscrew Road to Panther Island Mitigation Bank



Environmental Aspects & Benefits

- ✓ Project size presents a unique opportunity
- ✓ Location is between existing conservation lands
- ✓ Ongoing coordination with adjacent projects to the north and south

- Verdana restoration location and design concepts are the foundation for the overall project

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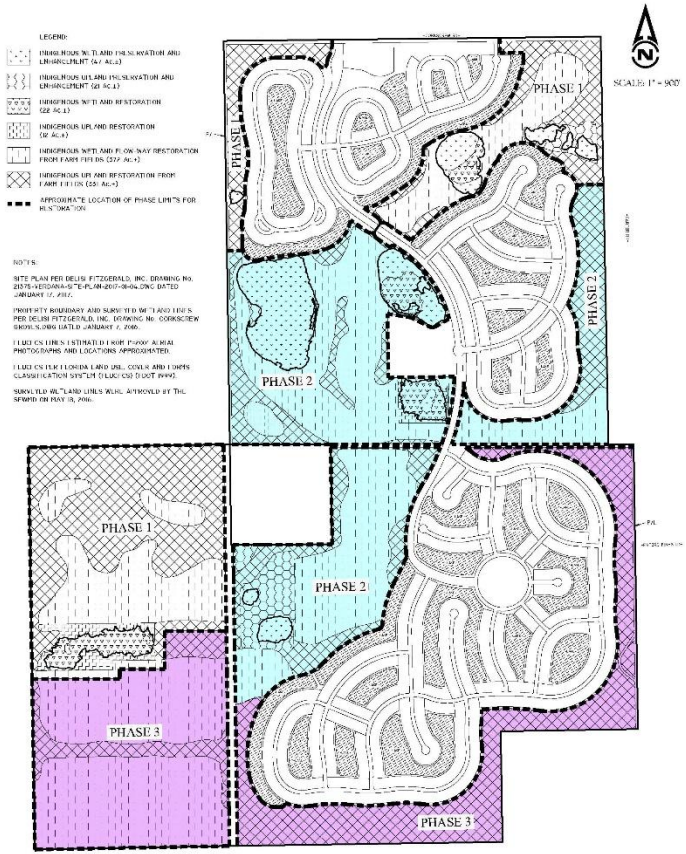
Environmental Aspects & Benefits

- **In Conclusion**
  - The restoration project provides "a significant regional hydrological and wildlife connection" that has the potential to improve, preserve, and restore regional surface and groundwater resources and indigenous wildlife habitats as required by Policy 33.3.4.
  - The project will provide "critical wildlife connections to adjacent conservation areas as required by 33.3..4.2.a.



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Characterization of Ground and Surface Water Resources

David J. Brown, P.G.
Progressive Water Resources, LLC

Property Setting

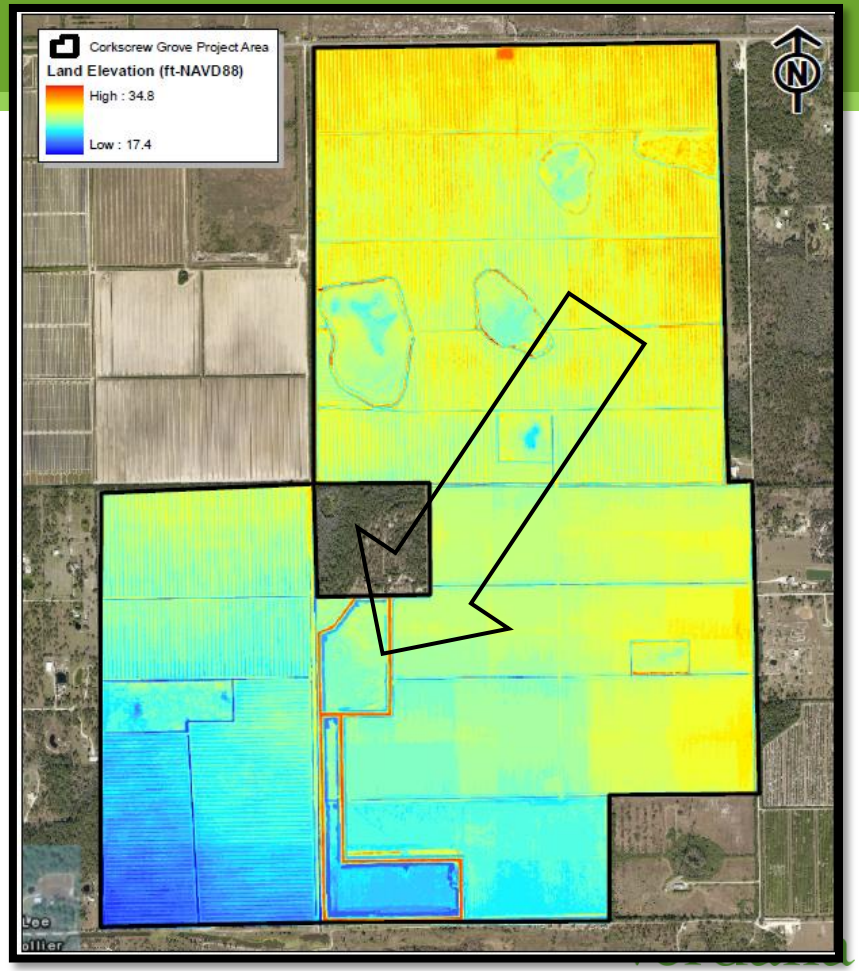
Introduction

- As a result of its long farming history (citrus production) and altered surface water hydrology, the 1,460-acre Verdana property offers several important opportunities for significant water resource restoration within the DR/GR.
- The property is bounded by Corkscrew Road to the north, Carter Road to the east, Panther Island Mitigation Bank to the south, and adjacent farming operation (Pepperland Ranch) and several single family ranchettes to the west.
- The existing 1,134-acre citrus grove (78% of the property) is ditched and bermed along much of its perimeter effectively isolating surface water resource interaction between the site and adjoining properties.

Property Setting

Existing Conditions

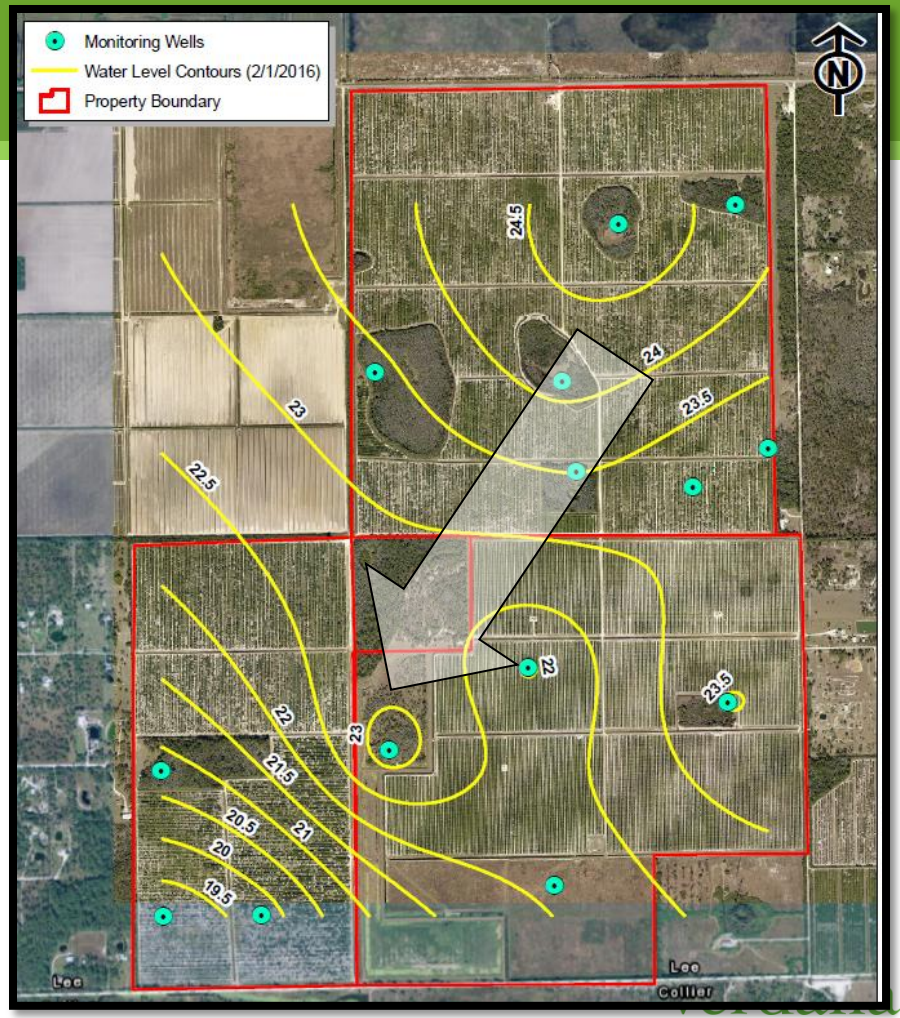
- LIDAR imagery clearly identifies the highly altered aspect of the property as evidenced by the "grid-work" pattern of intersecting agricultural drainage ditches constructed and maintained for decades.
- These features, while advantageous for citrus, greatly reduce recharge potential to the Water Table Aquifer since they are designed to quickly direct runoff away from the sandy, interior section of the property and drain surface water away from onsite wetlands.
- A majority of the property is "grandfathered" in regards to stormwater management.
- Land surface topographic gradient is from the northeast (red/yellow) to the southwest (dark blue).



Property Setting

Existing Conditions

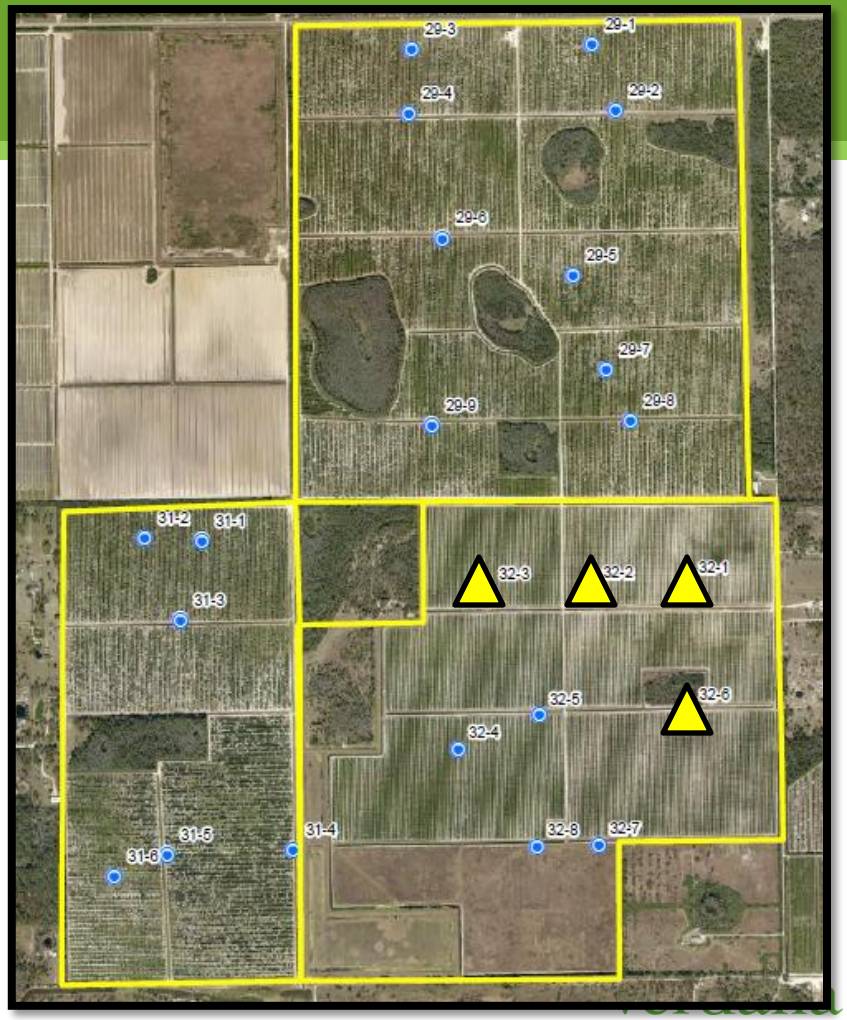
- As part of the hydrologic due diligence of the site, 14 shallow piezometers were installed to characterize the interaction between surface water and groundwater. Using these water level data, PWR created a potentiometric surface map.
- The potentiometric surface map clearly indicates that shallow groundwater flow in the Surficial Aquifer System (Water Table Aquifer) is to the southwest in the same direction as the land surface gradient.
- Shallow groundwater and surface water flow is therefore away from Corkscrew Road and towards the south to southwest.



Property Setting

Existing Conditions

- There are twenty-three (23) **irrigation wells** onsite used for irrigation and freeze protection.
- A majority (83%) withdraw from the shallow unconfined Surficial Aquifer System (Water Table Aquifer).
- The remaining wells withdraw from the deeper, confined Intermediate Aquifer System (sandstone Aquifer).
- The use of the wells is authorized by the SFWMD Water Use Permit No. 36-00327-W which expires in December 2030, at which time it could be renewed for another 20-years.
- A majority of the irrigation pump stations employ liquid fertilizer (fertigation) injection systems whereby fertilizer is supplied along with irrigation quantities.

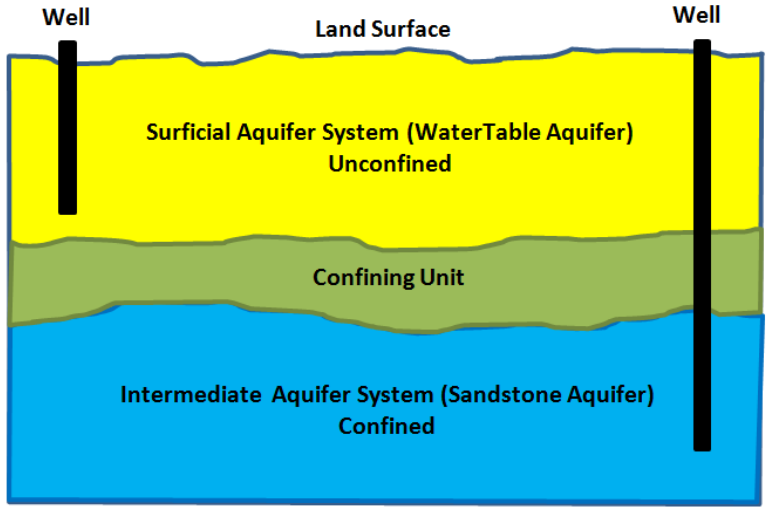


Property Setting

Existing Conditions

- To better understand the water resource aspects of the site, a basic understanding of its hydrogeologic characterization is necessary.
- Hydrogeologic data indicates there is approximately 10 to 20 feet of unconsolidated surficial deposits (sands and clays) overlying the unconfined limestones of the Tamiami Formation.
- Based on Lee County Utilities' public supply well completion reports the Tamiami extends to depths of approximately 150 to 160 feet below land surface. These deposits comprise the Surficial Aquifer System (aka Water Table Aquifer).

GENERALIZED HYDROGEOLOGIC CROSS-SECTION



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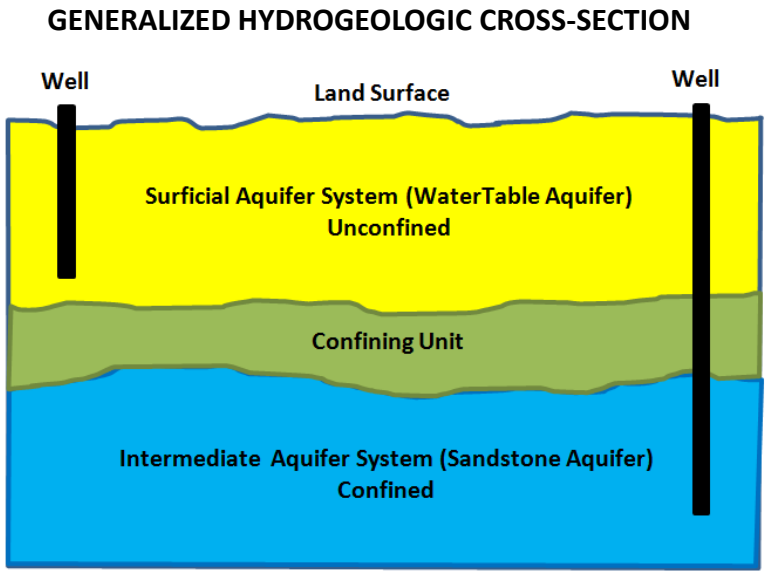
Property Setting

Existing Conditions

- Below the Tamiami Formation, there is a confining unit (clays) associated with the top of the Intermediate Aquifer System (Hawthorn Group).
- Below the confining unit there is a water producing zone known as the "Sandstone Aquifer".
- <u>The proposed development plan includes the elimination of all Water Table Aquifer wells and withdrawals.</u>



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Property Setting

Existing Citrus Grove Permit No. 36-00327-W

			Percent
Annual Allocation			
Surficial Aquifer System (Water Table Aquifer)	**887.67**	**million gallons per year**	**77%**
Sandstone Aquifer	262.17	million gallons per year	23%
Total	**1,149.84**	**million gallons per year**	
Maximum Month Allocation (Dry Season)			
Surficial Aquifer System (Water Table Aquifer)	**145.28**	**million gallons per year**	**77%**
Sandstone Aquifer	42.91	million gallons per year	23%
Total	**188.19**	**million gallons per year**	
Freeze Protection			
Surficial Aquifer System (Water Table Aquifer)	**16.21**	**million gallons per day**	**77%**
Sandstone Aquifer	4.84	million gallons per day	23%
Total	**21.05**	**million gallons per day**	

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Proposed Residential Irrigation Demands

At Verdana Build-Out

Annual Allocation

			Percent Reduction
Surficial Aquifer System (Water Table Aquifer)	**0**	**million gallons per year**	
Sandstone Aquifer	264.83	million gallons per year	-77%
Total	**264.83**	**million gallons per year**	

Maximum Month Allocation (Dry Season)

Surficial Aquifer System (Water Table Aquifer)	**0**	**million gallons per year**	
Sandstone Aquifer	33.3	million gallons per year	-72%
Total	**33.3**	**million gallons per year**	

Freeze Protection

None	**0**	**million gallons per day**	-100%

Irrigated area (1,134 acres vs. 202.9 acres) -82%

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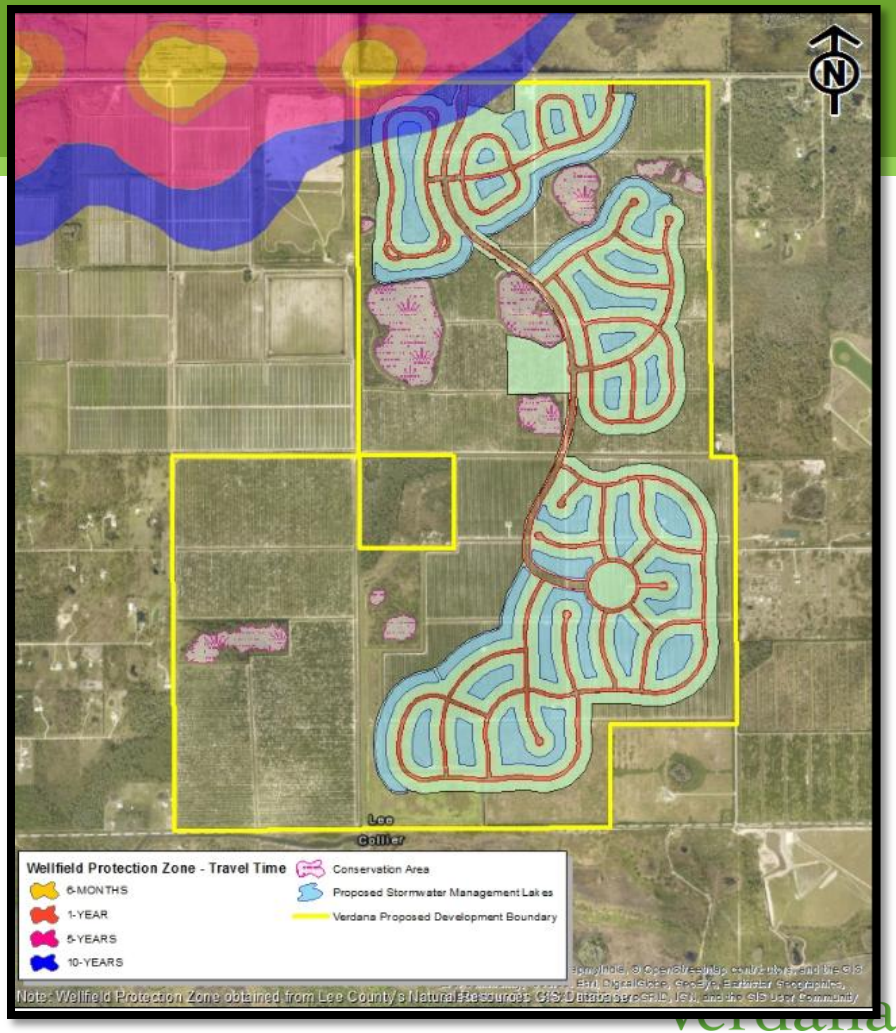
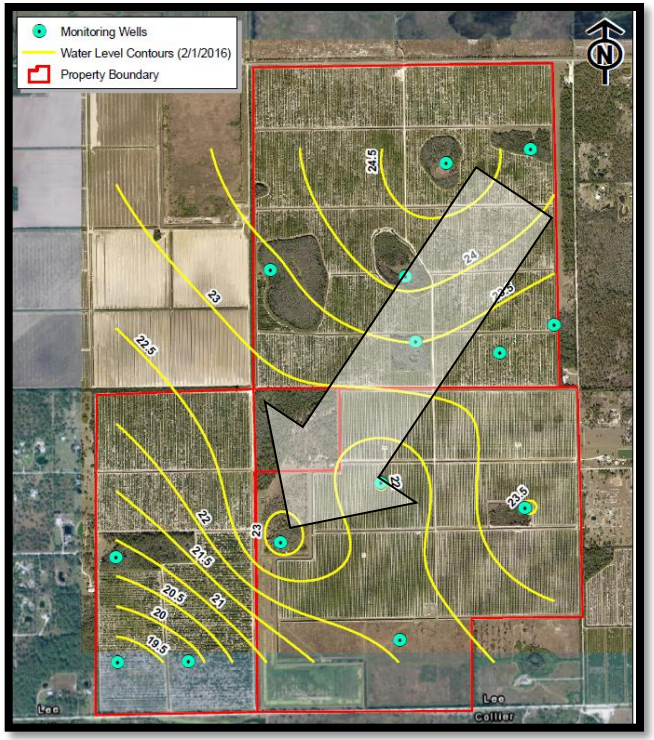
Water Resource Improvements

- A vast majority of the proposed development occurs outside Lee County's Wellfield Protection Zones as compared to other nearby properties.
- Future lawn and landscape irrigation will occur from the combined use of recycled stormwater and groundwater from the deeper confined Sandstone Aquifer.
- The use of two sources (recycled stormwater and groundwater) reduce dependence on a single source and further enhance conservation of water resources in the DR/GR
- A master-controlled irrigation system is proposed that regulates the initiation and overall duration of irrigation events to manage irrigation water use and further enhance water conservation (no individual homeowner irrigation timers).



Water Resource Improvements- Phasing



- Project Phasing is key to successful water resource restoration and has been designed to roughly Parallel the Water Table Aquifer groundwater flow gradient.
- Phases also recognize the existing land surface gradient and sandy soils (good for citrus).
- Land Use Transition must be performed carefully to prohibit unintentional adverse impacts to downstream receiving environmental systems.
- Strategic Phasing (N-S) provides longer flow paths and greater opportunity for more effective protective measures since the existing citrus land use is decades old and is highly stabilized.

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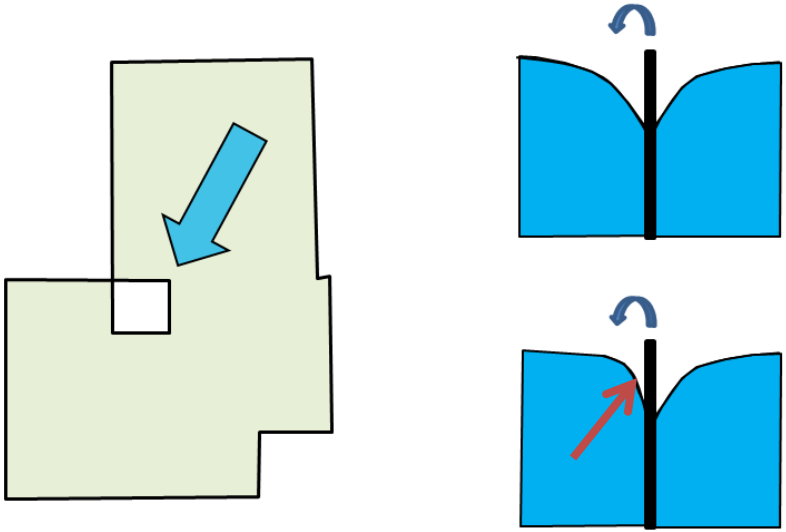
Water Resource Improvements- Phasing



- The groundwater flow gradient in the Water Table Aquifer (WTA) helps to distort the "Cone of Depression" or drawdown from the existing citrus WTA wells.
- The reduced drawdown from Strategic Phasing allows the existing land use to temporarily coexist with previous Phases as Land Use Transition occurs.
- Therefore water resource restoration can successfully be "Phased-In" as the existing land use is "Phased-Out".

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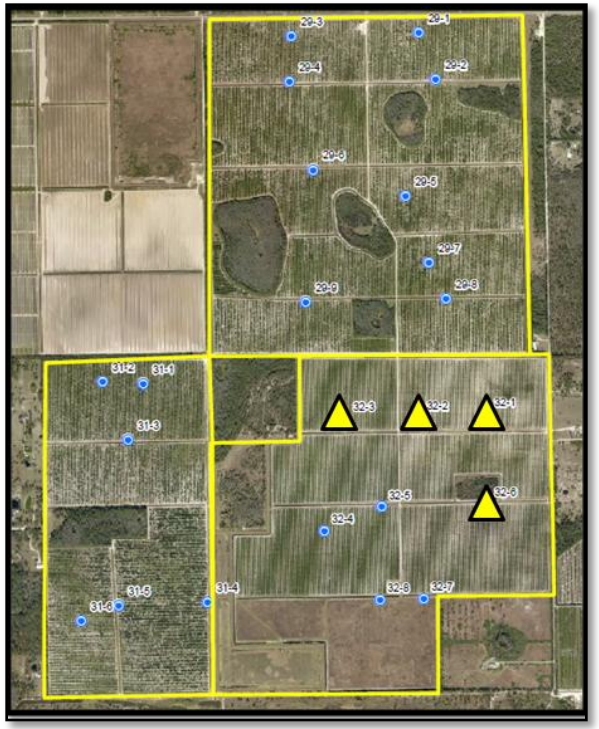
Water Resource Improvements- Phasing



- The Project Phasing is therefore key to the restoration of the Water Table Aquifer.
- Phase 1 eliminates existing WTA wells in the northwest and west-central sections of the property will reduce demands (approx. 42%) thereby reducing and shifting "drawdowns" away from Phase 1, Lee County's wells, and the Corkscrew Regional Mitigation Bank.
- Phase 2 eliminates approx. an additional 21% to further reduce WTA demands/drawdowns to approx. 63% (remaining wells predominately Confined Sandstone Aquifer wells)
- Phase 3 eliminates all remaining WTA irrigation wells.

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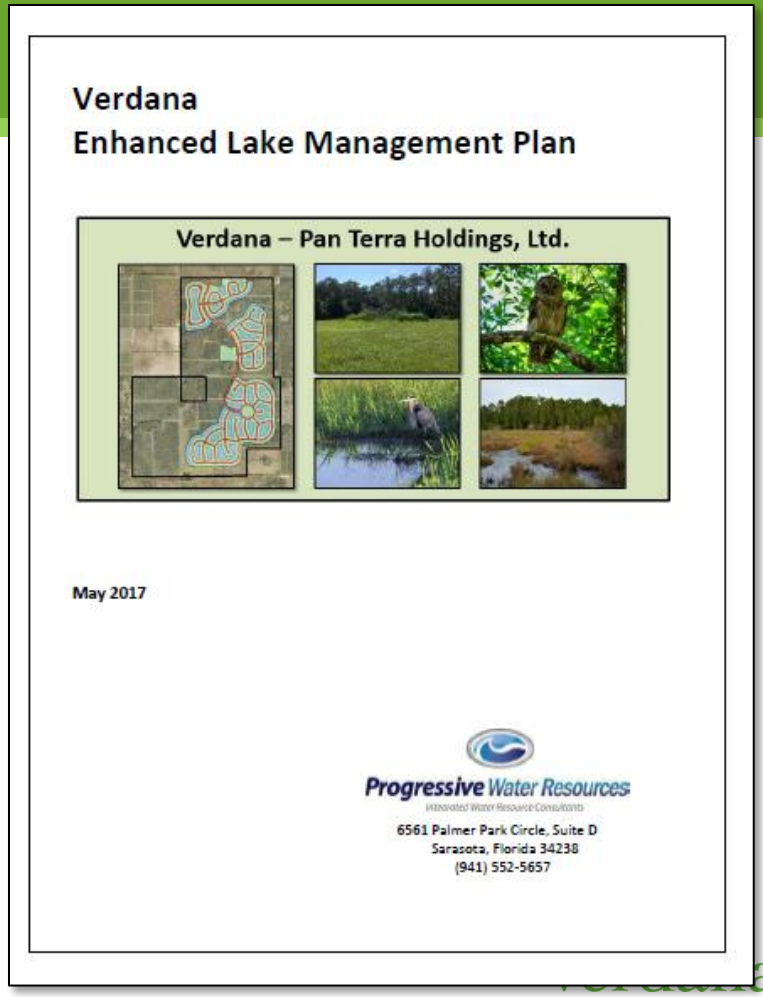
Water Resource Improvements

- A detailed Enhanced Lake Management Plan (ELMP) has been created to further protect the water resources of the DR/GR.
- The ELMP outlines Water Resources Best Management Practices (BMPs) regarding Stormwater Lake Maintenance and detailed restrictions regarding the use of pesticides, herbicides, other chemicals and fertilizer.
- The development will adhere to Lee County's Fertilizer Ordinance No. 08-08. The existing citrus grove is exempt.
- The ELMP also includes Corkscrew Wellfield Protection measures, Ground and Surface Water Monitoring Programs, and quarterly reporting of water level and water quality data to Lee County



Summary of DR/GR Water Resource Improvements

- 100% retirement of all permitted groundwater quantities sourced from the Water Table Aquifer.
- Elimination of existing internal drainage ditches and wetland rim-ditches, thereby improving environmental conditions and increasing potential for recharge to the Water Table Aquifer.
- Further enhanced opportunities for recharge to the Water Table Aquifer through the creation of numerous stormwater management system lakes (i.e. **stormwater retention**).
- Lee County Utilities (LCU) is to supply both potable and wastewater services.
- Improved surface water quality through the phased elimination of citrus farming areas and the creation of engineered stormwater management "treatment" facilities and the transverse flow-way.

Summary of DR/GR Water Resource Improvements

- Development will adhere to Lee County's Fertilizer Ordinance No. 08-08.
- A master-controlled irrigation system that regulates the initiation and overall duration of irrigation events to manage irrigation water use and greatly enhance water conservation (no individual homeowner irrigation timers).
- No private irrigation wells
- Substantial environmental restoration associated with the phased conversion of active citrus grove acreage into open space habitat, including the preservation and enhancement of onsite forested conservation areas.

Conclusion

It is my professional opinion that the data and analysis supports the proposed Comprehensive Plan changes and Map Amendments. The proposed changes meet the requirements of Florida Statutes Chapter 163, are consistent with the Lee Plan, Land Development Code, and the data and analysis demonstrate the proposed changes will not cause any significant harm to present and future public water resources.

David J. Brown, P.G.

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Regional Surface Water

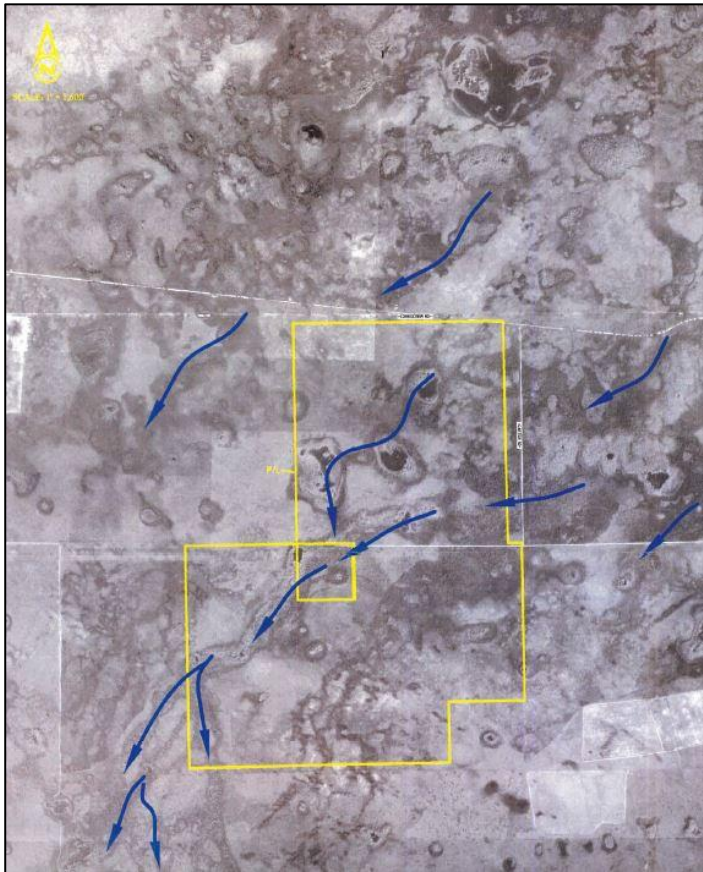
Drew Fitzgerald, P.E.
DeLisi Fitzgerald, Inc.

Regional Drainage Perspective

- Located in the Imperial River Watershed which extends from Lehigh Acres to the Estero Bay in Bonita Springs.
- Provides for linkage between Corkscrew and Panther Island Mitigation Banks
- Drains to Corkscrew Swamp Sanctuary, an FDEP listed impaired water for nutrients N and P

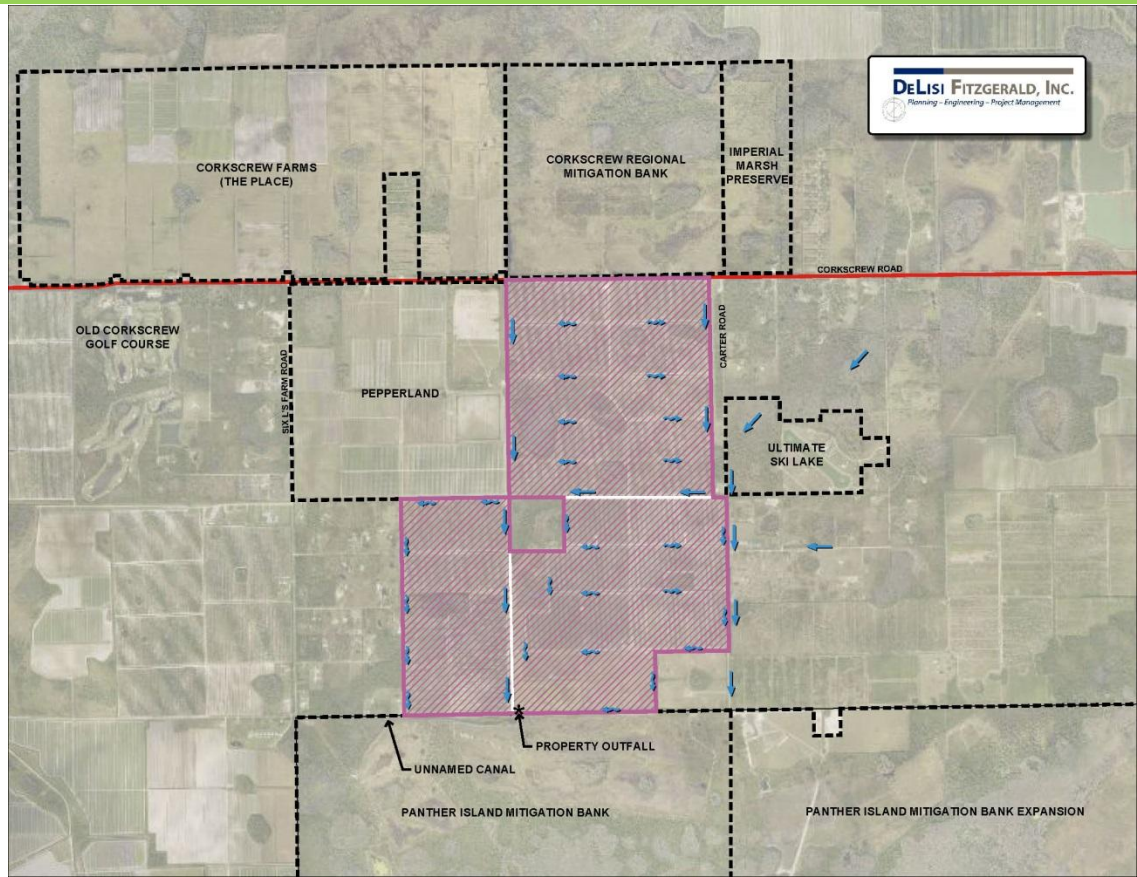
Historic Flow Patterns

- Northeast to southwest historical surface flow patterns supported by historical aerials and topography



Altered Drainage Conditions

- Permitted Active Orange Grove
- Heavily Diked and Ditched
- Flow from North Diverted By Corkscrew Road
- Flow from East Diverted By Carter Road
- 900+ Acres of Uncontrolled/ Untreated Discharge to Panther Island Mitigation Bank/Corkscrew Swamp Sanctuary



Typical Grove Ditches

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Outfall Facing Panther Island

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Carter Road Facing South

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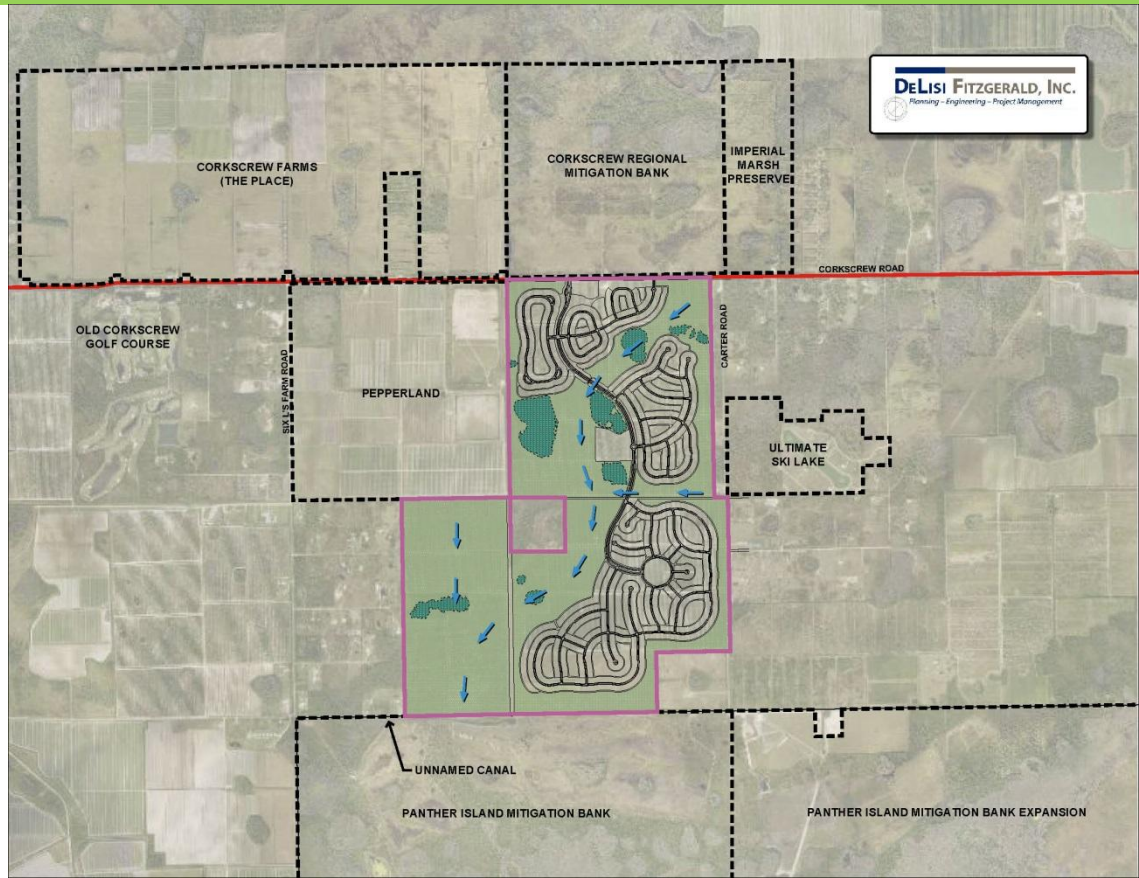
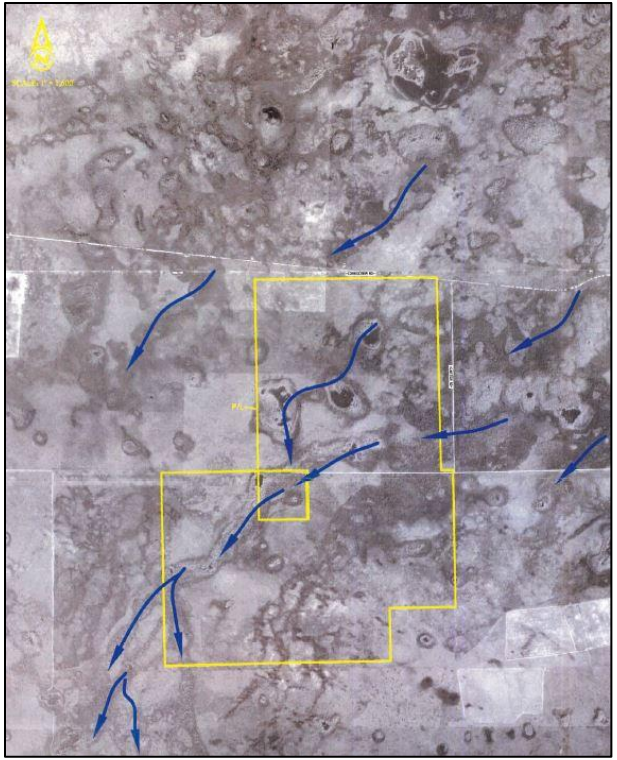
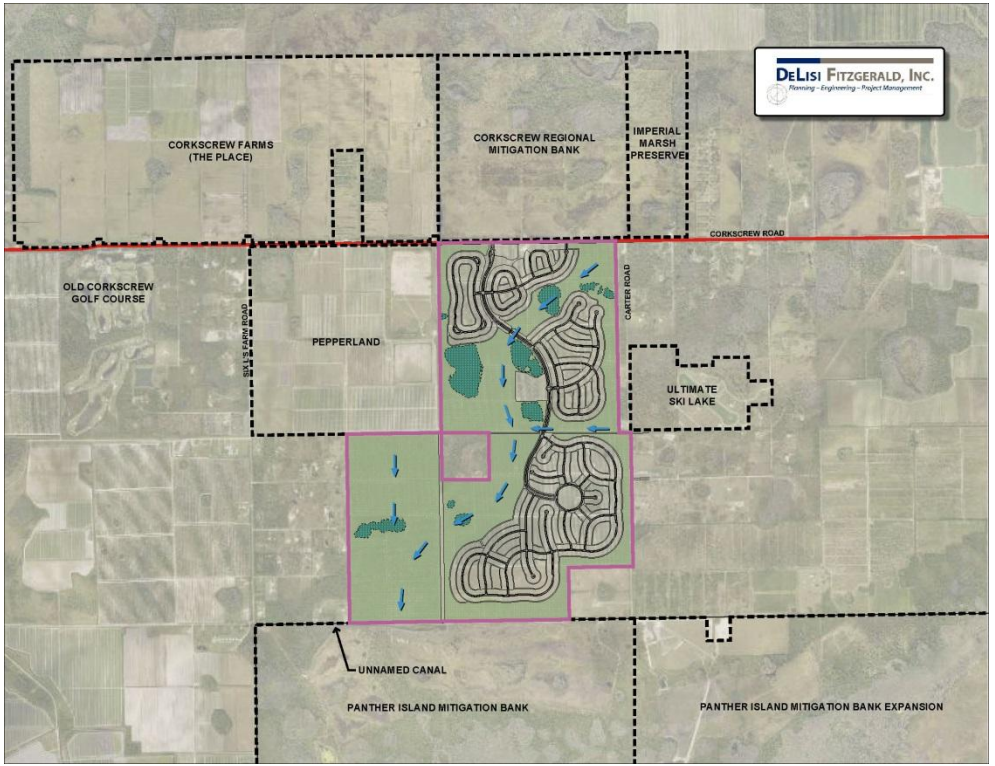
Proposed Drainage Conditions

- Re-establish Historic Flow Patterns
- Creation of 800+ Acres of Preserve
- Reduction of N by 30%
- Reduction of P by 90%
- Increased hydrology/ surface water elevations



Comparing Drainage Patterns





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Potable Water Service

- Project demand is 390,000 Gallons-per-day
- Service Provider will be Lee County Utilities
  - Corkscrew Swamp WTP permitted for 15 MGD
  - Projected 2017 Demand of 12.22 MGD (2016 Concurrency Report)
- Developer-funded extension from 16" watermain located within 1.5 miles of property
- Pro-rated Share Contribution for Line Upsizing

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Sanitary Sewer Service

- Service Provider to be Lee County Utilities
  - Three Oaks WWTP permitted for 6 MGD
  - Projected 2017 Demand of 3.4 MGD (2016 Concurrency Report)
- Developer-funded extension from 12" forcemain located within 5 miles of property
- Pro-rated Share Contribution for upsizing of Pinewoods Master Pump Station

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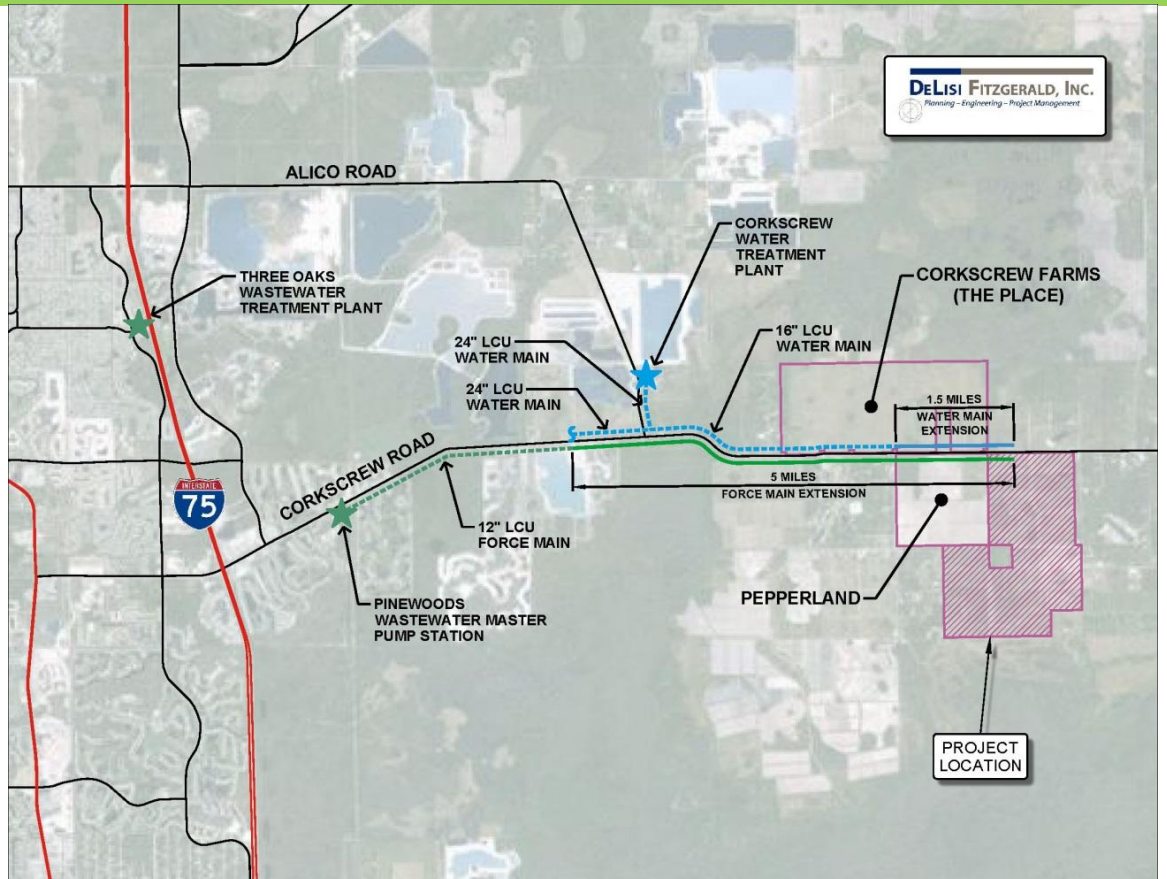
Utility Map



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In Conclusion

- Project meets the Goals and Policies of the Lee Plan by:
  - Restoring historic drainage patterns
  - Reducing nutrient-loading to Corkscrew Swamp Sanctuary
  - Providing a significant lift to hydrology/surface water elevations
  - Meets Minimum Acceptable Levels of Service for utilities and surface water management

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Transportation

Mark J. Gillis, AICP
David Plummer & Associates, Inc.

Transportation Network

Verdana

Access


INDIGENOUS / CONSERVATION AREA
INDIGENOUS / CONSERVATION AREA
INDIGENOUS / CONSERVATION AREA

Development Program

- Residential - 1,460 Single Family Units
- Neighborhood Commercial - 60,000 Square Feet
- Amenity Center – 5 Acres

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Comprehensive Plan Transportation Study Highlights

- Consistent with Transportation Methodology Outline

- Consistent with County Guidelines
  - Long-term, 2040 horizon
  - Three mile (plus) radius from site
  - Lee County adopted travel model
  - 2040 LRTP Cost Feasible roadway network
  - Lee County 2040 socio-economic data
  - Short-term, 5-year horizon

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Transportation Study Conclusions

- No New Road Improvements Needed as Result of CPA in 2040
  - No LOS issues without and with CPA
  - CPA creates no new needs
  - Identified needs consistent with 2040 LRTP

- Short-Range Analysis – No Road Segments Projected to Fall Below LOS Standard Without and With CPA

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CPA Transportation Related Policies

- Policy 38.1.9 - Environmental Enhancement & Preservation Overlay Transportation Study
  - Cumulative analysis
  - Improvements and financing strategy
  - Completed July 1, 2017

- Policy 33.3.4:2.k – Planned Development Mitigation
  - Pays proportionate share of needed improvements per study
  - Higher of roads impact fees or proportionate share

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Conclusions

- 1,460 Single Family Units
- Neighborhood commercial & amenities to capture trips & reduce trip lengths
- Transportation Study prepared consistent with county guidelines
- No new road needs as a result of CPA in 2040
- Turn lanes at entrances
- Payment of proportionate share of needed improvements per Policy 33.3.4:2.k

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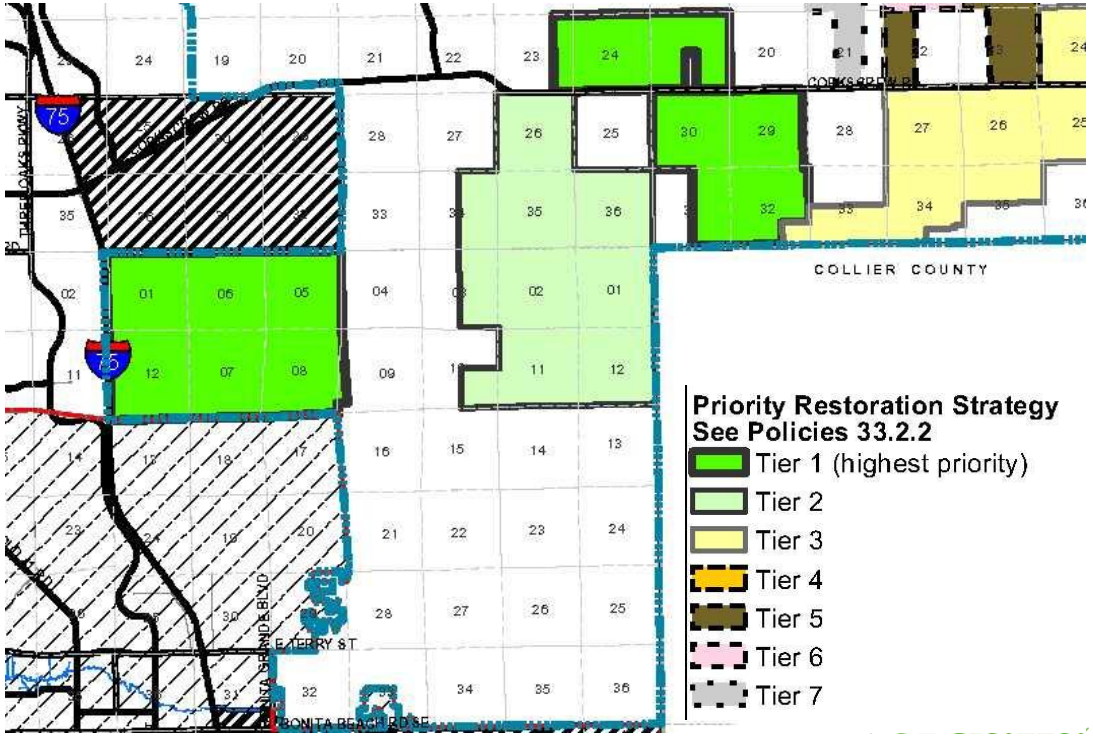
Staff Report, Community Outreach & Sumamry

Dan DeLisi
DeLisi, Inc.

Review of Text Amendment

- Remaining Tier 1 Property
- Policy 3.3.4
  - Exceeds open space requirements
  - Restores flowways
  - Restores Groundwater
  - Preserves Uplands & Wetlands
  - Provides critical habitat link
  - Meets or exceeds all other requirements



Staff Report

- Generally in agreement
- Only area of disagreement – Policy 33.2.4.2.i
  - Staff Concerns:
    1. Do not realize reduction to groundwater withdrawals
       - Significant reductions realized with each phase
    2. No assurance that full restoration will take place
       - Can provide assurance
    3. Could have situation where AG density is used but AG remains
       - Phasing Plan can address this
  - Citrus is <u>not</u> a row crop (IFAS, etc.)
  - Real practical and logistical issues with removing 1,460 acres of citrus at once.
    - *Elimination of any agricultural row crop uses at the time of first development order. <u>Active citrus groves may phase out agriculture consistent with a phased restoration plan, but must cease all agricultural operations no later than seven years from the time of first development order.</u>*

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Community Outreach

- Informational website
- Team created an extensive public outreach effort to engage and help educate interested agencies, organizations and stakeholders
  - www.verdanafl.com

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Community Outreach

Dozens of meetings were held with residents, agencies, organizations and stakeholders over the past 18 months

Each face-to-face meeting has provided valuable feedback that has been considered during the planning process:

Residents living west of Verdana
Residents living east of Verdana
East Corkscrew Road Alliance
Audubon Florida
Florida Wildlife Federation
CREW Land & Water Trust
Conservancy of Southwest Florida

Representatives of Pepperland
US Fish & Wildlife Service
Collier County
South Water Management District
Florida Fish & Wildlife Conservation Commission
Army Corp of Engineers

*Estero Council of Community Leaders (ECCL) - requested meeting to share information on Verdana and the group declined to meet

- Representative of Verdana attended the ECCL monthly meetings to learn and understand the issues of the organization and how it relates to Verdana

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Community Outreach

- Meetings and site visits facilitated the planning process
- Based on input received, numerous revisions were made to address concerns from neighbors and local organizations

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In Conclusion

- Providing link and establishes connectivity for regional level flow-ways and wildlife corridors
- Taking into account environmental stewardship as well as our neighbors' thoughts and concerns
- Implements the vision, policies, intent and the benefits of the DRGR and the Environmental Enhancement and Preservation Overlay

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