CITY OF PALM BEACH GARDENS
CITY COUNCIL
Agenda Cover Memorandum

Meeting Date: January 6, 2016
Ordinance 4, 2016

Subject/Agenda Item:
Avenir – Rezoning and Master Plan Approval
First Reading and Public Hearing: A request from Avenir Holdings, LLC to rezone 4,763 acres from Planned Development Area (PDA) to Mixed Use Development (MXD) District with a Planned Community Development Overlay District (PCD) and a Conservation Preserved Land Overlay on 2,407 acres for a site generally located on the north side of Northlake Boulevard, east of Grapeview Boulevard, west of Bay Hill Drive, and south of Beeline Highway. The request will also provide approval to the Master Plan and Development Standards.

[X] Recommendation to APPROVE
[ ] Recommendation to DENY

Reviewed by: Director of Planning & Zoning Natalie M. Crowley, AICP Development Compliance Bahareh Wolfs, AICP City Attorney R. Max Lohman, Esq.	**Originating Dept.:** Planning & Zoning: Project Manager Dawn C. Sonneborn, AICP, Principal Planner [X] Quasi – Judicial [ ] Legislative [X] Public Hearing	**Finance:** Accountant Tresha Thomas **Fees Paid:** Yes **Funding Source:** [ ] Operating [X] Other N/A **Budget Acct.#:** N/A Effective Date: N/A Expiration Date: N/A	**City Council Action:** [ ] Approval [ ] App. w/ Conditions [ ] Denial [ ] Continued to:____
Approved By: City Manager Ronald M. Ferris	**Advertised:** [X] Required [ ] Not Required Date: 12/24/15 Paper: Palm Beach Post **Affected parties:** [X] Notified [ ] Not Required		**Attachments:** • Dev. Application & Justification Statement • Location Map • Ordinance 4, 2016 • Existing and Proposed Zoning Map • Reduced Plans, Reports & Dev. Standards • Comp Plan Traffic Study & Concurrency Traffic Study *(less appendices)* • 11/18/15, 12/10/15 PBC traffic letters • 12/2/15 City Traffic Consult. letter

EXECUTIVE SUMMARY

The Applicant is requesting to rezone 4,763 acres from Planned Development Area (PDA) to Mixed Use Development (MXD) District with a Planned Community Development Overlay District (PCD), and provide a Conservation Preserved Land Overlay on 2,407 acres for a site generally located on the north side of Northlake Boulevard, east of Grapeview Boulevard, west of Bay Hill Drive, and south of Beeline Highway. The request will also provide approval to the Master Plan and Development Standards.

The proposed Avenir PCD will consist of 2,407 acres of conservation land, 3,985 dwelling units, 1,800,000 square feet of professional office, 200,000 square feet of medical office, 400,000 square feet of commercial, a 300-room hotel, 20 acres of agriculture, a 55-acre public park, a 60-acre civic/recreation parcel, a 15-acre police/fire/city annex parcel, and a 15-acre school site. Residential density is proposed at 0.84 dwelling units per acre. The Avenir PCD is anticipated to be developed over a 20-year time frame.

The Applicant has also submitted a companion petition (Ordinance 3, 2016) to amend the Future Land Use designation from Rural Residential (RR10 and RR20) to Mixed Use Development (MXD) for the subject property and to relocate the Urban Growth Boundary (UGB) in order to include the subject property and to include a note on the Future Land Use Map capping the permitted intensity and density within the project's proposed development program, or equivalent trips. In addition, the Ordinance will amend the text of the Comprehensive Plan to modify the City's Urban Growth Boundary (UGB) to include the subject property.

The subject site is located at the City of Palm Beach Gardens' western municipal boundary on the north side of Northlake Boulevard. The property has approximately 11,565 feet of linear frontage on Northlake Boulevard at its southern boundary, and 1,687 feet of frontage on the SR 710-Beeline Highway at its northern boundary. The C-18 Hungryland Slough Canal is adjacent to the diagonal northwestern boundary. The property is bordered to the east by the Sweetbay Natural Area, a portion of the Loxahatchee Slough, a portion of the Grassy Waters Preserve, the City's municipal golf course, and a vacant privately-owned parcel to the east. The property is bordered to the west by the former Mecca Farms citrus grove (recently approved for water management under the South Florida Water Management District) and The Acreage residential community to the west. There is a rectangular outparcel (approximately 100 acres) located along Northlake Boulevard, midway across the Avenir parcel (commonly known as the "Spears Parcel") located in unincorporated Palm Beach County.

BACKGROUND

On March 21, 1991, the City Council adopted Ordinance 6, 1991, approving an annexation of the subject property into the City of Palm Beach Gardens. This annexation included more land than the subject property, for a total of 5,638 acres.

In the mid-90s, the City conducted an extensive three-(3) year visioning process and created a guiding document entitled "Our Vision, A Strategic Plan". This process included input from residents by conducting a Visual Preference Survey. Approximately 100 residents participated in this survey, which was co-sponsored by The Conservation Fund. In addition to ensuring input from the residents at every stage of the process, the City also vigorously pursued educating and informing all residents not directly involved in the visioning process through media and public meetings. In this Vision Plan, the subject property was envisioned as having a Residential Very Low (RVL) land-use designation at 1.0 dwelling units per acre, and a central town center area with a Commercial land-use designation.

In 2004, the subject parcel was submitted as a Development of Regional Impact (DRI), known as the *Gardens Science and Technology Community* DRI (GSTC DRI). This DRI was originally submitted for the northern 2,000 acres of the subject parcel, and later, in response to various agency comments and a change in petitioners, the entire 4,763 acres was included in the DRI, and the DRI name was changed to *Exploration Pointe*. This DRI was complementary to the *Palm Beach County Bioscience Research Park* DRI, for Scripps Florida, which was approved on the Mecca Farms site, immediately west of the subject property. Palm Beach County and the State of Florida intended to create a bioscience cluster for these two (2) DRIs. As part of the GSTC DRI process, extensive community outreach and public participation occurred, with over 1,000 members of the public participating. The development program for the GSTC DRI consisted of 9,982 dwelling units, 644,000 square feet of retail use, 350,000 square feet of office use, 2,770,000 square feet of Industrial/R&D use, a 3,000-seat attraction use, a 300-room hotel, a 200-bed medical facility, a 2000-student university, and 2,077 acres of wetland/upland preserve, with development proposed for the northern, central, and southeastern portions, with preservation distributed between the development areas. In 2006, this proposed DRI did not continue to final approval due to the adjacent Scripps Florida project relocating east to the Jupiter/Gardens site, and due to market conditions at that time.

On June 15, 2006, the City Council approved Resolution 49, 2006 to allow a Conditional Use for agricultural uses to continue on the property, which is currently shown on the City's official Zoning Map as a Conditional Use.

The property was purchased in 2012 by WAL Development Group, LLC (subsequently changed to Avenir Holding, LLC) from Charles Vavrus. The proposed Avenir project was initially submitted to the City in 2013, with a proposed development program of 7,600 dwelling units, 1,000,000 square feet of office use, 200,000 square feet of medical use, 500,000 square feet of commercial use, a 300-bed ALF, a 300-room hotel, a 600-800 student university, 1,889 acres of conservation, 115 acres of parks, and 75 acres for an extension to the City's municipal golf course. The Applicant initially submitted a petition for a Comprehensive Plan Text and Map Amendment to create a new Mixed Use Community (MXC) Future Land Use category at a maximum of 2.0 dwelling units per acre, and a petition for a Land Development Regulation Text and Zoning Map

Amendment to create a new zoning category of Mixed Use Community (MXC). The Comprehensive Plan Map and Text Amendment included an amendment to the City's Urban Growth Boundary (UGB) to create an urban boundary around the proposed project. Staff comments were initially issued in 2013 with numerous and extensive concerns to be addressed.

One of the concerns was the need to inform the public of the proposed project and provide opportunities for public input. Therefore, the Applicant held a series of public open-house meetings to inform the general public of the proposed project and to obtain public input and feedback. The first community workshop was held in November 2013 at PGA National Resort. Approximately 5,400 invitations were sent to surrounding communities, with over 90 citizens attending. Subsequently, the property owner hosted Citywide community workshops at the Doubletree Hotel in the City on April 7, 2014, April 23, 2014, and May 5, 2014, with hundreds of attendees and extensive exercises to obtain and document the public input comments and concerns. In addition to the larger community workshops, small group meetings were also held with City residents to allow for exchange of information in small, informal group settings.

After all of the community public meetings were completed and public input was compiled, the Applicant revised the development program further and resubmitted the project in October of 2014. The revised development program at that time consisted of 4,760 dwelling units (at 1.0 dwelling units per acre), 800,000 square feet of office use, 200,000 square feet of medical office use, 600,000 square feet of commercial use, a 300-room hotel, a 2,500-student university, 20 acres of equestrian facility, 55 acres of public park, 60 acres for an extension of the City's municipal golf course, 8 acres of police/fire/city hall annex, 15 acres for an elementary school, and 2,426 acres of conservation area. The Comprehensive Plan Text and Map Amendment and rezoning petitions were revised to request a change to the City's existing Mixed Use Development (MXD) Future Land Use category and Mixed Use Development (MXD) District zoning designation with a Planned Community Development Overlay District (PCD), and apply a Conservation Overlay to the 2,426 acres of conservation area. After additional coordination between the Applicant and City, a second round of staff comments were issued in January of 2015, again with numerous concerns to be addressed.

The Applicant revised the development program further and provided a resubmittal in April 2015, with supplemental resubmittals in July and September of 2015. The development program was revised further to consist of 3,735 single-family homes, 250 multi-family units (at 0.84 dwelling units per acre), 400,000 square feet of commercial use, 200,000 square feet of medical office use, 1,800,000 square feet of office use, a 300-room hotel, 20 acres of equestrian facility, a 55-acre land dedication for a public park, a 15-acre land dedication for a police/fire/city annex site, a 60-acre land dedication for civic/recreation use adjacent to the City's municipal golf course, 15 acres for an elementary school, 300 acres of agriculture, and 2,426 acres of conservation.

The Applicant presented the proposed project to the public and the Board at a Palm Beach Gardens Planning, Zoning, and Appeals (PZAB) Board Workshop on October 13, 2015.

After the PZAB workshop, the Applicant and City staff set up weekly progress meetings to closely coordinate together on all of staff's concerns. Following these meetings, the Applicant revised the development program further, refining it to eliminate the equestrian parcel due to numerous staff concerns over noise, odor, and compatibility to the abutting residential parcels, and reducing the agriculture parcel to 20 acres and shifting it out of the conservation/preservation area and into the southwestern portion of the project, thereby providing a total of 2,407 acres of conservation area (51% of the entire parcel).

LAND USE & ZONING

The subject site has a Rural Residential/1 dwelling unit per 20 acres (RR20) and Rural Residential/1 dwelling unit per 10 acres (RR10) Future Land Use designation. The site is zoned Planned Development Area (PDA).

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Table 1. Existing Zoning Land Use Designations

DIRECTION	EXISTING USE	LAND USE	ZONING
SUBJECT PROPERTY	Vacant Agricultural land	Rural Residential-1 du/20 ac (RR20) and Rural Residential-1 du/10 ac (RR10)	Planned Development Area (PDA)
NORTH	(Northwest) Hungryland Slough	*Palm Beach Gardens* Conservation (CONS)	*Palm Beach Gardens* Conservation (CONS)
	(Across Beeline Hwy.) Caloosa (Residential)	*Palm Beach County* Rural Residential 10 (RR10)	*Palm Beach County* Residential Medium (RM)
SOUTH	Various Vacant Parcels (all approximately 600 feet in depth)	*Palm Beach County* Commercial Low (CL)/Rural Residential 5 (RR-5), Rural Residential 20 (RR20), Rural Residential 10 (RR10), Rural Residential 2.5	*Palm Beach County* Public Ownership (PO), Mixed Use Planned Development (MUPD), Agriculture Residential (AR), Residential Estate (RE)
	Pierce Hammock Elementary School	*Palm Beach County* Rural Residential 10 (RR10)	*Palm Beach County* Agricultural Residential (AR)
	Bay Hill Estates Residential Community	*Palm Beach County* Rural Residential 2.5	*Palm Beach County* Residential Estate (RE)
	Vacant-Outparcel on Northlake Blvd. (multiple owners) One parcel contains a communication tower	*Palm Beach County* Rural Residential 20 (RR20)	*Palm Beach County* Agriculture Residential (AR)
EAST	North County General Aviation Airport	*Palm Beach County* Utilities and Transportation (U/T)	*Palm Beach County* Public Ownership (PO)
	Loxahatchee Slough	*Palm Beach Gardens* Conservation (CONS)	*Palm Beach Gardens* Conservation (CONS)
	Palm Beach Gardens Municipal Golf Course	*Palm Beach Gardens* Public & Institutional (P/I)	*Palm Beach Gardens* Golf (G)
	Vacant	*Palm Beach County* Rural Residential 10 (RR10)	*Palm Beach County* Agriculture Residential (AR)
WEST	Vacant Mecca Farms	*Palm Beach County* Rural Residential 10 (RR10)	*Palm Beach County* Agriculture Residential (AR)
	The Acreage (Residential)	*Palm Beach County* Rural Residential 10 (RR10) and Rural Residential 2.5 (RR2.5)	*Palm Beach County* Agriculture Residential (AR)

EXISTING SITE DETAILS

The overall Avenir project is approximately 4,763 acres and is generally located on the north side of Northlake Boulevard, east of Grapeview Boulevard, west of Bay Hill Drive, and south of Beeline Highway.

The 4,763 acre property is presently undeveloped with the vast majority in agricultural land cover types, along with minor components of natural systems. Long-term agricultural and silvicultural use has resulted in significant alteration of the property from its natural state, including surface water drainage and management improvements in association with timber harvest, row crops, and cattle grazing. There are remaining natural resources on the site, primarily in the form of wetland systems ranging in ecological quality, as well as some areas of native upland habitat. Currently the land cover includes primarily improved pasture with active cattle grazing as well as areas of unimproved pasture, other agricultural lands, including inactive row crops, and upland and wetland natural systems. Over 75 percent of the property is characterized by non-native and invasive vegetation species that severely degrade the native habitat functions of the property.

The property has 11,565 feet of linear frontage on Northlake Boulevard at its southern boundary, and 1,687 feet of frontage on the SR 710 Beeline Highway at its northern boundary. The C-18 Hungryland Slough Canal is adjacent to the diagonal northwestern boundary. The property is bordered to the east by the Sweetbay Natural Area, the North County General Aviation Airport, a portion of the Loxahatchee Slough, a portion of the Grassy Waters Preserve, the City of Palm Beach Gardens municipal golf course and a vacant parcel to the east. The property is bordered to the west by the former Mecca Farms citrus grove (recently approved for water management under South Florida Water Management District) and "The Acreage" residential community. There is an outparcel (approximately 100 acres) located along Northlake Boulevard about midway across the Avenir parcel.

Under the current Future Land Use designation of Rural Residential 10 (RR10), at one dwelling unit per ten acres and Rural Residential 20 (RR20) at one unit per 20 acres, a total of 405 dwelling units are permitted on the subject property. This type of land use would allow the 4,763 acres to be developed with ten (10) and 20-acre "ranchettes", or developed individually over time due to the separation of the 4,763 acres into 11 different Property Appraiser parcels. This type of compartmentalized development would not provide the significant environmental opportunity that the Avenir community is proposing with clustered development and 51 percent of the property (2,407 acres) devoted to preservation and restoration of the historic hydrologic and wildlife connections between regional conservation land and natural areas. This fulfills many goals, objectives, and policies in the City's Conservation Element of the Comprehensive Plan as explained further in the staff report.

SUBJECT REQUEST

The Applicant is requesting to rezone 4,763 acres from Planned Development Area (PDA) to the Mixed Use Development (MXD) District with a Planned Community Development Overlay District (PCD); provide a Conservation Preserved Land Overlay on 2,407 acres; and approve a PCD Master Plan. The proposed project will consist of 2,407 acres of conservation land, 3,895 dwelling units, 1,800,000 square feet of professional office, 200,000 square feet of medical office, 400,000 square feet of commercial, a 300-room

hotel, 20 acres of agriculture, a 55-acre public park, a 60-acre public civic/recreation parcel, a 15-acre police/fire/city annex parcel, and a 15-acre school site. Residential density is proposed at 0.84 dwelling units per acre. The project is anticipated to be developed over a 20-year time frame.

The proposed project meets the intent of the PCD Overlay District, which is to be composed of large tracts of land which are planned to function as a relatively self-contained and identifiable district or neighborhood community of the City. It is the intent of the district regulations to encourage ingenuity and imagination in the planning and development or redevelopment of suitable tracts of land large enough to accommodate the various uses and activities associated with a planned community and to permit a large area to be developed under one Master Plan that includes a mix of land-use types at different levels of intensity. The PCD overlay district also is intended to encourage the use of architectural and design features, which are aesthetically pleasing and supportive of an enhanced quality of life. The PCD overlay district also is intended for development to occur in a manner that provides one or more specifically identifiable benefits to City residents.

The benefits to the public are pointed out further in this staff report and are summarized below:

- 2,407 acres of existing agricultural lands to be dedicated for conservation lands devoted to restoring the natural environment and habitat in perpetuity and proving a significant flow-way for the region. This will increase the City's overall conservation lands by seven (7) percent.
- Dedication of over 130 acres of filled-to-grade land to the City for a 55-acre public park, a 60-acre public civic/recreation parcel adjacent to the City's existing municipal golf course; and a 15-acre police/fire/city annex parcel.
- 500,000 square feet of office use and up to 50 unrestricted acres within the project to be provided to a corporate user acceptable to the City and the Applicant as a public/private partnership toward the advancement of the City's targeted industries and economic development. The Applicant has engaged a company (Global Advisors) to coordinate a marketing and outreach program, with an emphasis on marketing to premier corporations for reallocation to the Avenir community.
- Providing a north-south connector road (the Avenir Connector) from Northlake Boulevard at Coconut Boulevard to the Beeline Highway.
- Dedication of a parcel within the proposed Town Center for affordable/workforce housing opportunities to serve the needs of the City's residents.

PROJECT DETAILS

The Avenir PCD Master Plan proposes a 4,763-acre mixed-use community, with development clustered in the southern portion and over 50 percent of the property, containing 2,407 acres of conservation lands that are dedicated to restoring the natural

environment in perpetuity and proving a significant flow-way for the region. The community is proposed to be developed with various "districts" that are provided in the form of Development Standards proposed for the PCD. The project includes 130 acres of land dedication by the Applicant to the City of Palm Beach Gardens. This includes filled-to-grade land for a 55-acre public park, a 60-acre public civic/recreation parcel adjacent to the City's existing municipal golf course, a 15-acre police/fire/city annex parcel, and a parcel within the Town Center parcel dedicated for affordable and workforce housing to serve the needs of the citizens of Palm Beach Gardens. The Avenir PCD proposes the following development program:

MXD PCD Development Program	
Conservation Land	**2,407 acres**
Development Area	**2,345.3 acres**
Single Family	3,735 units
Multi-family	250 units
Professional Office	1,800,000 square feet
Medical Office	200,000 square feet
Commercial	400,000 square feet
Hotel	300 rooms (approx. 80,000 square feet)
Agriculture	20 acres
Public Park (land dedication)	55 acres
Public Civic/Recreation (land dedication)	60 acres
Police/Fire City Annex (land dedication)	15 acres
Public School – Elementary (land dedication)	15 acres (approx. 600 students)
ROW Dedication (Northlake)	**10.6 acres**
TOTAL MXD PCD LAND AREA	**4,762.9 acres**
Residential Density	0.84 du/ac
Office/Commercial/Hotel Intensity	0.01

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Phasing

The Avenir PCD is anticipated to be developed over a 20-year time period and the Applicant proposes the following phasing schedule:

LAND USE	Total	Phase 1 (2015-2020)	Phase 2 (2021-2025)	Phase 3 (2026-2030)	Phase 4 (2031-Buildout)
Public Civic/Recreation	60 acres (land dedication)	60 ac			
Professional Office	1,800,000 SF	225,000	225,000	450,000	900,000
Medical Office	200,000 SF	50,000	100,000	50,000	
Commercial	400,000 sf	200,000	100,000	100,000	
Hotel	300 rooms		150	150	
Public Park	55 acres (land dedication)	55 ac			
Police/Fire/City Annex	15 acres (land dedication)	15 ac			
Public School	15 acres (land dedication)	15 ac			
Multi-family	250 units	250			
Single Family	3,735 units	1,000	1,000	1,000	735

Drainage

Existing site drainage: The property has been historically used for agricultural purposes (farming, various crops, and cattle production). Drainage includes a series of interconnected farm ditches and two (2) main drainage canals: one (1) running north-south and one (1) running east-west. Legal Positive Outfall exists with the permitted connection to the C-18 canal. In 1974, the Northern Palm Beach County Improvement District (NPBCID) issued a surface water management permit, which includes adjacent properties for a total of 9,600 acres, with canals constructed along the section lines that continue to serve the project and provide discharge of stormwater runoff to the north and east. The north-south drainage canals are connected to the SFWMD C-18 canal at the north end of the property. The east-west drainage canal currently has an open connection to the site's farm ditch system and flows to the east along the south property line of the Airport and ultimate discharge to the C-18 canal located just west of the railroad and Beeline Highway. There are several parcels of land connected to or isolated by the project site.

Proposed site drainage: The proposed project lies on the western slope of the Loxahachee Slough. This slough was a component of the historic Everglades, providing for flow from the Everglades through the Loxahatchee River. The Applicant, recognizing the historic function of the property, has chosen to restore the wetlands and flow-ways within the project boundaries, which were are part of the historic flow patterns for the region by providing 2,407 acres of conservation lands. Within the restoration and preservation area, the water table is proposed to be restored back to its historic condition, which will increase volume of water storage on the ground surface, provide for increased aquifer recharge, increase the water quality of the runoff that is produced from the site and allow for the restoration of approximately 7,000 linear feet of flow-way, which is identified in the Applicant's Preliminary Surface Water Management Report, dated September 2015. The existing ground elevation and historical flow pattern for the regional area provide a general gradient from west to east across the Avenir property. The proposed project drainage system will modify and restore the on-site historical flow pattern. Within the development parcels, excess runoff will be collected, stored, treated, and discharged north into existing and proposed canals that will overflow into adjacent wetland preserves north and east of the development parcels. Preserve flow-ways will be created by the natural topography, established control levels and future culverts, and wildlife crossings under the proposed Avenir Collector. The actual number and design details of these flow-way crossings will be included in future development plans for the Avenir Collector. These flow-ways will maintain and restore the historical easterly flow pattern from the project's Northern Preserve, to the Sweet Bay Natural Area, to the wetlands south of the North County Airport, to the Grassy Waters Preserve, and to the Loxahatchee Slough. All of these benefits would not occur if the site is left in its current condition or if the site is developed at the existing land-use density.

For the proposed development modeling, the project has been divided into four (4) main sub-basins. Additionally, there are two (2) off-site areas that flow into the project. These areas were considered in the pre- and post-development analysis and consist of the central outparcel and the vacant outparcel along Northlake Boulevard. The proposed north-south connector road (Avenir Connector) serves as a basin divide between the east and the west conservation basins. The existing properties adjacent to the site will not be impacted as the site is proposed to maintain historic water control elevations adjacent to all of the parcels where historic drainage routes flow into the project site. In order to protect the existing drainage rights of the off-site property owners, a pump station will be used as part of the final water management system.

Total lake area for the project required for stormwater attenuation and water quality treatment is set at 15 percent within the development area, with littoral areas provided. Water quality treatment is proposed to be achieved through a combination of wet and dry detention and designed in accordance with the jurisdictional agencies.

Discharge will be provided at the allowable rate for the C-18 canal. In the preliminary modeling the 25-year, 3-day peak discharges were compared for pre-development and post-development. The proposed post-development discharge was found to be lower than the overall pre-development peak discharge.

It is anticipated that the main components of the eastern drainage system will be constructed with the initial development of the parcels east of the Avenir Connector. Subsequent phases will construct the necessary lakes and dry detention areas that are necessary to serve the proposed areas to be constructed.

Perimeter Buffers

The Master Plan provides for a 90-foot wide buffer along the Northlake Boulevard frontage, with a 50-foot wide buffer adjacent to the Northlake Boulevard frontage adjacent to the Town Center parcel. These buffers will provide a 12-foot wide multi-purpose path. The Master Plan also provides a 25-foot wide PCD buffer adjacent to the central vacant parcel and the vacant outparcel property to the east. The remainder of the PCD perimeter will be conservation areas adjacent to other abutting conservation lands. The proposed buffer sections will be comprised of newly planted vegetation and are designed to be naturalistic to reflect the character of the area.

Environment

Section 78-250(a)(1) of the City's LDRs require a minimum of 25 percent of environmentally significant lands be preserved on site or mitigated. The Applicant's Habitat Restoration and Management Plan indicates that approximately 728 acres of upland habitat exist on site (pine flatwoods), of which approximately 336 acres are proposed to be preserved. The location of the 336 acres of native uplands to be preserved is provided on the Master Plan. The conservation of this habitat will ensure long-term functional viability of the preserve

The Applicant has submitted an Environmental Assessment (EA), which reports that approximately 1,993 acres of wetlands ranging in ecological quality have been identified on the property. Of these wetlands, more than 1,076 acres (53%) are proposed for preservation. The remaining 924 acres of mostly low-quality wetlands will be impacted for development. The wetlands proposed to be preserved on the site have been integrated into a cohesive flow-way system that allows for interconnection with publicly owned and managed conservation areas off site. The EA also includes an existing vegetation and land cover assessment, a survey methodology used to identify known and potential listed wildlife and plant species, and provides a table summarizing the survey outcome. The Master Plan proposes two (2) wildlife crossings. One will be in the form of an elevated north-south roadway crossing at the southern end of the conservation area, and the other north of that, through a wildlife culvert crossing. Both are also depicted on the roadway cross sections.

The acreage proposed for preservation and restoration for the Avenir community is 2,407 acres (51 percent), which will provide critical connection between two (2) existing publicly owned and managed conservation areas and a continuous corridor for additional surrounding conservation lands. It is helpful to understand the magnitude of the proposed conservation area by putting it into context with the adjacent conservation areas. The Hungryland Slough to the west is approximately 2,950 acres, and the Sweetbay Natural Area to the east is over 900 acres.

The Applicant has coordinated early in the development review process with staff from the South Florida Water Management District, the Palm Beach County Department of Environmental Resource Management, the Army Corp of Engineers (ACOE), Palm Beach County, and the City, which includes staff from the City's Environmental Consultant. City staff coordinated a meeting of all these agencies earlier this year to discuss the proposed development plan and voice concerns early on with the Applicant during the development review process. The Applicant has made significant progress with on-site visits with the jurisdictional agencies and has completed a Habitat Restoration and Management Plan. The Applicant will be required to obtain permits from all of the applicable jurisdictional agencies, and the City will be provided with copies of these permits prior to the issuance of any infrastructure permits, and a Preservation Area Management Plan will be provided by the Applicant that is consistent with the Environmental Assessment prior to the issuance of any land alteration permits.

The conservation area will be owned and maintained by a governmental entity, and the Applicant has been in discussions with both Palm Beach County Environmental Resource Management and the Northern Palm Beach County Improvement District. It is estimated that the conservation area will be deeded to one of these agencies for ownership and maintenance. In addition, the conservation area will contain a Conservation Preserved Lands Overlay on the City's official Zoning Map, it will be platted as conservation lands, and a separate Conservation Easement will be recorded in the public records of Palm Beach County.

Traffic, Access, and Circulation

Transportation Concurrency is regulated by Chapter 163.3180, *Florida Statutes*, which allows a developer to enter into a Proportional Share binding agreement to pay for or construct its proportionate share of required improvements. The estimated proportionate share for this project is approximately $70 million, which will be spent on priority improvements that will mitigate and benefit the project's impacted areas. Those priority improvements will be focused on key areas such as various improvements along Northlake Boulevard and on other impacted areas around the immediate vicinity of the project. The Applicant has submitted a traffic impact analysis for concurrency review that has been reviewed and approved by the City's Traffic Engineer and Palm Beach County. In addition, the Applicant has coordinated with the Florida Department of Transportation throughout the review process. Palm Beach County has issued a letter dated November 18, 2015, stating the proposed project has met technical compliance of the Traffic

Performance Standards (TPS) of the Palm Beach County Land Development Code, and has issued a subsequent letter dated December 10, 2015, providing all of the Applicant's proportionate share conditions of approval.

In addition, the Applicant is constructing additional roadway improvements consisting of widening Northlake Boulevard from 140th Avenue North to SR 7 from a four-(4) lane to a six-(6) lane roadway, and constructing the north-south main road (Avenir Connector) through the project from Northlake Boulevard to Beeline Highway in the early first phase of development. The Applicant will also be required to construct additional roadway improvements such as turn lanes and traffic signals, as warranted, at the various proposed driveways and roadway connections from Northlake Boulevard and from Beeline Highway into the proposed project.

The project proposes seven (7) roadway connections from Northlake Boulevard over approximately 11,565 feet of linear frontage, and has provided additional right-of-way dedication for the widening of Northlake Boulevard on the PCD Master Plan. The Master Plan depicts the main spine road system, and provides roadway cross-sections. The main spine roads that connect from Northlake Boulevard are aligned with 140th Avenue North, and at Coconut Boulevard, with four-(4) lane facilities (11-foot travel lanes), extending to six-(6) lane facilities to accommodate turn lanes. The main north-south spine road (Avenir Connector) connects with Beeline Highway at a proposed CSX railroad crossing. The roadways are connected by an east-west four-(4) lane roadway section. An eight (8)-foot wide pedestrian sidewalk and a five (5)-foot wide bicycle lane is provided on both sides of the roadway. As the Avenir Connector continues north of the development area, through the eastern edge of the conservation lands, the roadway will transition from the eight (8)-foot wide sidewalk to a 12-foot wide multi-purpose pathway on the west side of the roadway. The roadway cross-sections also provide areas for utilities and landscaping on both sides of the roadway as well as a landscaped median.

Development Standards

The Applicant is complying with the intent of the PCD Overlay district, which encourages the use of architectural and design features that are aesthetically pleasing and supportive of an enhanced quality of life. As part of the PCD Master Plan, the Applicant has submitted Development Standards that provide proposed building heights, lot standards, setbacks, parking standards for the various districts, a list of permitted and conditional uses, public space standards, streetscape standards, and roadway cross sections. The Development Standards will serve as the key regulating document that will act as the zoning code for the project.

The Avenir Development Standards will provide the zoning framework for organizing the various new neighborhoods. "Districts" are proposed and describe the physical attributes to be applied to the new development. The project will be divided as follows:

- Neighborhood Center District: Provides a range of multi-family and single-family house types, attached or detached, with build-to lines. This type of district is typically located in proximity to the Town Center and Workplace Districts or at the center of the neighborhood.
- Neighborhood District: This district has single-family residential character. Buildings are detached and may be set back farther from the street than in other districts. A majority of the residential units in the Avenir PCD will be of this district type.
- Town Center District (Parcel B): This district located on Northlake Boulevard and the Avenir Connector will include a mix of commercial and civic uses to provide destinations and workplaces in a walkable environment. Residential uses may also be included. Buildings are typically attached with front build-to lines.
- Workplace District (Parcels C and D): Office, medical, and civic uses are planned in this district to provide a variety of jobs for residents and surrounding areas. Buildings will define the edge of streets and public spaces for a pedestrian and bike-friendly environment.
- Public/Institutional District: This district is intended for schools, parks, recreation and other civic purposes. These uses will adhere to the City's existing Public/Institutional (P/I) zoning district.

The Development Standards contain regulations such as: "Permitted Use and Conditional Use Chart" (utilizing the City's existing use chart as a guide); standards for public spaces such as, parks, greens, squares, plazas, and playgrounds; streetscape standards; street cross-sections for all roadways planned for the project; building type standards containing building layout diagrams; and general architectural standards with a Mediterranean theme, providing pictorial examples.

CONSISTENCY WITH COMPREHENSIVE PLAN

With the Applicant's companion petitions to amend the Future Land Use designation from Rural Residential (RR10 and RR20) to Mixed Use Development (MXD) for the subject property; to relocate the Urban Growth Boundary (UGB) in order to include the subject property; to include a note on the Future Land Use Map capping the permitted intensity and density within the project's proposed development program, or equivalent trips; and to amend the text of the Comprehensive Plan to modify the City's Urban Growth Boundary to include the subject property, the proposed rezoning and PCD Master Plan are consistent with the overall intent of the goals, objectives, and policies of the City's Comprehensive Plan.

INTERGOVERNMENTAL COORDINATION

Staff provided the Palm Beach County Intergovernmental Plan Amendment Review Committee (IPARC) notice on November 23, 2015. No comments have been received to date. In addition to the IPARC notices, courtesy copies of the Applicant's various

resubmittal packages were provided to the City of West Palm Beach, North County Airport, Palm Beach County, and the Indian Trail Improvement District.

PUBLIC NOTICE

The petitions have been publicly noticed according to Section 78-54 of the City's Code, with published ad, mailed notices, and posting of signs on the property.

PUBLIC OUTREACH

The Applicant held a series of public open-house meetings to inform the general public of the proposed project and to obtain public input and feedback, as follows:

- In November of 2013, the Applicant held a public outreach meeting at PGA National Resort with over 90 citizens attending.
- Citywide community workshops were held by the Applicant at the Doubletree Hotel in the City on April 7, 2014, April 23, 2014, and May 5, 2014, with hundreds of public attendees.
- Small group meetings were held with City residents to allow for exchange of information in small, informal group settings.

On October 13, 2015, a Planning, Zoning and Appeals Board Workshop was held, where the Applicant provided a presentation of the proposed project to the public, and public comment was taken.

PLANNING, ZONING, AND APPEALS BOARD (PZAB)

The PZAB reviewed the subject petition on December 8, 2015, and recommended approval to the City Council by a vote of 7 to 0.

RECOMMENDATION

Staff recommends **APPROVAL** of Ordinance 4, 2016 on first reading.

CITY OF PALM BEACH GARDENS
DEVELOPMENT APPLICATION

Planning and Zoning Department
CITY OF PALM BEACH GARDENS
10500 North Military Trail
Palm Beach Gardens, FL 33410
(561) 799-4243 Fax (561) 799-4281

Request:

- [x] Planned Community Development (PCD)
- [ ] Planned Unit Development (PUD)
- [ ] Amendment to PCD, PUD or Site Plan
- [ ] Conditional Use
- [x] Amendment to the Comprehensive Plan
- [ ] Administrative Approval
- [ ] Administrative Appeal
- [ ] Annexation
- [x] Rezoning
- [ ] Site Plan Review
- [x] Concurrency Certificate
- [ ] Time Extension
- [x] Miscellaneous - Concurrent Processing
- Other

Date Submitted: September ___ 2014

Project Name: Avenir

Owner: Avenir Holdings, LLC

Applicant (if not Owner): Same

Applicant's Address: 550 Biltmore Way, Suite 1110 Coral Gables, FL 33134 Telephone No. 561-478-8501

Agent: Urban Design Kilday Studios, Ken Tuma, Managing Principal

Contact Person: Ken Tuma E-Mail: lmurphy@udkstudios.com

Agent's Mailing Address: 477 S. Rosemary Avenue, #225, WPB, FL 33401

Agent's Telephone Number: 561-366-1100

FOR OFFICE USE ONLY

Petition Number: _____ Date & Time Received: _____

Fees Received

Application $ _____ Engineering $ _____

Receipt Number: _____

Architect: Town Planner - Dover, Kohl and Partners

Engineer: Ballbe and Associates, Inc. Traffic Engineer - David Plummer & Associates

Planner: Urban Design Kilday Studios

Landscape Architect: Urban Design Kilday Studios Environmental Consultant - EW Consultants, Inc.

Site Information:

Note: Petitioner shall submit electronic digital files of approved projects. See attachment for details.

General Location: Approx. one mile east of Seminole Pratt-Whitney Road on the north side of Northlake Boulevard

Address: 12001 Northlake Boulevard

Section: see attached Township: 41, 42 Range: 41

Property Control Number(s): Attached

Acreage: 4,763+/- Current Zoning: PDA Requested Zoning: MXD PCD

Flood Zone B Base Flood Elevation (BFE) – to be indicated on site plan N/A

Current Comprehensive Plan Land Use Designation: RR10 and RR20

Existing Land Use: Vacant, Agriculture Requested Land Use: Mixed Use (MXD)

Proposed Use(s) i.e. hotel, single family residence, etc.: Mixed Use

Proposed Square Footage by Use: See attached MXD PCD Development Table

Proposed Number and Type of Dwelling Unit(s) i.e. single family, multifamily, etc. (if applicable):
See attached MXD PCD Development Table

Justification

Information concerning all requests (attach additional sheets if needed.)
{Section 78-46, Application Procedures, Land Development Regulations.}

1. Explain the nature of the request: See attached Justification.

2. What will be the impact of the proposed change on the surrounding area?

See attached Justification.

3. Describe how the rezoning request complies with the City's Vision Plan and the following elements of the City's Comprehensive Plan - Future Land Use, Transportation, Housing, Infrastructure, Coastal Management, Conservations, Recreation and Open space, Intergovernmental Coordination and Capital Improvement.

See attached Justification.

4. How does the proposed project comply with City requirements for preservation of natural resources and native vegetation (Section 78-301, Land Development Regulations)?

See attached Justification.

5. How will the proposed project comply with City requirements for Art in Public Places (Chapter 78-261, Land Development Regulations)?

Not applicable at this level of review.

6. Has project received concurrency certification?

Application pending

Date Received:

Legal Descriptionof the Subject Property

(Attach additional sheets if needed)

Or see attached deed for legal description.

Location

The subject property is located approximately 1 mile(s) from the intersection of Seminole Pratt Whitney and Northlake Blvd, on the ☐ north, ☐ east, ☑ south, ☐ west side of Seminole Pratt Whitney Road (street/road).

Applicant's Certification

I/We affirm and certify that I/we understand and will comply with the land development regulations of the City of Palm Beach Gardens, Florida. I We further certify that the statements or diagrams made on any paper or plans submitted here with are true to the best of my/our knowledge and belief. Further, I/we understand that this application, attachments, and application filing fees become a part of the official records of the City of Palm Beach Gardens, Florida, and are not returnable.

Applicant is:

☐ Owner

☐ Optionee

☐ Lessee

☑ Agent

☐ Contract Purchaser

Signature of Applicant

Kenneth Tuma

Print Name of Applicant

477 S. Rosemary Avenue, Suite 225

Street Address

West Palm Beach, FL 33401

City, State, Zip Code

561-366-1100

Telephone Number

561-366-1111

Fax Number

ktuma@udkstudios.com

E-Mail Address

Palm Beach Gardens Planning and Zoning Department
10500 North Military Trail, Palm Beach Gardens, FL 33410
561-799-4230

Permit #_____

Financial Responsibility Form

The owner understands that all City-incurred professional fees and expenses associated with the processing of this application request are ultimately the responsibility of the owner. A security deposit shall be deposited in an interest-bearing account with any accrued interest to be retained by the City of Palm Beach Gardens.

The owner and/or designee shall be invoiced on a monthly basis for professional fees such as, but not limited to, consultant engineering services, legal services, advertising costs, and/or any other costs attributable to the processing of the permit for which the City incurred during the previous month. The owner and/or designee shall reimburse the City within thirty (30) days from date of invoice. If payment is not received, the City may utilize the security deposit for re-imbursement purposes. **All activities related to the pending permit(s) will cease until any outstanding invoices are paid.**

The owner/designee further understands that transfer of this responsibility shall require a completed form, signed and notarized by the responsible party, and delivered to the City Planning and Zoning Department if the name and/or address of the responsible party changes at anytime during the application review process.

Owner signature — 9/15/14 *Date*

David Serviansky, President, Avenir Holdings, LLC — See attached.

Owner printed name — *Property Control Number*

DESIGNEE/BILL TO:

Avenir Holdings, LLC

550 Biltmore Way, Suite 1110

Coral Gables, FL 33134

Designee Acceptance Signature

NOTARY ACKNOWLEDGEMENT

STATE OF Florida

COUNTY OF ~~Palm Beach~~ Miami-Dade

I hereby certify that the foregoing instrument was acknowledged before me this 15th day of _____, 2014, by David Serviansky. He or she is personally known to me or has produced _____ as identification.

Notary public signature

Printed name

CLARA L. DIAZ
Notary Public - State of Florida
My Comm. Expires Oct 30, 2015
Commission # EE 134194
Bonded Through National Notary Assn.

State of Florida at-large

My Commission expires: _____

STATEMENT OF OWNERSHIP AND DESIGNATION OF AUTHORIZED AGENT

Before me, the undersigned authority, personally appeared **DAVID SERVIANSKY**, who being sworn on oath, deposes and says:

That, he is the **PRESIDENT** of **AVENIR HOLDINGS, LLC**, which is the Owner of certain properties, as described in the attached legal description: *(See attached Exhibit A)*

1. That he is authorized to act on behalf of **AVENIR HOLDINGS, LLC**, with regard to this application, and;

2. That, **AVENIR HOLDINGS, LLC**, is requesting approval for an amendment to the Comprehensive Plan for land use map and text modifications, amendment to the Land Development Regulations for a text modification, a rezoning/planned community development, concurrency, and concurrent processing approvals to allow the development of the property as a Planned Community Development;

3. That, **AVENIR HOLDINGS, LLC**, has appointed **KENNETH TUMA, LINDSAY MURPHY, and URBAN DESIGN KILDAY STUDIOS** to act as Agent on its behalf to accomplish the above, and;

4. That, **AVENIR HOLDINGS, LLC**, and/or its successors or assigns, commits to proceed with the proposed development in accordance with the Ordinances and Resolutions of approval and such conditions and safeguards as may be set by the City Council in such Ordinance and Resolution, and;

5. That **AVENIR HOLDINGS, LLC**, or its successors or assigns, commits to complete the development according to the plans approved by such Ordinance, and to continue operating and maintaining such area, functions, and facilities as are not to be provided, operated or maintained by the City of Palm Beach Gardens pursuant to written agreement, and;

6. That, **AVENIR HOLDINGS, LLC**, commits to bind any successors in title to any commitments made in the approval.

AVENIR HOLDINGS, LLC

By:_____
DAVID SERVIANSKY, PRESIDENT

Sworn to and subscribed before me this 15th day of September, 2014.

(Notary Seal)

Notary Public, State of Florida
Commission Number _____
My Commission Expires: _____

CLARA L. DIAZ
Notary Public - State of Florida
My Comm. Expires Oct 30, 2015
Commission # EE 134194
Bonded Through National Notary Assn.

EXHIBIT A

LEGAL DESCRIPTION
AVENIR PLANNED COMMUNITY DEVELOPMENT

LEGAL DESCRIPTION:

SEE ATTACHED DEED

CFN 20120436909
OR BK 25564 PG 1325
RECORDED 10/31/2012 13:09:39
Palm Beach County, Florida
AMT 20,000,000.00
Doc Stamp 140,000.00
Sharon R. Bock, CLERK & COMPTROLLER
Pgs 1325 - 1329; (5pgs)

This instrument prepared by:
Lawrence C. Griffin, Esq.
Haile, Shaw & Pfaffenberger, P.A.
660 US Highway One, 3rd Floor
North Palm Beach, FL 33410

The actual purchase price or other valuable consideration paid for the real property or interest conveyed by this instrument is $20,000,000.00. Documentary stamps in the amount of $140,000.00 has been paid hereon.

Tax Folio Numbers are listed in Exhibit A

SPECIAL WARRANTY DEED

THIS INDENTURE, made this 12 day of October, 2012, between WIFL, LLC, A Florida limited liability company, whose address is 2655 North Ocean Drive, Suite 404, Singer Island, Florida, 33404, hereinafter referred to as "Grantor", and WAL DEVELOPMENT GROUP, LLC, a Florida limited liability company, whose address is 550 Biltmore Way, Suite 1110, Coral Gables, Florida, 33134, hereinafter referred to as "Grantee".

WITNESSETH:

That Grantor, for and in consideration of the sum of TEN AND NO/100 ($10.00) DOLLARS and other good and valuable considerations, in hand paid by Grantee, the receipt whereof is hereby acknowledged, by these presents does grant, bargain, sell, alien, remise, release, convey and confirm unto Grantee, those certain lands situate, lying and being in the County of Palm Beach, State of Florida, described as follows:

See attached Exhibit A.

TOGETHER with all the tenements, hereditaments and appurtenances thereto belonging or in anywise appertaining, and the reversion or reversions, remainder or remainders, rents, issues and profits thereof.

TO HAVE AND TO HOLD the above granted, bargained and described premises, with the appurtenances thereto, unto said Grantee to Grantee's own proper use, benefit and behoof forever, SUBJECT TO:

1. Conditions, restrictions, limitations, easements, reservations, zoning ordinances and other matters of record, if any, none of which are hereby reimposed; and

2. Real estate taxes for the year 2012 and subsequent years.

V140.006/00171335 v1

AND Grantor hereby covenants as follows:

A. That the lands conveyed hereby are free from all encumbrances made by Grantor; and

B. Grantor has good right and lawful authority to sell and convey the above-described real property, and hereby warrants the title to said real property for any acts of Grantor and will defend the title against the lawful claims and demands of all persons claiming by, through or under Grantor, but against none other.

IN WITNESS WHEREOF, Grantor has hereunto set his hand and seal the day and year first above written.

Signed, sealed and delivered
in the presence of:

Print Name: LAWRENCE C. GRIFFIN

Print Name: Judith F. Vavrus

GRANTOR:

WIFL, LLC, a Florida limited liability company

CHARLES VAVRUS, SR.
By: Charles Vavrus Sr., as Sole Member and Manager

STATE OF FLORIDA)
) SS:
COUNTY OF PALM BEACH)

The foregoing Special Warranty Deed was acknowledged before me this 12 day of Oct, 2012, by Charles Vavrus as sole Member and Manager of WIFL, LLC, a Florida limited liability company on behalf of said company( ) who is personally known to me OR ( ) who produced a driver's license as identification.

Notary Signature

LAWRENCE C. GRIFFIN
Print Notary Name

NOTARY PUBLIC
State of Florida at Large

My Commission Expires: 11-28-2012

LAWRENCE C. GRIFFIN
MY COMMISSION # DD 828245
EXPIRES: November 28, 2012
Bonded Thru Notary Public Underwriters

V140.006/00171335 v1

EXHIBIT "A"
LEGAL DESCRIPTION

PARCEL 1
Tax ID Numbers:
52-41-41-28-00-000-5010
52-41-41-32-00-000-5010
52-41-41-33-00-000-1020

ALL OF SECTION 28, 32 AND 33, LYING SOUTH AND EAST OF CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT CANAL C-18 AND SEABOARD AIRLINE RAILROAD, TOWNSHIP 41 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA.

PARCEL 2
Tax ID Numbers:
52-41-42-04-00-000-9000
52-41-42-05-00-000-1000

ALL OF SECTION 4, AND THE EAST ONE-HALF (E ½) OF SECTION 5, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA.

PARCEL 3
Tax ID Numbers:
52-41-42-08-00-000-1010
52-41-42-09-00-000-1010
52-41-42-16-00-000-1010
52-41-42-17-00-000-1000

THE EAST ONE-HALF (E ½) OF SECTION 8, ALL OF SECTION 9, ALL OF SECTION 16 (EXCEPT THE SE ¼ THEREOF), AND THE EAST ONE-HALF (E ½) OF SECTION 17, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA, NORTH OF THE LAKE PARK WEST EXTENSION ROAD AS NOW LOCATED.

PARCEL 4
Tax ID Numbers:
52-41-42-10-00-000-9000
52-41-42-14-00-000-3020
52-41-42-15-00-000-1000

ALL OF SECTION 10, THE WEST ONE-HALF (W ½) OF SECTION 14, AND ALL OF SECTION 15, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA, NORTH OF THE LAKE PARK EXTENSION ROAD AS NOW LOCATED.

LESS AND EXCEPT FROM PARCEL 4 LANDS DESCRIBED IN LIS PENDENS RECORDED IN OFFICIAL RECORDS BOOK 12056, PAGE 511, ORDER OF TAKING

RECORDED IN OFFICIAL RECORDS BOOK 12173, PAGE 5, STIPULATED FINAL JUDGMENT AND ORDER OF DISBURSEMENT RECORDED IN OFFICIAL RECORDS BOOK 20185, PAGE 401, AND LANDS DESCRIBED IN DEED RECORDED IN OFFICIAL RECORDS BOOK 6114, PAGE 637.

PARCELS 1 THROUGH 4 ABOVE ARE ALSO DESCRIBED ON SURVEY BY ASSOCIATED LAND SURVEYORS DATED 6-30-2005 UNDER JOB NO. P265 AS FOLLOWS:

ALL OF SECTIONS 28, 32 AND 33, LYING SOUTHEAST OF THE CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT CANAL C-18 AS RECORDED JUNE 8, 1954 IN DEED BOOK 1056, PAGE 456, PUBLIC RECORDS OF PALM BEACH COUNTY, FLORIDA, AND SOUTHWEST OF THE SEABOARD AIRLINE RAILROAD, TOWNSHIP 41 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA.

TOGETHER WITH

ALL OF SECTION 4, AND THE EAST ONE-HALF (E ½) OF SECTION 5 LYING SOUTHEAST OF THE CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT CANAL C-18 AS RECORDED JUNE 8, 1954 IN DEED BOOK 1056, PAGE 456, PUBLIC RECORDS OF PALM BEACH COUNTY, FLORIDA;

TOGETHER WITH

THE EAST ONE-HALF (E ½) OF SECTION 8, ALL OF SECTIONS 9 AND 10, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA;

TOGETHER WITH

THE WEST ONE-HALF (W ½) OF SECTION 14, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA, LYING NORTH OF LAKE PARK ROAD WEST EXTENSION (A/K/A NORTHLAKE BOULEVARD);

EXCEPTING THE LANDS LYING IN SAID SECTION 14 AS RECORDED IN OFFICIAL RECORDS BOOK 6114, PAGE 637, PUBLIC RECORDS OF PALM BEACH COUNTY, FLORIDA;

TOGETHER WITH

ALL OF SECTION 15, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA, LYING NORTH OF LAKE PARK ROAD WEST EXTENSION (A/K/A NORTHLAKE BOULEVARD);

V140.006/00171335 v1

TOGETHER WITH

ALL OF SECTION 16, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA, LESS AND EXEPT THE SOUTHEAST ONE-QUARTER THEREOF, LYING NORTH OF LAKE PARK ROAD WEST EXTENSTION (A/K/A NORTHLAKE BOULEVARD);

TOGETHER WITH

THE EAST ONE-HALF (E ½) OF SECTION 17, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA, LYING NORTH OF LAKE PARK ROAD WEST EXTENSION (A/K/A NORTHLAKE BOULEVARD)

V140.006/00171335 v1

Avenir Property Control Numbers

1) 52-41-41-28-00-000-5010
2) 52-41-41-32-00-000-5010
3) 52-41-41-33-00-000-1020
4) 52-41-42-05-00-000-1000
5) 52-41-42-04-00-000-9000
6) 52-41-42-10-00-000-9000
7) 52-41-42-08-00-000-1010
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9) 52-41-42-17-00-000-1000
10) 52-41-42-16-00-000-1010
11) 52-41-42-15-00-000-1000
12) 52-41-42-14-00-000-3020

CFN 20120436909
OR BK 25564 PG 1325
RECORDED 10/31/2012 13:09:39
Palm Beach County, Florida
ANT 20,000,000.00
Doc Stamp 140,000.00
Sharon R. Bock, CLERK & COMPTROLLER
Pgs 1325 - 1329; (5pgs)

This instrument prepared by:
Lawrence C. Griffin, Esq.
Haile, Shaw & Pfaffenberger, P.A.
660 US Highway One, 3rd Floor
North Palm Beach, FL 33410

The actual purchase price or other valuable consideration paid for the real property or interest conveyed by this instrument is $20,000,000.00. Documentary stamps in the amount of $140,000.00 has been paid hereon.

Tax Folio Numbers are listed in Exhibit A

SPECIAL WARRANTY DEED

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WITNESSETH:

That Grantor, for and in consideration of the sum of TEN AND NO/100 ($10.00) DOLLARS and other good and valuable considerations, in hand paid by Grantee, the receipt whereof is hereby acknowledged, by these presents does grant, bargain, sell, alien, remise, release, convey and confirm unto Grantee, those certain lands situate, lying and being in the County of Palm Beach, State of Florida, described as follows:

See attached Exhibit A.

TOGETHER with all the tenements, hereditaments and appurtenances thereto belonging or in anywise appertaining, and the reversion or reversions, remainder or remainders, rents, issues and profits thereof.

TO HAVE AND TO HOLD the above granted, bargained and described premises, with the appurtenances thereto, unto said Grantee to Grantee's own proper use, benefit and behoof forever, SUBJECT TO:

1. Conditions, restrictions, limitations, easements, reservations, zoning ordinances and other matters of record, if any, none of which are hereby reimposed; and

2. Real estate taxes for the year 2012 and subsequent years.

V140.006/00171335 v1

AND Grantor hereby covenants as follows:

A. That the lands conveyed hereby are free from all encumbrances made by Grantor; and

B. Grantor has good right and lawful authority to sell and convey the above-described real property, and hereby warrants the title to said real property for any acts of Grantor and will defend the title against the lawful claims and demands of all persons claiming by, through or under Grantor, but against none other.

IN WITNESS WHEREOF, Grantor has hereunto set his hand and seal the day and year first above written.

Signed, sealed and delivered
in the presence of:

Print Name: LAWRENCE C. GRIFFIN

Print Name: Judith F. Vavrus

GRANTOR:

WIFL, LLC, a Florida limited liability company

CHARLES VAVRUS, SR

By: Charles Vavrus Sr., as Sole Member and Manager

STATE OF FLORIDA)
) SS:
COUNTY OF PALM BEACH)

The foregoing Special Warranty Deed was acknowledged before me this 12 day of Oct, 2012, by Charles Vavrus as sole Member and Manager of WIFL, LLC, a Florida limited liability company on behalf of said company( ) who is personally known to me OR ( ) who produced a driver's license as identification.

Notary Signature

LAWRENCE C. GRIFFIN

Print Notary Name

NOTARY PUBLIC
State of Florida at Large

My Commission Expires: 11-28-2012

LAWRENCE C. GRIFFIN
MY COMMISSION # DD 828245
EXPIRES: November 28, 2012
Bonded Thru Notary Public Underwriters

V140.006/00171335 v1

EXHIBIT "A"
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52-41-42-08-00-000-1010
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52-41-42-17-00-000-1000

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Tax ID Numbers:
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52-41-42-14-00-000-3020
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LESS AND EXCEPT FROM PARCEL 4 LANDS DESCRIBED IN LIS PENDENS RECORDED IN OFFICIAL RECORDS BOOK 12056, PAGE 511, ORDER OF TAKING

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TOGETHER WITH

THE EAST ONE-HALF (E ½) OF SECTION 8, ALL OF SECTIONS 9 AND 10, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA;

TOGETHER WITH

THE WEST ONE-HALF (W ½) OF SECTION 14, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA, LYING NORTH OF LAKE PARK ROAD WEST EXTENSION (A/K/A NORTHLAKE BOULEVARD);

EXCEPTING THE LANDS LYING IN SAID SECTION 14 AS RECORDED IN OFFICIAL RECORDS BOOK 6114, PAGE 637, PUBLIC RECORDS OF PALM BEACH COUNTY, FLORIDA;

TOGETHER WITH

ALL OF SECTION 15, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA, LYING NORTH OF LAKE PARK ROAD WEST EXTENSION (A/K/A NORTHLAKE BOULEVARD);

TOGETHER WITH

ALL OF SECTION 16, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA, LESS AND EXEPT THE SOUTHEAST ONE-QUARTER THEREOF, LYING NORTH OF LAKE PARK ROAD WEST EXTENSTION (A/K/A NORTHLAKE BOULEVARD);

TOGETHER WITH

THE EAST ONE-HALF (E ½) OF SECTION 17, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA, LYING NORTH OF LAKE PARK ROAD WEST EXTENSION (A/K/A NORTHLAKE BOULEVARD)

V140.006/00171335 v1

July 24, 2013

FLORIDA DEPARTMENT OF STATE
Division of Corporations

AVENIR HOLDINGS, LLC
550 BILTMORE WAY, SUITE 1110
CORAL GABLES, FL 33134

Re: Document Number L12000099243

The Articles of Amendment to the Articles of Organization for WAL DEVELOPMENT GROUP, LLC which changed its name to AVENIR HOLDINGS, LLC, a Florida limited liability company, were filed on July 23, 2013.

This document was electronically received and filed under FAX audit number H13000161008.

Should you have any questions regarding this matter, please telephone (850) 245-6051, the Registration Section.

Joey Bryan
Regulatory Specialist II
Division of Corporations

Letter Number: 413A00017865

P.O BOX 6327 – Tallahassee, Florida 32314

ARTICLES OF AMENDMENT TO

ARTICLES OF ORGANIZATION

OF

WAL DEVELOPMENT GROUP, LLC

Pursuant to the provisions of Florida Statutes Chapter 608.411, WAL DEVELOPMENT GROUP, LLC, a limited liability company organized and existing under the Florida Limited Liability Company Act ("Act") of the State of Florida (the "Company"), in accordance with actions duly adopted by the Manager of the Company by unanimous written consent dated July 18, 2013, hereby adopts the following amendment to its Articles of Organization:

Article I of the Articles of Organization of the Company is hereby deleted in its entirety and is replaced as follows:

ARTICLE I - NAME

The name of the Limited Liability Company is AVENIR HOLDINGS, LLC.

The date of filing of the Articles of Organization is August 1, 2012.

IN WITNESS WHEREOF, this Articles of Amendment has been executed on behalf of the Company as of the 18th day of July, 2013.

Signature of a member or authorized representative of a member

Rosa Eckstein Schechter

Typed or printed name of signee

AVENIR
PROJECT NARRATIVE

NOVEMBER 4, 2015

urban design kilday STUDIOS

Urban Planning and Design
Landscape Architecture
Communication Graphics

I. INTRODUCTION/EXECUTIVE SUMMARY

On behalf of the applicant, Avenir Holdings, LLC, Urban Design Kilday Studios hereby respectfully submits application requests for a Future Land Use Map Amendment, a Comprehensive Plan Text Amendment, a Concurrency Certificate, a Rezoning/Planned Community Development and Concurrent Processing for a property to be known as "Avenir".

Avenir is generally located in northeastern Palm Beach County within the municipal limits of the City of Palm Beach Gardens and is approximately 4.5 miles in its longest dimension (north-south), and 2.5 miles in its widest dimension (east-west). The site has been given a situs address of 12001 Northlake Avenue. The list of property control numbers by which the Property Appraiser's office identifies the property is included as part of the City's Development Application.

The 4,762.9 +/- acre property is presently undeveloped, with the vast majority of the property in agricultural land cover types along with minor components of natural systems. Long-term agricultural and silvicultural use has resulted in significant alteration of the property from its natural state, including surface water drainage and management improvements in association with timber harvest, row crops and cattle grazing. There are remaining natural resources on the site, primarily in the form of wetland systems as well as some areas of native upland habitat, ranging from very poor through excellent ecological quality. Currently the land cover includes primarily improved pasture with active cattle grazing as well as areas of unimproved pasture, other agricultural lands, including inactive row crops, and upland and wetland natural systems typical for the region. Overall, more than 75% of the property is characterized by non-native and in most cases invasive vegetation species that severely degrade the native habitat functions of the property.

The property has 11,565 feet of linear frontage on Northlake Boulevard at its southern boundary, and 1,687 feet of frontage on the SR 710 Beeline Highway at its northern boundary. The C-18 Hungryland Slough Canal is adjacent to the diagonal northwestern boundary. The property is bordered to the east by the Sweetbay Natural Area, the North County General Aviation Airport, a portion of the Loxahatchee Slough, a portion of the Grassy Waters Preserve, the City of Palm Beach Gardens Municipal Golf Course and a small vacant parcel to the east. The property is bordered to the west by the former Mecca Farms citrus grove (recently approved for water management under South Florida Water Management District (SFWMD) and a gun range) and the Acreage residential community to the west. There is a small rectangular outparcel

(approximately 100 acres) located along Northlake Boulevard about midway across the Avenir parcel.

The property has two future land use designations, Rural Residential 10 (RR10) and Rural Residential 20 (RR20). Based on the RR10, one residential unit per 10 acres and RR20, one residential unit per 20 acres, a total of 406 residential units would be permitted on the property. As illustrated on the Existing Future Land Map, the property is located outside the Urban Growth Boundary, and is within the Western Northlake Boulevard Corridor Planning Area. The property has a zoning designation of Planned Development Area district (PDA), which is a holding zone until an application for development order approval is submitted, and has a Conditional Use Overlay over the entire property.

The applicant is requesting a:

1) Future Land Use Map Amendment to modify the land use designation of the property from RR10 and RR20 to Mixed Use (MXD), to modify the location of the Urban Growth Boundary (UGB) to include the property, and to add a note capping the intensity and density of the property to the proposed development program or equivalent trips;
2) A Comprehensive Plan Text Amendment to amend policies within the City's Comprehensive Plan to allow for the modification of the UBG;
3) Rezoning to modify the zoning designation from PDA to Mixed Use (MXD) and Planned Community Development (PCD) overlay and reduce the Conditional Use Overlay for Agriculture from all but 20 acres of the property. The application also includes a request for approval of a Master Plan;
4) Concurrency request for the proposed development program;
5) Concurrent Processing to allow the concurrent processing of applications for a Large Scale Future Land Use Map Amendment, a Comprehensive Plan Text Amendment, a Rezoning/PCD and Concurrency.

The approval of the submitted applications will allow for a mixed use community in the western part of the City that strikes a unique balance between the natural and built environments. The applicant is proposing to dedicate the northern and western 2,407 acres, or 51%, of the property to conservation purposes. This will allow for the preservation and restoration of the historic hydrologic and wildlife connections between regional conservation lands and natural areas. The lands proposed for protection as conservation is slightly larger than the entire PGA National Development of Regional Impact. In the northern portion of the property, conservation of cut-over pine flatwoods habitat will provide for a natural area connection from the JW Corbett Wildlife Management Area, Unit 11 Regional Off-Site Mitigation Area and Hungryland Slough to the west across to the Sweetbay Natural Area to the east. Through the central portion of the Avenir property, restoration of altered agricultural areas will create a conservation corridor that will connect Hungryland Slough and the Mecca Farms property in the west to the Sweetbay Natural Area and Grassy Waters to the east. The conservation corridor ranges in width from a

minimum of approximately 1,500 feet to more than two miles in a north-south orientation and 1.5 to over 2 miles in width in an east-west orientation. This conservation corridor will reduce potential effects of home range fragmentation and provide continued opportunities for genetic exchange between adjacent natural areas. The large area of preservation in the northern half of the property will allow for major improvements in wetland functions, will improve wildlife habitat, will provide increased flows to Grassy Waters and the Loxahatchee River, and will improve regional water quality. The opportunity to procure these benefits has been a City, County, Regional and State goal for many years. The City's Comprehensive Plan notes that approximately 14,458 acres (41.4%) of the City is dedicated toward conservation. The conservation of 51% of the Avenir property will increase the land area in the City dedicated to conservation from approximately 41.4% to approximately 48.4%, or an increase of 7%.

The balance of the property is being dedicated to the development of the Avenir community, which includes residential, employment center, neighborhood commercial, institutional, open space and civic uses, which will be interconnect by a series of pedestrian and bicycle friendly roadways and trails. In preparation for this submittal, a specific population study and forecast was conducted by Fishkind & Associates. The study indicates that the City's population is anticipated to grow an average of 1,066 new residents annually until 2040. A review of the future residential capacity of the existing vacant lands, as determined by the City's existing Future Land Use designations, revealed that the City has the ability to meet this anticipated population growth and housing needs for the next 8.8 years. With the requested amendment, the Avenir will extend the City's ability to accommodate the anticipated growth for more than 17 years, which falls within the typical 15 to 20 year planning timeframe.

In addition, the Avenir community will provide much needed services, entertainment destinations and jobs in proximity to the western communities, which is typified with sprawling, low-density development and few services. The City's Comprehensive Plan (Policy 1.3.1.2.) requires a market study to help determined the need for the proposed future land use map amendment. The analysis, conducted by Fishkind & Associates, concluded that sufficient market demands exist and are anticipated for the proposed mixture of commercial, corporate office, medical office and hotel uses. The mixture of homes, jobs, shopping, education and recreation within the Avenir community and will shorten travel times typically necessary to access such services located in the western part of the City and County.

The proposed Avenir community will be comprised of the following mix of uses:

MXD PCD Development Program	
Conservation Land	**2,407 acres**
Development Area	**2,350.6 acres**
Single Family	3,735 units
Townhomes	250 units
Professional Office	1,800,000 square feet

Medical Office	200,000 square feet
Commercial	400,000 square feet
Hotel	300 Rooms (approx 80,000 square feet)
Field-To-Table Farm	20 acres
Park (land dedication)	55 acres
Civic/Recreation (land dedication)	60 acres
Police/Fire City Annex (land dedication)	15 acres
Public School – Elementary (land dedication)	15 acres (approx 600 students)
ROW Dedication (Northlake)	**5.3 acres**
TOTAL MXD PCD LAND AREA	**4,762.9 acres**
Residential Density	0.84 du/ac
Office/Commercial/Hotel Intensity	0.01

The development of the project will be phased. Buildout is anticipated to occur after 2035. According to a Fiscal Impact Analysis prepared by Fishkind & Associates, over 20 years the total impact fees to City and County are expected to be $71.9 million. In addition, it is projected that the development will generate $206 million in additional ad valorem tax revenue by buildout. According to an Economic Impact Analysis prepared by Fishkind & Associates, the project is expected to create 15,853 construction-effected jobs during the 20-year construction build-out and 5,860 permanent jobs, with annual wages of $368 million.

Avenir provides an important transportation connection in western Palm Beach County by providing a new roadway connection between Northlake Boulevard and Beeline Highway. The new north/south link will benefit the surrounding area by minimizing travel times, relieving congestion at existing roadways and intersections, connecting people to local jobs and businesses and acting as an evacuation route.

II. PROPERTY HISTORY

In December 1975, Charles Vavrus purchased the property located in Palm Beach County for the purposes of agricultural use. In March 1991, the City annexed the property, which continued to be used for agricultural uses, into the boundaries of the City. The same year the property was annexed, Palm Beach County voters passed a bond referendum providing the County with $100 million to purchase environmentally sensitive lands for preservation. While the County and other non-profit organizations pursued the acquisition of portions of the subject property, but all attempts were unsuccessful. A second bond referendum providing the County with an additional $150 million to purchase environmentally sensitive lands was passed in March 1999. Again, the County and other non-profit organizations pursued the acquisition of portions of the property, but all attempts were unsuccessful.

In October 2003, the County entered into an “Agreement for Sale, Purchase and Donation” for 2,000 acres of the 4,762.9 acre property to allow for the development of the Gardens Science

and Technology Community DRI ("DRI"). The City of Palm Beach Gardens ("City") was authorized to act as agent for the DRI application and other associated approvals needed, including a Future Land Use Map Amendment, a Comprehensive Plan Text Amendment, a Land Development Regulation Text Amendment and a Rezoning/Planned Community Development approval. The DRI proposed 2 million square feet of research/office uses, 500,000 square feet of Commercial uses, a 300 Room Hotel, 7,500 Residential Units, and 869 acres of preserve, lakes, open space and civic uses on the 2,000 acre site. The proposed residential density of the DRI was 3.75 dwelling units per acre (du/ac). The DRI provided 43% of the land for preserve, lakes, open space and civic uses. It was proposed that the DRI would have been developed in conjunction with the development of the adjacent Mecca site, which was considered for The Scripps Research Institute (TSRI) and was approved for 10 million square feet of Research and Development Space as well as 2,000 residential units. However, TSRI did not ultimately choose the Mecca site and instead moved forward with securing approvals for development on the Briger Tract, also located in the City. Development of the DRI continued until the effects of the downturn in the economy partnered with the severe decline in property values ultimately brought the DRI to a halt. It should be noted that due to changes in State Legislation the proposed development is exempt from DRI review due to its location in the City of Palm Beach Gardens, which is identified by state statutes as a dense urban land area.

In April 2006, a Conditional Use Permit to allow the agricultural uses on the property to continue was secured, consistent with the requirements of the City's Land Development Regulations, via Resolution 49, 2006. The Conditional Use Permit is still valid and is illustrated on the City's Zoning Map**.**

On October 15, 2012, WAL Development Group, LLC (subsequently changed to Avenir Holdings, LLC) purchased the property from a corporation held by Charles Vavrus.

In June 2013, on behalf of the new land owner, the Avenir project was originally submitted to the City for review. The submittal included a request to change the future land use from the current land use designation of Rural Residential (RR-10) and Rural Residential (RR-20) to a newly created land use designation of Mixed Use Community (MXC), and to rezone the subject site from Planned Development Area (PDA) to a newly created zoning district of Mixed Use Community (MXC). The applicant's 2013 development program included:

Dwelling Units .....7,600 (5,100 SF, 1,900 TH, 600 Apts)
Congregate/Assisted Living Facility .....300 beds
Hotel.....300 rooms
Retail Use .....500,000 sf
Office Use .....1,000,000 sf
Medical Office Use .....200,000 sf
University .....4,000 students
Golf Course.....75 acres

Park Use .....115 acres
Civic Use .....TBD
Schools (K-12) .....TBD (1,500 students)

The June 2013 submittal also included detailed "Design Standards" and Illustrative Plans.

The project was reviewed by the City's Development Review Committee (DRC). The DRC issued comments in September 2013. The applicant has taken the past year to review the comments and to meet with community leaders, residents, regulating authorities and appointed and elected officials. The year was spent gathering input, building mutual understanding among all stakeholders, facilitating informed conversations and gaining a better understanding of the community's vision for the property. The applicant has gone to great lengths to engage the community including hosting five community workshops and hundreds of individual meetings.

The first workshop was held on November 14, 2013 at PGA National Resort. Residents of Ballenisles, PGA National and Mirasol were invited to attend to review the project, ask questions and offer feedback. Approximately 5,400 invitations were sent to residents of Ballenisles, PGA National and Mirasol. More than 90 residents attended.

The property owner hosted three Palm Beach Gardens Citywide Community Workshops at the Doubletree on PGA Boulevard on April 7, April 23, and May 5, 2014. Over 3,000 emails were sent to Palm Beach Gardens contacts, and other interested parties, in advance of both the April 7th and April 23rd Workshops, and the email contained information for all three Workshop sessions. In addition, an invitation containing information on all three Workshop sessions were mailed to over 1,500 residents. Lastly, the City sent out notice of the Workshop Series via the City's weekly email mailing to residents. Each of the three Workshops was attended by 50 to 200 people.

A follow-up meeting was held at PGA National Resort on May 28, 2014, focused on transportation and environmental opportunities within the proposed project. A letter was sent to each of the approximately 5,400 property owners in PGA National, as provided by the Property Appraiser, inviting them to attend the meeting. Participants were asked to attend to learn more about the project, to provide comments and input, and to continue to help define the plan for Avenir. Approximately 125 residents attended.

In addition to the larger community workshops, small group meetings were also held at PGA National. Over 1,200 PGA National residents were called and personally invited to a "meet the developer" meetings. These meetings had one to six attendees each, to allow for exchange of information in a small, informal group setting.

Since then, the applicant has revised the development footprint and development program based on the input received over the last year. The previously-introduced development program has been reduced in a number of respects, the most notable of which is the number and type of

dwelling units proposed. The previous Master Plan provided an area of development known as the "Northern Village" in the northern portion of the property. The Northern Village was 664 acres and planned for 1,210 units. After discussions with the environmental community and discussions regarding the value of a cohesive flow way leading to the Loxahatchee Slough, the applicant revised the plan to remove the Northern Village in its entirety. The applicant's 2013 program included 7,600 units, comprised of 5,100 single family units, 1,900 townhomes and 600 apartments.

2015 Submittal

The applicant's current proposal includes 3,985 units, including 3,735 single family units and 250 townhomes, representing a 50% reduction from the original 2013 submittal. Other items such as the location of the north/south connector road and areas for land dedication have been carefully coordinated with the interested parties. The revised **Master Plan** is attached.

III. FUTURE LAND USE PLAN MAP & COMPREHENSIVE PLAN TEXT AMENDMENT

a. Existing and Proposed Land Use Designation of Site

The property has two future land use designations, Rural Residential 10 (RR10) and Rural Residential 20 (RR20). Based on the RR10, one residential unit per 10 acres and RR20, one residential unit per 20 acres, a total of 406 residential units would be permitted on the property. As illustrated on the Existing Future Land Map, the property is located outside the Urban Growth Boundary, and is within the Western Northlake Boulevard Corridor Planning Area.

The applicant is requesting to modify the Urban Growth Boundary (UGB) to include the entirety of the property. The proposed UGB will follow the property lines of the Planned Community Development. The modification of this boundary will allow for a community to be established west of conservation protected lands within the City and within the City of West Palm Beach. The proposed community will have a density consistent with the surrounding communities and will provide services and jobs to the western communities reducing travel miles and travel time. The residential component of the project will extend the City's ability to accommodate the anticipated population growth for more than 17 years, which falls within the typical 15 to 20 year planning timeframe.

The applicant is requesting to modify the land use designation from RR10 and RR20 to Mixed Use (MXD). Per the City's Comprehensive Plan, the MXD land use designation allows a density of up to 7 dwelling units per acre, or up to 33,340 residential units on the property. However, the applicant is proposing to add a note to the Future Land Use Plan Map capping the property to the development program provided in *Section I. Introduction*, to limit the land use designation to the density and intensity prescribed by this program or equivalent trips. Specifically the

development program limits the development to 3,735 single family units and 250 townhomes, which is a density of 0.84 dwelling unit per acre.

The proposed Future Land Use map illustrating the MXD designation, the development capacity note, and the modified Urban Growth Boundary is included as in the submittal documents.

b. Compatibility with the Surrounding Area

The table below summarizes the existing Land Use designation, Zoning designation, and use of the surrounding properties.

EXISTING ZONING AND LAND USE DESIGNATIONS			
DIRECTION	**EXISTING USE**	**ZONING**	**LAND USE**
North	Hungryland Slough	PBG - Conservation (CONS)	PBG - Conservation (CONS)
	Caloosa (Residential)	PBC - Agriculture Residential (AR)	PBC - Rural Residential 10 (RR10)
South	Vacant (portion approved as Shops at Indian Trails)	PBC - PO, MUPD, AR, RE	PBC – CL/RR-5, RR10, RR2.5
	Pierce Hammock Elementary School	PBC - Agricultural Residential (AR)	PBC – Rural Residential 10 (RR10)
	The Acreage (Residential)	PBC - Agriculture Residential (AR)	PBC - Rural Residential 10 (RR10) PBC - Rural Residential 20 (RR20)
East	North County General Aviation Airport	PBG - Public Ownership (PO)	PBC - Utilities and Transportation (U/T)
	Loxahatchee Slough	PBG - Conservation (CONS)	PBG - Conservation (CONS)
	PBG Municipal Golf Course	PBG - Golf (G)	PBG - Public & Institutional (P/I)
	Vacant (Balsamo)	PBC - Agriculture Residential (AR)	PBC – Rural Residential 10 (RR10)
West	Vacant Mecca Farms	PBC - Agriculture Residential (AR)	PBC - Rural Residential 10 (RR10)
	The Acreage (Residential)	PBC - Agriculture Residential (AR)	PBC - Rural Residential 10 (RR10) PBC – Rural Residential 2.5 (RR2.5)
Outparcel on Northlake	Vacant	PBC - Agriculture Residential (AR)	PBC - Rural Residential 20 (RR20)

North: To the northwest of the subject property is the Hungryland Slough Natural Area. Further north, across the Beeline Highway is Caloosa, a residential community within unincorporated Palm Beach County. Caloosa is approved for a density of 0.18 dwelling units per acre.

South: To the south across Northlake Boulevard are vacant land and the Pierce Hammock Elementary School. The vacant land area along the south side of Northlake Boulevard has been approved as a commercial development. Further to the south, is an area of single family homes within unincorporated Palm Beach County known as the Acreage. The Acreage community is developed at a 0.80 dwelling units per acre.

East: To the east and southeast of the property are the North County General Aviation Airport, the Loxahatchee Slough and the Sweetbay Natural Areas, individual areas of environmental lands held in public ownership. East and south of the Loxahatchee Slough is the Grassy Waters Preserve area, also publicly held environmental lands. Further to the east are the residential developments of Osprey Isles (1.0 du/ac), Carleton Oaks (1 du/ac), Stonewall Estates (0.5 du/ac), and Ibis (1.25 du/ac).

West: To the west of the subject site is the property known as Mecca Farms, this property is owed by South Florida Water Management District for utilization for water storage as well as a public shooting range. Further west of the Mecca Farms property is the J.W. Corbett Wildlife Management Area. Residential homes exist at the southwest corner of the subject property within an area of unincorporated Palm Beach County known as the Acreage.

As indicted above, the area surrounding the Avenir development area is typified by low-density residential development and preserved natural areas. The proposed development pattern of the Avenir PCD is consistent with the surrounding land uses. As evidenced by the significant investment in publicly-owned conservation and natural areas surrounding Avenir including the J.W. Corbett Wildlife Management Area, the Loxahatchee Slough, the Sweetbay Natural Area and the Grassy Waters Preserve, the area is of environmental significance to the City, County, Region and State for water control and for safe water supply.

In most cases, the preservation of these lands has been balanced with the development of land for human occupation. The surrounding residential properties are developed at densities between 0.5 du/ac and 1.25 du/ac. The Avenir community is proposed at a density of 0.84 du/ac. Consistent with sound planning practices, many of the surrounding residential developments (i.e. Osprey Isles, Carlton Oaks & Stonewall Estates) have clustered their development to preserve environmentally sensitive lands. The Avenir PCD will similarly cluster development in the southern portion of the property and provide the northern half for conservation, to be protected by a recorded conservation easement. The Acreage, which has been developing since the 1980s, is adjacent to the development area to the south and to the west. The Acreage is typified by larger lot development (lots ranging from 1.25 to 2 acre lots), but did not provide for the protection of conservation lands and was created by draining wetlands and disturbing natural areas. The surrounding area was developed without the provision of basic services to meet the needs of the community such as employment opportunities and/or retail necessities. The applicant is proposing a mixed-use community consistent with the goals of the City to protect environmentally sensitive lands and to curb the impacts of existing urban sprawl by providing a

community that can be self-sustaining through the provision of opportunities to live, work and play within the same community, and all of which will be accessible to the communities that surround Avenir.

c. Comprehensive Plan Level of Service Analysis

It should be noted that while it is standard that the most dense or intensive use allowed under the proposed land use category is analyzed for its impact on facilities and services, because the applicant is proposing to add a note to the Future Land Use Plan that limits the development to the development program provided in *Section I, Introduction*, the analysis below is based on that development program. As such, the Level of Service Analysis is very similar to the Concurrency Analysis, both of which are provided below.

Wastewater/Sanitary Sewer

Comprehensive Plan Level of Service	**Policy 4.A.1.1.3.:** The City shall adopt an average annual daily sanitary sewage flow level of service standard of 107 gallons per City resident per day, until such time as it is revised by the Seacoast Utility Authority. **Policy 4.A.1.1.4.:** The City shall adopt a peak month, average day sanitary sewage flow level of service standard of 118 gallons per City resident per day, until such time as it is revised by the Seacoast Utility Authority. **Policy 4.A.1.1.5.:** The City shall adopt a minimum sanitary sewage treatment plant capacity level of service standard of 118 gallons per City resident per day, until such time as it is revised by the Seacoast Utility Authority.
Current Level of Service	N/A – currently no facilities serving the site
Existing Facilities	The County currently owns and operates underutilized force mains in the vicinity of the property including a 20” force main along Northlake Boulevard, a 20” force main along the west bank of the SFWMD C-18 Canal, and a 6” force main along Bee Line Highway
Programed Facilities/Improvements/Expansions	Extension of sanitary sewer force mains along the extension of PGA Boulevard and installation of several pump stations to service the site.
Required/Proposed Improvements	Network of on-site gravity mains discharging to a series of on-site sewage lift stations, which will pump generated sewage load to existing County facilities and/or future Seacoast Utility Authority Facilities.

Proposed Level of Service	The City's LOS is met. Project will be provided 138 gallons average daily sanitary sewer flow per resident.

An Infrastructure Analysis prepared by Ballbe & Associates has been submitted to the City. The analysis includes a statement from Seacoast Utility Authority which indicates that currently Seacoast has sanitary sewer capacity to serve the proposed development, and that the proposed service meets the City's LOS standard.

Potable Water

Comprehensive Plan Level of Service	**Policy 4.D.1.1.1.:** The City shall adopt an average annual daily potable water consumption level of service standard of 189 gallons per capita per day (gcpd). This shall serve as the level of service standard for the urban area. The rural area shall utilize water wells, unless an alternative service provision is approved by the City Council consistent with Policy 9.1.4.2.(a)-(d). **Policy 4.D.1.1.2.:** The City shall adopt a peak 24-hour potable water consumption level of service standard of 258 gallons per City resident per day. **Policy 4.D.1.1.3.:** The City shall adopt a minimum potable water treatment plant capacity level of service standard of 258 gallons per City resident per day. **Policy 4.D.1.1.4.:** The City shall adopt a minimum potable water storage capacity level of service standard of 34.4 gallons per City resident per day. **Policy 4.D.1.1.5.:** The City shall adopt a minimum water pressure level of service standard of 20 pounds per square inch.
Current LOS	N/A – currently no facilities serving the site
Existing Facilities	The County currently owns and operates underutilized water mains in the vicinity of the property including a 24" water main along Northlake Boulevard, a 24" water main along the west bank of the SFWMD C-18 Canal, and a 12" water main along Bee Line Highway
Programed Facilities/Improvements/Expansions	None

Required/Proposed Improvements	Network of on-site water mains interconnected to the County's existing facilities.
Proposed LOS	LOS is met by the existing Seacoast Utility Authority facilities.

An Infrastructure Analysis prepared by Ballbe & Associates has been submitted to the City. The analysis includes a statement from Seacoast Utility Authority which indicates that currently Seacoast has potable water capacity to serve the proposed development, and that the proposed service meets the City's LOS standard.

Drainage System/Stormwater Management

Comprehensive Plan Level of Service	**Policy 4.C.1.1.3.:** The level of service standard (LOS) for new development will be to have the finished floor above the flooding from a 100-year, 3-day storm with zero discharge**,** or as permitted by SFWMD, including conveyance and retention/detention designed for a 3 day/25-year storm for developments greater than or equal to ten (10) acres or for a 1 day/25-year storm for developments less than ten (10) acres in size. Additionally, the LOS for new development shall require that off-site discharges are limited to historic (predevelopment) discharges and retention/detention requirements shall be the first 1" of run-off or 2.5 inches x the percent of impervious area for the project, whichever is greater, if wet storage is utilized and 75% of wet detention, if dry storage is utilized. All of the above shall be in accordance with SFWMD Rules and Regulations, Basis of Review for Environmental Resource Permit (ERP) Applications.
Current LOS	N/A
Existing Facilities	Drainage ditches interconnected with culverts with flashboard risers. Surface water runoff is conveyed to a primary collector ditch located along the east boundary and flows north along the east boundary to the north property line then west along the north property line until it reaches an existing control structure adjacent to the C-18 canal.
Programed Facilities/Improvements/Expansions	None
Required/Proposed Improvements	The proposed master surface water management system will consists of multiple independent drainage basins and a flow way system which will provide

	hydration to the existing and restored wetlands systems. The proposed developed areas water management system will provide attenuation of peak storm events, protection of roadways, perimeter areas and buildings, and will support acceptable recovery of the surface water system. The proposed drainage system will consist of multiple drainage basins for the developed area and for the conservation area. The water quality treatment facilities will be designed to detain a volume equal to 2.5" times the percent impervious for the developed area and the first1" of runoff for the conservation area as stipulated in the South Florida Water Management District's Basis of Review and the City of Palm Beach Gardens Comprehensive Plan. Water quantity storage will be provided for the following design rainfall events: • 5 Year – 1 Day (Parking areas) • 10 Year – 1 Day (Roads) • 25 Year – 3 Day (Perimeter discharge) • 100 Year – 3 Day (Buildings) Stormwater runoff will be treated within the developed areas prior to discharge to the conservation area and will ultimately discharge to the SFWMD C-18 canal. The control elevation of the conservation area will be raised to restore the natural hydroperiod.
Proposed LOS	The proposed development will meet the LOS standards adopted in the City's Comprehensive Plan.

An Infrastructure Analysis prepared by Ballbe & Associates has been submitted to the City. The analysis includes a drainage statement, an existing drainage facilities plan, and surface water management calculations.

Solid Waste

Comprehensive Plan Level of Service	**Policy 4.B.1.1.1.:** The minimum Level of Service for the City, as recommended by the Waste Management, Inc. and Palm Beach County Solid Waste Authority (PBCSWA) is as follows:

	1. Provide biweekly residential solid waste collection service. 2. Provide residential vegetative waste collection service. 3. Provide residential bulk waste collection service. 4. Provide residential recycling collection service. 5. Provide collection of non-residential solid waste. 6. Require subscription for collection service to residential and non-residential. 7. Provide regulations to enforce the utilization of tarps to cover trash loads.
Current LOS	Provided as required by Comprehensive Plan
Existing Facilities	As of September 30, 2013, the Solid Waste Authority's North County Landfills had an estimated 29,185,183 cubic yards of landfill capacity remaining.
Programed Facilities/Improvements/Expansions	The Authority has contracted for the construction of a second Waste-to-Energy facility, projected to begin operations in 2015.
Required/Proposed Improvements	None
Proposed LOS	The LOS can be met with existing and programed Solid Waste Authority facilities.

An Infrastructure Analysis prepared by Ballbe & Associates has been submitted to the City. The analysis includes a statement from the Solid Waste Authority which indicates that currently SUA has disposal capacity to serve the proposed development and sufficient capacity for concurrency management and comprehensive planning purposes.

Roadway System

Comprehensive Plan Level of Service	LOS D		
Current LOS	• Northlake Boulevard (Coconut Boulevard to SR7) – LOS E • Beeline Highway (Pratt Whitney Road to PGA Boulevard) – LOS B		
Existing Roadways Serving Site	• Northlake Boulevard (Coconut Boulevard to SR7) - estimated 120 ft ROW, 4-lane, County-maintained Principal Arterial. • Beeline Highway (Pratt Whitney Road to PGA Boulevard) – 200 ft ROW, 4-lane, Rural Principal Arterial		
Programed Facilities/Improvements/	Roadway	Improvement	Construction Schedule

Expansions	Northlake Blvd - Seminole Pratt Whitney Rd to Hall Blvd	2L to 4L	FY 2015
	Northlake Blvd – Hall Blvd to Coconut Blvd	2L to 4L	FY 2017
	Seminole Pratt Whitney Rd - Southern Blvd. to Sycamore Dr.	2L to 4L	Under Construction
	Seminole Pratt Whitney Rd - M Canal to Orange Blvd	2L to 4L	Under Construction
	Seminole Pratt Whitney Rd – Orange Blvd to Northlake Blvd	2L to 4L	Under Construction
	SR 7 Extension – Persimmon Blvd to 60th St	0L to 2L	Under Construction
	SR 7 Extension – Okeechobee Blvd to 60th St	2L to 4L	FY 2016
	SR 7 Extension - 60th St to Northlake Blvd	0L to 4L	FY 2017 & 2018
	Roebuck Rd - SR 7 to Jog Rd	0L to 4L	FY 2018
	Jog Rd – Roebuck Rd to - S of 45th St	0L to 4L	FY 2018
Required/Proposed Improvements resulting from amendment	TBD		
Proposed LOS with amendment	With phasing of Assured Construction (publicly committed roadway improvements), committed roadway improvements by the developer and Proportionate Share payments for several roadway links and intersections, the project will mitigate its impacts that may result in a level-of-service (LOS) increase.		

A Land Use Traffic Analysis and a Concurrency Traffic Analysis were submitted as part of the 2013 submittal. The Analyses were reviewed by the pertinent agencies and comments provided. The applicant resubmitted the Concurrency Traffic Analysis in June 2014 to reflect the new development program and to be consistent with the Palm Beach County Traffic Performance Standards (PTS), listed under Article 12 of the Palm Beach County Land Development Code, and consistent with the methodology approved by the reviewing agencies (Palm Beach County, City of Palm Beach Gardens and the Florida Department of Transportation). The reviewing agencies provided comments in July. The applicant is currently working with the reviewing agencies to address their comments.

Recreation

Comprehensive Plan Level of Service	**Policy 7.1.1.1.:** The City shall adopt a LOS standard of 5.0 acres of improved neighborhood and community parks and other recreation and open space facilities for each 1,000 permanent City residents. The LOS standards, which shall be adopted in the Land Development Regulations shall consider access and specific parks and recreation facilities. Parks and Recreation facilities shall be located to serve the entire City population.
Current LOS	The City's Recreation and Open Space Element Support Document dated June 2008 notes that a LOS of 3.7 acres per 1,000 residents would be maintained based on the assumed population in 2015.
Existing Facilities	A list of existing facilities is provided in Table 7:1 and Table 7:2 of the City's Recreation and Open Space Element Support Document dated June 2008.
Programed Facilities/Improvements/Expansions	Not identified in the City's Comprehensive Plan or online documents.
Required/Proposed Improvements	46.82 acres of improved neighborhood and community parks and other recreation and open space facilities located to serve the entire City population is required to maintain the LOS of 5.0 acres per 1,000 residents. The Avenir community will provide 46.82 acres of open space areas, passive parks, clubhouse/pool areas and other recreational amenities within the development pods. The Avenir community will also provide a 55 acre land dedication to allow for the creation of a community park, and a dedication of 60 acres adjacent

	to the municipal golf course. Further, the Avenir community will include 2,408 acres of conservation lands and open space.
Proposed LOS	The Avenir development will provide the necessary parks and open space to maintain the level of service standards.

The City of Palm Beach Garden's Comprehensive Plan, Policy 7.1.1.1. sets the service standard for improved neighborhood and community parks and other recreation and open space facilities within the City. The policy recommends a Level of Service Standard of 5.0 acres per 1,000 residents within the City's Urban Growth Boundary. Based on this, the proposed development should contain 46.82 acres of neighborhood and community parks. Sec. 78-75 of the City of Palm Beach Gardens Land Development Regulations sets the service standard at a lower ratio of 3.7 acres of improved neighborhood and community parks per 1,000 residents. Based on this, the proposed development should contain 41.4 acres of neighborhood and community parks. As noted below, the development will far exceed the level of service requirement set forth in the Comprehensive Plan for recreation and open space.

In addition to the 2,407 acres set aside for conservation, the proposed Avenir community will be comprised of a mix of residential, employment, commercial, open space and civic uses over the development area of 2,350.6 acres, all interconnected by a system of pedestrian and bicycle friendly roadways and trails. The development area will contain numerous open space areas, passive parks, clubhouse/pool areas and other recreational amenities within the workplace district, the neighborhood commercial district and the residential parcels, which will exceed the required 46.82 acres. The location and size criteria for the required improved neighborhood and community parks and other recreation and open space are address in the Avenir Development Standards.

In addition to the 46.82 acres of improved neighborhood and community parks expected within the development area, the applicant is proposing to dedicate 55 acres to the City of Palm Beach Gardens for the creation of a community park. This land dedication is conservatively valued at $745,140 (based upon the recent Mecca Farms land sale), per Fishkind & Associates, Inc.. As recommended by the Comprehensive Plan Recreation and Open Space Element Support Document, the land dedicated for the regional park is located centrally in the development area and located near the community's main roadway to allow convenient access to the residents of the development and to residents of the surrounding communities. The development program for the park will be determined by the City's Parks and Recreation Department, but is likely to include playground areas, sports fields and passive recreation areas.

The applicant is also proposing to dedicate 60 acres to the City for civic and recreation purposes. This land dedication is conservatively valued at $812,880 (based upon the recent Mecca Farms land sale) per Fishkind & Associates, Inc. The acreage and location of the land dedication for the

Public Park and the Civic/Recreation Area is provided on the proposed Master Plan. Lastly, more than 2,408 acres in the northern and western portions of the PCD will be preserved as conservation land, agriculture and open space. The conservation area, among other recreational opportunities such as hiking and kayaking, will allow for the creation of a trail system within the area which will connect to the existing and planned Northeast Everglades Natural Area (NENA) trail sytem.

A service letter request that reflects the revised development program was provided to the City's Parks and Recreation Department on September 10, 2014.

Fire Rescue & Police

Comprehensive Plan Level of Service	**Policy 10.1.2.1.:** The City shall provide the following response times that have been established by Palm Beach Gardens' Fire Rescue according to a fractile standard established during its accreditation process: 1. The City shall provide an initial emergency fire and rescue response to all of the urban service area in nine (9) minutes thirty seconds or less. This response time includes all the process: 911 call, alarm at fire station, deploy, and travel time. 2. The rural service area shall have sixteen- (16) minute or less response time. **Policy 10.1.2.2.:** The City shall maintain an acceptable police service standard index not to exceed 1,000 calls per patrol officer per year to serve the urban area. A Community Oriented Policing philosophy shall be utilized in the urban area. The City shall support a balance between response to incidents and proactive patrols.
Current LOS	Not identified in the City's Comprehensive Plan or online documents.
Existing Facilities	The closest PBG Fire Rescue is Station 3 at 5161 Northlake Boulevard (between Military Trail and Florida's Turnpike).

	The PBG Police Department is located at 10500 North Military Trail (between PGA Boulevard and Burns Road).
Programed Facilities/Improvements/Expansions	Not identified in the City's Comprehensive Plan or online documents.
Required/Proposed Improvements	The initial submittal noted that Civic uses were "TBD". During the DRC process, the Fire Rescue and Police Departments noted that the plan did not show any Police/Fire/City Hall sub stations. The DRC comments further noted that fire rescue infrastructure such as phone, data, and communication and inspector services will be needed, and that police infrastructure such as radios, telephones, and electronic communications to include a communications tower will be needed. Lastly, the DRC comments noted that additional personnel will be needed. The amended submittal provides for 15 acres set aside for Civic uses to include Police/Fire Rescue/City Annex. The general location of the 15-acre Annex parcel is located on the Master Plan as a part of Parcel C – Employment Center. It is estimated that the 15 acre parcel could accommodate up to 150,000 square feet of civic uses. The design of the parcel, the infrastructure and staffing needs will be coordinated with the respective departments during this development review process.
Proposed LOS	The Avenir development will provide the necessary infrastructure and/or funds to maintain the Fire Rescue and Police service standards for urban areas.

A service letter request was provided to the City's Fire Rescue Department on September 10, 2014 that reflects the revised development program. A copy of that letter is attached.

A service letter request was provided to the City's Fire Rescue Department on September 10, 2014 that reflects the revised development program. A copy of that letter is attached.

Schools

Comprehensive Plan Level of Service	**Policy 11.1.1.1..:** The LOS standard is the school's utilization which is defined as the enrollment as a percentage of school student capacity based upon the

	Florida Inventory of School Houses (FISH). The LOS standard shall be established for all schools of each type within the School District as 110 percent utilization, measured as the average for all schools of each type within each Concurrency Service Area.
Current LOS	To be provided by School Board.
Existing Facilities	The schools that serve the property are Pierce Hammock Elementary, Western Pines Middle School, Osceola Middle School and Palm Beach Gardens High.
Programed Facilities/Improvements/Expansions	No additional capacity projects are planned.
Required/Proposed Improvements	When the applicant submitted the land use amendment in June 2013 the School District staff indicated that a total of 1,947 students may be generated from the development. The School District staff requested an elementary school site and funding for classroom additions at possibly the elementary, middle and high schools at the time of development order approval. The applicant also submitted a School Concurrency Application in June 2013. A Concurrency Certificate was issued on August 30, 2013, which noted that there was sufficient capacity within the District but that the LOS in the area-assigned schools may be exceeded. The Concurrency Certificate has expired. As such, a new Concurrency Application is included in this revised submittal. Based on the revised development program, and using the School District's multipliers, the applicant determined that a total of 1,341 students (a reduction in 605 students from the 2013 program) may be generated from the development. Based on the School District's comments on the land use amendment, the applicant is proposing to dedicate 15 acres to the School District to allow for the development of an elementary school. It is anticipated that discussions with the School Board regarding funding of additional classrooms will commence during the development review process.

Proposed LOS	The LOS standard was met based on the 2013 submittal. It is expected that the amended submittal will also meet the LOS standard.

Concurrency and School Impact letters from the School Board of Palm Beach County has been provided to the City for its review and information.

d. Proposed Comprehensive Plan Text Changes

Proposed revisions to goal, objective, policy, or supporting documentation of the Comprehensive Plan is identified below through ~~strikethrough~~ and underlining.

Element	Future Land Use Element
Text Change	**Objective 1.1.1.: Future Land Use Categories** Future land use for Palm Beach Gardens is depicted using a total of 15 land use categories including general land uses and recommended improvements associated with specific land uses. The Future Land Use Element shall outline the desired development pattern for the City of Palm Beach Gardens through a land use category system that provides the allowed uses, location criteria and density of development. The City shall ensure that the City's Zoning Map is consistent with the Future Land Use Map (Map A.1.). The City shall utilize the following chart when assigning a zoning district consistent with the property's Future Land Use category: **Table 1-1: Future Land Use – Zoning Consistency Chart** **Future Land Use Category** / **Consistent Zoning District(s)** Rural Residential / RR10/RR20/PDA (PCD/PUD) Residential Very Low / RE/PDA (PCD/PUD) Residential Low / RL1/RL2/RL3/PDA (PCD/PUD) Residential Medium / RL1/RL2/RL3/RM/PDA (PCD/PUD) Residential High / RL1/RL2/RL3/RM/RH/PDA (PCD/PUD) Mobile Home / RMH/PDA (PCD/PUD) Commercial / CN/CR/CG1/CG2/PO/PDA (PCD/PUD) Professional Office / PO/PDA (PCD/PUD) Industrial / M1/M1A/M2/PDA (PCD/PUD) Public / P/I/PDA Recreation and Open Space / P/I, CONS/PDA Commercial Recreation / CR/PDA Conservation / CONS/PDA Golf / P/I /PDA or as a part of a PUD, PCD Mixed Use / MXD/PDA (PCD/PUD) The Future Land Use Map designates an urban growth boundary. Urban land uses are designated ~~to the east of~~ within this boundary~~. Western lands are designated with~~

	~~r~~Rural or low density land uses are designated outside of this boundary. The primary reason for this is to provide a long-term positive and realistic expectation of orderly service provision, concurrent with the impact of development. The primary reason for this is to provide a long-term positive and realistic expectation of orderly service provision, concurrent with the impact of development. The City of Palm Beach Gardens shall designate all property with one of the land use categories contained in the corresponding policies on the Future Land Use Map. (Map A.1.)
Purpose	The requested text amendment amends the urban service boundary to include the Avenir property. A modification to the UGB, in combination with the applications for a future land use amendment and rezoning, will allow the Avenir property to develop in a manner that is environmentally beneficial to the community, rather than allow for piecemeal development of the property.
Element	**Future Land Use Element**
Text Change	**Policy 1.1.2.8: Urban Growth Boundary (UGB):** The City designates on the Future Land Use Map an Urban Growth Boundary (UGB) which generally coincides with the eastern boundary of the Loxahatchee Slough, and includes areas generally fronting Northlake Boulevard, east of the Hungryland Slough Natural Area, west of the Sweetbay Natural Area and south of the Beeline Highway.
Purpose	The requested text amendment amends the urban service boundary to include the Avenir property. A modification to the UGB, in combination with the applications for a future land use amendment and rezoning, will allow the Avenir property to develop in a manner that is environmentally beneficial to the community, rather than allow for piecemeal development of the property, and will extend the City's ability to accommodate the anticipated growth for the next 17.5 years, which falls within the typical 15 to 20 year planning timeframe. The newly proposed boundary has been delineated on the modified Future Land Use Map proposed by the applicant that is attached as **Exhibit G – Proposed Future Land Use Map**.
Element	**Future Land Use Element**
Text Change	**Policy 1.2.4.1.(a).2.:** For all properties ~~west~~ outside of the urban growth boundary ~~(Loxahatchee Slough)~~, the City shall impose the following requirements, and shall maintain land development regulations necessary to implement these requirements. 1. Development shall be consistent with rural densities and intensities and shall receive services consistent with the adopted level of service standards for the rural

	area. In the event that a site is rezoned to a Planned Community Development (PCD) or to a Planned Unit Development (PUD) it shall include minimum of 250 acres. In addition, a Planned Community District (PCD) shall include, at a minimum, a master development plan indicating all proposed collector roads and supporting documentation which describes what the development is to include and how it is to proceed (phasing); and a Planned Unit Development (PUD) shall include, at a minimum, site plans, landscape plans, and all proposed collector and local roads. All site plans developed within PCDs shall be subject to the densities and intensities assigned to them under the PCD master plan documentation. A waiver from the minimum size threshold may be granted by the City Council for existing parcels of lesser size as of February 19, 1998. The City Council may also grant a waiver to allow government entities to develop properties, of less than five acres, ~~west~~ outside of the City's urban growth boundary if the site is designated Conservation on the Future Land Use Map and if the site is restricted or related to conservation purposes, passive recreation use, or pedestrian trails. # # # #
Purpose	The requested text amendment amends the urban service boundary to include the Avenir property. A modification to the UGB, in combination with the applications for a future land use amendment and rezoning, will allow the Avenir property to develop in a manner that is environmentally beneficial to the community, rather than allow for piecemeal development of the property, and will extend the City's ability to accommodate the anticipated growth for the next 17.5 years, which falls within the typical 15 to 20 year planning timeframe. The newly proposed boundary has been delineated on the modified Future Land Use Map proposed by the applicant that is attached as **Exhibit G – Proposed Future Land Use Map**.
Element	**Future Land Use Element**
Text Change	**Policy 1.2.4.4.(b).:** In order to prevent urban sprawl and promote cost effective and efficient service delivery, the City has designated an Urban Growth Boundary (UGB) which generally coincides with the eastern boundary of the Loxahatchee Slough, and generally includes areas fronting Northlake Boulevard, east of the Hungryland Slough Natural Area, west of the Sweetbay Natural Area and south of the Beeline Highway. The UGB is designated on the Future Land Use Map (Map A.1.). The UGB divides the City into distinct areas, urban and rural. These two distinct areas are designated with land uses (densities and intensities) consistent with urban and rural characteristics and shall receive public services and facilities at levels appropriate for such urban and rural uses, as defined in the Capital Improvement Element.

Purpose	The requested text amendment amends the urban service boundary to include the Avenir property. A modification to the UGB, in combination with the applications for a future land use amendment and rezoning, will allow the Avenir property to develop in a manner that is environmentally beneficial to the community, rather than allow for piecemeal development of the property, and will extend the City's ability to accommodate the anticipated growth for the next 17.5 years, which falls within the typical 15 to 20 year planning timeframe. The newly proposed boundary has been delineated on the modified Future Land Use Map proposed by the applicant that is attached as **Exhibit G – Proposed Future Land Use Map**.

e. Comprehensive Plan Consistency

With the exception of the proposed amendments outlined above, the proposed request is consistent with the Goals, Objectives and Policies of the City's Comprehensive Plan. During the development review process of the 2013 submittal, City staff identified numerous Comprehensive Plan Goals, Objectives and Policies that they felt were not addressed adequately. Below is an analysis of those Goals, Objectives and Policies, and other Goals, Objectives and Policies, demonstrating that the proposed mixed-use community is consistent with the City's Comprehensive Plan.

FUTURE LAND USE ELEMENT

Goal 1.1.

Goal 1.1. of the Future Land Use element states: *"Continue to ensure a high quality living environment through a mixture of land uses that will maximize Palm Beach Gardens' Natural and manmade resources while minimizing any threat to the health, safety, and welfare of the City's citizens that is caused by incompatible land uses which consider the intensities and densities of land use activities, their relationship to surrounding properties and the proper transition of land uses."*

The proposed Avenir Master Plan creates the environment to ensure a high-quality of living that City residents have enjoyed for more than 50 years. The majority of the site, 2,407 acres or 51% of the property, will be dedicated for conservation purposes to allow for the continued preservation of the natural resources on site, both upland and wetland environments. The conservation area will be located on the northern portion of the site where it will be adjacent to and in close proximity to other environmentally-sensitive lands and conservation areas allowing for connectivity and restoration of the historic flow way. The southern portion of the site will be a mixed use community featuring a variety of residential and non-residential uses within a pedestrian-friendly environment. The proposed overall density of the residential portion of the project is 0.84 dwelling unit per acre, which is consistent with the low density nature of

surrounding properties. The non-residential portions of the mixed-use community will provide employment, services, education, shopping, civic and recreational opportunities to the residents of Avenir, the City, and the surrounding communities. The Master Plan has been designed to ensure the health, safety and welfare of the residents is maximized.

Policy 1.1.1.15.: Mixed Use Development (MXD):

Policy 1.1.1.15 states: *"The Mixed Use Development category is designed for new development which is characterized by a variety of integrated land use types. The intent of the category is to provide for a mixture of uses on single parcels in order to develop sites which are sensitive to the surrounding uses, desired character of the community, and the capacity of public facilities to service proposed developments. This Future Land Use category is also intended to foster infill and redevelopment efforts, to deter urban sprawl and to encourage new affordable housing opportunities, as well as lessen the need for additional vehicular trips through the internalization of trips within a neighborhood or project. To create a functioning, multi-faceted type of development, mixed use development is dependent on the successful integration of distinct uses. Integration is defined as the combination of distinct uses on a single site where the impacts from differing uses are mitigated through site design techniques, and where impacts from differing uses are expected to benefit from the close proximity of complementary uses. All requests for development approval based on a mixed use concept must be able to demonstrate functional horizontal integration of the allowable uses, and where applicable, vertical integration as well."*

The proposed Avenir mixed-use community is consistent with the referenced policy as it closely integrates various land use types within a pedestrian and bicycle-friendly environment. The location of these various requested land uses in a horizontally-integrated manner will help internalize vehicular trips and encourage affordable living arrangements through the provision of a variety of housing types and sizes and less dependence on the automobile as the sole transportation factor. The proposed mixed-use community brings about the desired character of development envisioned by the City and by this policy.

Policy 1.1.2.4.: Western Northlake Corridor Planning Area:

Policy 1.1.2.4 states: *"A Western Northlake Corridor Planning Area shall be maintained on the City's Future Land Use Map. Resolution 114, 1998 acknowledges the Western Northlake Corridor Land Use Study as a policy and growth management tool. Resolution 56, 1999 originally approved an interlocal agreement between the City, Palm Beach County and the City of West Palm Beach for heightened review regarding lands located within the Western Northlake Boulevard Corridor Planning Area."*

In 1998, the City, together with the City of West Palm Beach and Palm Beach County, conducted a study of the existing and future land use designations for 18,163 acres along the Western Northlake Boulevard Corridor. The study recommended that rural and urban/suburban uses are better delineated, the premature conversion of rural lands to urban uses are discouraged, the

rural character of the area is protected and coordination between local governing bodies be enhanced. The resulting report was acknowledged by the three governments as a "policy and growth management guide."

Recommendations within the study specific to the Avenir site are limited to encouraging an equestrian community on the site and retaining the rural residential designations in the area. The idea of an equestrian community on the site has not progressed since the study was published. Equestrian communities have not been explicitly encouraged by the City since the creation of the report and since the creation of the Study, no equestrian uses have been proposed within the site.

With regards to the retaining the rural residential designation in the area, the previous Avenir proposal submitted in 2013 was determined to be inconsistent with this aspect of the Western Northlake Corridor Land Use Study (Study). However, with this proposal, the density of the project has been reduced to 0.84 du/ac overall and 2,407 acres, or 51% of the total site, will be conserved.

The Interlocal agreement, established by the three local governments after the Study was created, also recommended intergovernmental cooperation and coordination in the review of development proposals in this area. The applicant and its' consultants have had many meetings with local residents and invited elected and appointed officials and staff to attend these meetings. Also, we expect that the City will transmit a copy of this revised submittal to Palm Beach County and the City of West Palm Beach.

Since the adoption of the report, there has been a series of land use changes within the study area, where the rural residential land uses were changed to land uses of higher intensity. Below are several examples of this piecemeal approach to land use within the study area:

- CLAARTJE 2 – Rural Residential-10 to Low Residential-1
- Osprey Isles Office 2 – Low Residential-1 to Commercial Low-Office/1
- Coconut Northlake Commercial – Rural Residential-20 to Commercial Low/RR-5
- Osprey Isles Residential – Institutional/1 to Low Residential-1
- 112th-Northlake Commercial SW – Rural Residential-5 to Commercial Low/RR-5
- WNCSA RR – Rural Residential-10 to Rural Residential-5.

In addition to the multiple land use plan changes which has occurred since the issuance of the report, both Palm Beach County and Palm Beach Gardens submitted Development of Regional Impact (DRI) applications which would dramatically increase the land use intensity to entice biotech industries to located within the Study Area, despite the recommendations of the Study. The DRIs, which would have brought millions of square feet of industries, hundreds of thousands of square feet of office and commercial space, a university and thousands of homes, were later abandoned by the governments.

The proposed Avenir project, with its reduced development program and large environmental conservation areas, is consistent with the Study objectives. The Study objectives have been provided below in **bold**.

The Study objectives are:

- **Establish an effective delineation between rural and urban/suburban uses;**

Unlike the neighborhoods of the adjacent Acreage, Avenir will create a clear delineation between urban and rural uses. Although the overall density has been reduced to 0.84 du/ac, all of the residential units and non-residential development has been clustered within the southern portion of the project. The northern majority of the site is proposed to be placed in a Conservation easement in order to preserve its existing rural character. The large conservation easement proposed can only be provided through the clustering of residential and non-residential uses. The provision of these uses within the southern portion of the site will allow for the coordinated and comprehensive rejuvenation of these environmentally-sensitive areas.

- **Discourage urban sprawl, strip commercial development and the premature conversion of rural land to urban uses;**

Since the Study was created 16 years ago, several parcels along Northlake Boulevard have been converted commercial uses. As indicated on the proposed Avenir Master Plan, the commercial uses will be located within the overall project. Directly along Northlake Boulevard will be a 150-foot wide buffer, which will include the 50-foot wide Palm Beach County Rural Parkway buffer. Within Avenir, a walkable community is proposed to be adjacent to more than 2,400 acres of land to be set aside for conservation purposes. With this design and development program, the applicant is providing the antithesis of urban sprawl and strip commercial development.

- **Protect the natural environment;**

As indicated above, 51% of the site, or 2,407 acres of land, will be preserved for conservation purposes. Exotic vegetation will be removed from this area and a maintenance plan created for the continued viability of this conservation area. This conservation area will provide needed protection to the adjacent Loxahatchee Slough, which are the headwaters to the Loxahatchee River, a National Wild and Scenic River. Short of a public purchase of the environmental areas, the best protection for this area is through the requested City's planned community development review process. Approval of the PCD will establish a preservation, enhancement and maintenance program for the environmental lands, which make up the majority of the site, which consist of environmentally-sensitive lands, under a conservation designation.

- **Enhance the community identity and the appearance along the roadway;**

With the development of Avenir, the applicant is proposing a 90-foot wide buffer along Northlake Boulevard, similar to the City's Parkway buffer system, with the exception of the Town Center district frontage which will feature a 50-foot wide buffer. Within this buffer will be a 12-foot pedestrian pathway, which is a requirement for properties in Palm Beach County along Northlake

Boulevard. The provision of this wide parkway buffer with the pedestrian pathway will greatly improve the appearance along Northlake Boulevard.

- **Encourage efficient traffic flow on Northlake; and**

Improvements to Northlake Boulevard will be made as part of this project to ensure efficient traffic flow. The required and proposed improvements will be outlined in the forthcoming Traffic Analyses.

- **Encourage intergovernmental coordination/cooperation.**

In the past year, the applicant has held five community workshop meetings and numerous smaller meetings to discuss various options for the development of the subject site. As a result of this community discussion, the requested master plan and development program have been reduced in size and scope. The Interlocal Agreement between the three participants of the Study calls for the sharing of submitted development projects for review and comment. If desired, the applicant will provide copies of this application to these adjacent governments.

Objective 1.1.3.

Objective 1.1.3. of the Future Land Use Element states: *"Maintain land development regulations to manage future growth and development in a manner that provides needed facilities and services, protects environmental resources, and encourages infill and redevelopment of the eastern portion of the City."*

As discussed above, the applicant is proposing to amend the City's Comprehensive Plan to expand the City's Urban Growth Boundary to include the subject site. The Urban Growth Boundary was introduced to the City when the state's growth management laws were incorporated within the City's Comprehensive Plan and Land Development Regulations. These growth management regulations required the City to provide a measurable level of service for each municipal service, such as water and sewer service, recreation, police and fire protection and drainage facilities. Because the City consists of more than 34,598 acres, including urban, suburban and rural properties, it was unfeasible to provide the same level of municipal services to all properties within the City. To address this issue regarding the provision of services within the City, the City Council adopted an Urban Growth Boundary, which created a higher level of service for more urban and suburban properties and a lower level of service for rural areas.

With this request, the applicant is seeking to include the Avenir property within the City's Urban Growth Boundary. This revision would allow for the provision of a higher level of services to be provided for the future residents of the Avenir mixed-use community. As indicated in the Level of Service Analysis in Section II.c. above and the associated service availability letter, Seacoast Utilities will provide potable water and sanitary sewer service. Without applying the Urban Growth Boundary to the Avenir site, the utility requirement would only be for water wells and septic tanks. The provision of this lower level of service in this area could impact the more than 2,407 acres of environmental lands being conserved with this request.

With this request, the applicant will be providing protection to the environmental lands on the property while providing the future residents the level of municipal services consistent with the expectations of any City resident. As such, the request is consistent with this objective.

Policy 1.1.3.1.

Policy 1.1.3.1. of Objective 1.1.3. states: ***"****The City shall continue to maintain land development regulations to ensure that they contain specific and detailed provisions intended to implement the adopted Comprehensive Plan, and which as a minimum:*
####
i. Discourage urban sprawl through the following strategies:

(1) establishing moderate densities and varied housing opportunities in urban areas
(2) mixed-use and clustering requirements
(3) promoting urban infill development and redevelopment
(4) location requirements
(5) maintaining a distinct urban and rural service areas
(6) directing public investment to existing urban areas, and
(7) annexation and extraterritorial planning agreements."

The proposed Avenir site is surrounded by low-density residential tracts consisting largely of one and two acre lots. The land uses in this area are largely residential and the current residents must travel by automobile to access basic services and goods. This existing condition is the definition of urban sprawl, which is discouraged by the City's Comprehensive Plan and good planning principles.

With the requested Avenir Master Plan, the applicant, in compliance with Policy 1.1.3.1., is seeking to discourage urban sprawl through the clustering of a mixture of uses on the southern portion of the site so the more than 2,407 acres on the northern and western portions of the site can be preserved for conservation and open space. On the southern portion, the applicant is proposing a mixture of uses, including a variety of housing, employment, shopping, educational, civic and recreational opportunities. This mixture of uses will not only serve the future Avenir residents, but will also provide closer services to the surrounding residential properties.

As stated above, the applicant is requesting that the subject site be included within the City's Urban Growth Boundary (UGB). The UGB will allow for provision of municipal services for Avenir at the same level enjoyed by other City residents. Only with this higher level of services can the desired, mixed-use community be provided. The clustered, mixed-use community will allow for the conservation of the majority of the site. To help provide these services, the applicant is expecting to provide an estimated $71.9 million in impact fees to the City and County. In addition, it is projected that the development will generate $206 million in additional ad valorem tax revenue by buildout. According to an Economic Impact Analysis prepared by Fishkind & Associates, the project is expected to create 15,853 construction-

effected jobs during the 20-year construction build-out and 5,860 permanent jobs, with annual wages of $368 million.

The applicant will also be donating 15 acres to the City for police, fire and governmental infrastructure in addition to 55 acres for a community park and 60 acres for civic and recreation purposes.

Policy 1.1.3.6.:

Policy 1.1.3.6. states: *"The City shall ensure the availability of suitable land for public and institutional uses necessary to support development…"*

In accordance with the Policy which allows for public uses within a residential planned development community, the Avenir Master Plan provides for a 15-acre site to accommodate a Police/Fire/City Annex and provides 15 acres for a public school site. The Policy encourages the location of schools in proximity to residential areas and in proximity to other public facilities. The school site is thoughtfully located on the Avenir Master Plan with access from one of the main thoroughfares and adjacent to residential uses.

GOAL 1.2.:

Goal 1.2. states: *"Encourage development or redevelopment activities, while promoting strong sense of community, and consistent quality of design; and do not threaten existing neighborhood integrity and historic and environmental resources."*

With the conservation of the majority of the site, the proposed development will increase the amount of conservation area in the City by 7% or 2,407 acres, which is slightly larger than the existing PGA National Development of Regional Impact. The remaining portion of the site will be developed as pedestrian and bicycle-friendly, mixed-use community. The design guidelines for the project will be refined and ensure that a strong sense of community and a high quality of design is created within Avenir. As indicated is the attached Fishkind & Associates report, the City's average population is predicted to grow by 1,066 persons per year until 2040. The proposed housing within the Avenir mixed-use community will help address this anticipated housing need in the City.

A Phase 1 Historic and Archaeological Assessment was conducted by Archaeological and Historical Conservancy, Inc. in June and July 2005. At the time, the property was divided into two areas referred to as "Vavrus North" and Vavrus South". Copies of the two separate reports are provided.

As a result of the survey, one prehistoric archaeological site was identified and has been assigned Site Number 8PB11489. Existing data suggests that the site is potentially eligible for listing on the

National Register of Historic Places. In addition, a second location was determined to be a "potential" archaeological site, despite the fact that no artifacts were discovered in samples from that location. The location of the confirmed archaeological site as well as the potential site was considered in the design of the Avenir flowway and ecological restoration preservation area. As such, these resources fall within the boundaries of the proposed preservation area and will not be affected or disturbed by any proposed development activity. Both sites are noted on the Master Plan, attached as the PCD Master Plan. A letter from the State of Florida's Division of Historical Resources Master File dated August 27, 2014 noting the existence of Site Number 8PB11489 is attached.

Objective 1.2.3. of Goal 1.2.

Objective 1.2.3. of Goal 1.2 states: *"Issue development orders and permits for development and redevelopment activities only in areas where public facilities necessary to meet level of service standards (which are adopted as part of the Capital Improvements Element of this Comprehensive Plan) are available concurrent with the impacts of development."*

Within this application submittal, service availability letters have been included from Seacoast Utilities and the Solid Waste Authority confirming that services can be provided for the Avenir project. A 15-acre civic site is proposed to be dedicated to the City for the nearby provision of police, fire and other municipal services. As discussed above, the applicant is requesting that the Urban Growth Boundary apply to the Avenir project. This would ensure that the proposed mixed use community will develop with the same level of services enjoyed by other City residents. In addition to the land dedication, the applicant will pay an estimated $71.9 million in impact fees to the City and County during the build out of the project. With these provisions, the project will be served by public facilities at the time of the impact of development.

Policy 1.2.4.4.(b).:

Policy 1.2.4.4.(b) states: *"In order to prevent urban sprawl and promote cost effective and efficient service delivery, the City has designated an Urban Growth Boundary (UGB) which generally coincides with the eastern boundary of the Loxahatchee Slough. The UGB is designated on the Future Land Use Map (Map A.1.). The UGB divides the City into distinct areas, urban and rural. These two distinct areas are designated with land uses (densities and intensities) consistent with urban and rural characteristics and shall receive public services and facilities at levels appropriate for such urban and rural uses, as defined in the Capital Improvement Element."*

The applicant is seeking to amend this policy to expand the UGB to include the subject site. Including the site within the UGB will allow for the desired, mixed-use community to be developed while protecting the majority of the site for conservation purposes. For the reasons outline above, placing the project within the UGB will ensure the future residents will benefit from the same level of services enjoyed by other City residents. The urban levels of services will

also allow for the housing, employment, shopping, educational, civic and recreational opportunities planned within the mixed-use development.

Policy 1.2.4.11.:

Policy 1.2.4.11 states: "The City shall encourage infill and redevelopment of existing properties with consideration of the following:

1. *Address the impact of redevelopment activities on natural systems and any historic resources*
2. *Provide for visual continuity of the community through the application of sound principles of architectural design and landscaping*
3. *Be consistent with the character of the neighborhood*
4. *Reduce existing non-conformities or alternatively demonstrate that adverse impacts will not be created.*
5. *Be consistent with Section 723.0612, Florida Statutes, related to mobile home parks and include relocation strategies for those residents displaced by the implementation of the plan, which ensure that the displaced residents are provided adequate notice, equitable compensation and assistance in locating comparable alternative housing in proximity to employment and necessary public services and/or provide a minimum percentage of replacement housing on site."*

The proposed Avenir development is neither an infill development nor a redevelopment project. The proposed development will be a mixed-use community which will address the housing needs for anticipated population growth in the City during the next 25 years. The community will also provide employment, educational, shopping, civic and recreational opportunities to the residents of Avenir and the surrounding, low-density, existing residential developments.

Future Land Use Support Document: Population Projections

Using the City's adopted 2.35 persons per household ratio, the development will generate an estimated 9,364 residents (3,985 units x 2.35 persons per household). The City's current population is 49,434 (Florida BEBR Estimate 2013). Accordingly, it is estimated that the Avenir development will increase the City's population by 18% at buildout.

TRANSPORTATION ELEMENT

Objective 2.1.1: To maintain specific level of service (LOS) standards on the roadways.

With phasing of Assured Construction (publicly committed roadway improvements), committed roadway improvements by the developer and Proportionate Share payments for several roadway links and intersections, the project will mitigate its impacts that may result in a level-of-service (LOS) increase.

Goal 2.2: Continue to develop and maintain sustainable, safe and efficient intermodal transportation linkages through a balance of traffic circulation systems, public transportation, and pedestrian and bicycle networks.

The Master Plan illustrates the approximate location of seven (7) vehicular access points to the project from Northlake Boulevard. The Master Plan also illustrates the location, roadway section and right-of-way width of the primary transportation network proposed for the project. The main spine roads extend from Northlake Boulevard at 140th Avenue N and at Coconut Boulevard with roadway sections which will be 4 lane facilities, extending to a 6 lane facility to accommodate turn lanes. The roadways are connected by an east-west roadway section. The main spine road extending from Coconut Boulevard extends northward to connect Northlake Boulevard with Beeline Highway. The Coconut Boulevard extension is reduced to a 4-lane section once it leaves the development area and enters the conservation area. Roadway Sections are included and illustrate that an 8-foot wide pedestrian sidewalk and a 5 foot wide bicycle lane is provided on both sides of the street on the main spine roads within the development area. Once the roadway enters the conservation area a 5 foot wide bicycle lane is provided on both sides of the street, however no pedestrian sidewalk is proposed as pedestrian's are unlikely to use this connection to Beeline Highway. The spine road will connect with a 50-foot wide Palm Beach County required Rural Parkway Buffer adjacent to Northlake Boulevard. As illustrated in the Buffer Cross Sections, the Rural Parkway Buffer will provide 12 foot wide multi-purpose path to maintain consistency with the Parkways typically required and provided within the City of Palm Beach Gardens. The other roadways within the development area will provide pedestrian and bicycle friendly design. The design of the secondary roads in the development area will be determined during the refinement of the design standards with staff's input.

In addition to the pedestrian and bicycle network proposed with the vehicular network, the applicant anticipates providing a system of greenways and bicycle trails to link the various park, open spaces, and if appropriate, to the conservation area.

Palm Tran currently does not service Northlake Boulevard west of Military Trail and no train stations are proposed for this corridor, however, the applicant has set aside land for civic uses and recreation areas which would be able to accommodate a multi-modal transportation stop if such services become available in the future. Palm Tran has been apprised of the Avenir community for its future planning of service within the northern part of the county.

HOUSING ELEMENT

Objective 3.1.2.: Assist the private sector to provide housing of the various types, sizes, and costs to meet the housing needs of all existing and anticipated populations of the City. Toward this objective, the City shall maintain, land development regulations, consistent with Section

163.3202(1), F.S., facilitate public and private sector cooperation in the housing delivery system.

The revised Avenir development program will feature single-family homes and townhomes in a variety of sizes and costs. With the proposed PCD Master Plan, employment and educational uses will be located within close proximity to the planned residential areas. As such, the need for an automobile or automobiles for a family will decrease which will increase the affordability of the residential units within the project.

Goal 3.2.: The provision of affordable and workforce housing by preserving existing stable neighborhoods, rehabilitating neighborhoods that have declined, and development new residential developments.

As stated above, the applicant will be providing a variety of housing sizes and costs in a walkable, mixed use community. Pedestrian-friendly, mixed use communities, with a variety of housing types, provide affordable housing opportunities for its residents as transportation and housing costs are generally less than in typical, single-use, suburban density housing developments.

In addition, the applicant is proposing up to 250 townhomes. A majority of the townhomes will provide workforce housing pursuant to the County's workforce housing calculations.

As indicated above, the proposed PCD is consistent with the housing goals, objectives and policies of the City.

COASTAL MANAGEMENT ELEMENT

Objective 5.2.2: Provide for public safety during emergency evacuation by maintaining or reducing the City's build-out emergency evacuation clearance time, and maintaining an adequate emergency evacuation roadway system.

The Avenir property is located outside of the Hurricane Evacuation Zones map, prepared by the Palm Beach County Emergency Management Department for a Category 5 hurricane. As such, future Avenir residents will not have to evacuate during a Category 5 hurricane. The applicant will be dedicating 15 acres for a future public school, 15 acres for public/civic uses and 55 acres for a community park. These public spaces could be used for future evacuation shelters at the desire of the local officials.

As an integral part of its plan, Avenir proposes a much needed north/south transportation connection in Western Palm Beach County. A roadway extending over four miles is envisioned to connect Northlake Boulevard to the Beeline Expressway. This connection will provide a much needed emergency evacuation route for the City's residents and the surrounding communities reducing the City's emergency evacuation clearance time.

CONSERVATION ELEMENT

Goal 6.1.: Preserve, manage, or restore the natural resources in the city to ensure their stainability, high quality, and critical value to the quality of life in the City of Palm Beach Gardens.

In order to maximize the preservation and restoration of the natural resources of the site, the applicant has committed to preserve approximately 2,407+/- acres of the site's 4,762+/- acres. This preservation will be accomplished with three primary actions: the removal of the manmade agricultural ditches, the removal of the site's nonnative vegetation and the reestablishment of site appropriate wetland vegetation including trees, shrubs and grasses. The goal of the preservation and restoration of this portion of the site is to:

- To capture and store rainfall which for the past 50 years has been carried off the site by the system of agricultural drainage ditches.
- To improve water quality and quantity for the site resulting in benefits for both the watershed and the region.
- To establish a diverse community of wetland and upland vegetation which reflect the site's inherent differences in soil type, topography, and hydroperiods.
- To allow the wetland vegetation to be re-established on the site and to provide for the continual regeneration of the vegetation.
- To provide for wildlife habitat which will benefit the site and the region.

The developed portion of the site will contribute to these goals by providing for additional water quality improvements beyond the code requirements. The development will also provide access to these natural areas to provide for public opportunities for hiking, bird watching and other activities. The location of the positive outfall will continue to be at its existing permitted location.

Policy 6.1.1.4.: Through the continued implementation of land development regulations, the City shall ensure that new developments and redevelopments are designed in such a manner as to minimize the impact of such developments on the quality of surface and ground water resources, and to further ensure that new developments and redevelopments do not exceed the capacity levels for potable water and/or sanitary sewer services.

Considerable site planning efforts were undertaken during the development of the Master Plan to protect the most valuable natural resources and to protect the surface and ground water resources while achieving reasonable development potential for the property. As indicated in Environmental Assessment, approximately 1,993 acres of wetlands ranging from poor to high ecological quality have been identified on the property. Of these wetlands more than 1,068 +/-

acres (53%) are proposed for preservation. The remaining 924 +/- acres of mostly low quality wetlands will be impacted for development. The wetlands proposed to be preserved on the site have been integrated into a cohesive flow-way system that allows for interconnected with publicly owned and managed conservation areas off site. Further, as indicated in Infrastructure Analysis, the Seacoast Utility Authority indicates that they have potable water and sanitary sewer capacity for the proposed Avenir development.

Natural Resources

Policy 6.1.4.4.: The City shall require that an environmental assessment be prepared prior to alteration of the land consistent with the provisions of the Natural Resources and Environmentally Significant Lands section of the land development regulations.

An Environmental Assessment prepared by EW Consultants, Inc. is attached. The Assessment provides an existing vegetation and land cover assessment, and a wetland evaluation and associated wetland management and mitigation approach.

Listed Species

Policy 6.1.4.5.: To ensure protection of environmentally sensitive areas and listed species, the City shall implement the following criteria either in combination or singly for any proposed alteration of lands designated as environmentally significant pursuant Comprehensive Plan policy 6.1.4.3.

An Environmental Assessment prepared by EW Consultants, Inc. is attached as **Exhibit V**. The Assessment provides the survey methodology used to identify known and potential listed wildlife and plant species and provides a table summarizing the survey outcome.

Soils

Objective 6.1.3.: Maintain land development regulations to ensure the control of soil erosion.

A Custom Soil Resource Report for the subject property is provided as part of **Exhibit V – Environmental Assessment**. This report, prepared by the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) provides complete descriptions of all soil types within the Avenir property along with acreage summaries, soil limitation information and recommended soil treatments for various proposed land uses.

ECONOMIC DEVELOPMENT ELEMENT

Objective 13.1.1.: Maintain and expand a diversified economy by encouraging growth in targeted cluster industries that provide high-wage employment and complement changing economic conditions by supporting existing businesses and by retaining and improving resource-based sectors, such as tourism, retirement, and recreation.

The majority of land development is not dedicated to residential units, but includes a variety of uses including a large conservation dedication. The entire site is 4,762 acres, of which more than 2,407 will be dedicated to flow-way, public and open space. Residential acres represent approximately the same number of acres as public dedications, within the project.

The program will attract a balance of commercial and economic uses. The number of residential units requested has been revised and is now 3,985 requested permanent dwelling units. The Fiscal Impact analysis indicates on-site job formations will reach 5,860 jobs. This will provide a significant impact to the City and County's employment base. According to the Palm Beach County Business Development Board, an estimated 623,035 jobs were provided in Palm Beach County during August 2014.

The economic impacts indicate the project is well-balanced creating approximately 1.5 new jobs for each new dwelling unit plan.

Alternatively, one may look at the jobs/housing balance from the Economic Impact perspective. From this approach the economic impact analysis indicates there will be 5,860 permanent jobs created with 3,985 new homes. This yields a jobs/housing balance of 1.47; also an indicator of a well-balanced planned community.

Avenir meets the test as a well-balanced community with respect to the economic sustainability and jobs/housing balance. Sufficient information is presented herein to sustain and support the creation of the new community.

The economic impact analysis indicates jobs formations associated with Avenir will reach 6,068 permanent jobs.

CAPITAL IMPROVEMENTS ELEMENT

According to the Fiscal Impact Analysis prepared by Fishkind & Associates, over the next 20 years the total impact fees to City and County are expected to be $71.9 million. In addition, it is projected that the development will generate $206 million in additional ad valorem tax revenue by buildout. According to an Economic Impact Analysis prepared by Fishkind & Associates, the project is expected to create 15,853 construction-effected jobs during the 20-year construction build-out and 5,860 permanent jobs, with annual wages of $368 million.

Any infrastructure costs associated with Avenir will be provided by the applicant or as the results of impact fee payments. As a result, no changes to the City's Capital Improvement Plan are anticipated.

INTERGOVERNMENTAL COORDINATION ELEMENT

As indicated above, the subject site is location within the Western Northlake Boulevard Corridor Planning Area. An interlocal agreement between the City, Palm Beach County and the City of West Palm Beach requires than any development application within the Planning Area, such as the subject site, be shared with the other government agencies for review and comment.

COMPATIBILITY WITH THE CITY'S VISION PLAN

In the early 1990s, the City initiated a planning charrette process for the "visioning" the future of the City. A committee was created feature local residents, developers, landowners and other interested parties. This Visioning committee met numerous times and crafted various goals, objectives and strategies, which was adopted in 1996 by the City Council as guide, but not a replacement to the City's Comprehensive Plan or Land Development Regulations.

Although the Vision document is strictly advisory in nature and compliance is not required, the Avenir project is consistent and compatible with numerous goals, objectives and strategies found in the Vision Plan. Below is a summary on the consistency of the Avenir plan.

The Vision's Land Use Goal states: "To preserve land use patterns and types that currently characterize the city." The City is known for his high quality housing types with low densities and ready access to generous recreation and open space opportunities. This characterization can also describe the Avenir project, which will have a density of 0.84 dwelling units/acre with the vast majority of the units being single family homes. These high quality homes will be in close proximity to a 55-acre community park and more than 2,400 acres of conservation lands. One of the objectives to help bring about this goal states the objective is "To encourage integration of development into new neighborhoods and livable communities." One of the strategies for the implementation of this goal and objective is through the encouragement of mixed-use communities that help "promote people-gathering places, linkages and recreational services in a pedestrian-friendly environment." Avenir is proposed to be a pedestrian-friendly, mixed-use community which will provide housing, employment, education and shopping opportunities. As such, Avenir is consistent with the referenced goal, objective and strategize of the Vision Plan.

The Vision also contains another goal "to protect the natural environment through sustainable methods and practices." The accompanying objective to this goad is "to protect and preserve the City' natural resources in a manner that is balanced with the needs of the community." As stated above, the Avenir master plan provides for the conservation of the majority of the 4,763-acre site. The master plan has been designed to cluster the mixed use development on the southern portion of the site, while leaving the northern portion of the property (more than 2,408 acres) for conservation purposes. The proposed development balances the need of the community against the need for the protection of the City's natural resources. The subject request is consistent with the referenced goal and objective.

As part of the Vision Plan, a future land use plan was created indicating the possible land uses as envisioned by the community. For the subject site, a Residential Very Low category, which has a maximum density of 1 dwelling unit per acre, was provided. In the middle of the site, a commercial parcel, of undetermined size, was envisioned to serve the residents of this new western community. The Avenir master plan is consistent with the land use envisioned as part of the Vision Plan. Avenir will have a maximum density of 0.84 dwelling unit per acre, which is consistent with the suggested Residential Very Low category, and will provide for employment, shopping, education and recreation opportunities within a pedestrian-friendly environment.

As indicated above, the Avenir plan is consistent with the City's Vision Plan.

FLORIDA STATUES CONSISTENCY

STATE COMPREHENSIVE PLAN AND FLORIDA STATUTES CONSISTENCY

The State Comprehensive Plan is located within Chapter 187.201 of the Florida Statutes. The State Comprehensive Plan addresses general policy items of a statewide concern, such as the health and safety of children, family and the elderly, public safety, water resources, and natural resource and recreation provision, land use and revitalization efforts. As indicated below, this application is consistent with the State Comprehensive Plan.

Goal #5, Health, of the State Comprehensive Plan states that the goal of the state is for "Healthy residents who protect their own health and the health of others and who actively participate in recovering their own health when they become ill."

The proposed Avenir master plan has been designed to promote a healthy lifestyle among its residents, employees and visitors. The compact nature of the mixed-community on the southern portion of the site will encourage alternative modes of transportations, such as two healthy alternatives as bicycling and walking. In addition, the applicant is promoting recreation activities through the dedication of 55 acres for a regional park and 60 acres for an expansion to the municipal golf course. The development program incorporated 200,000 square feet of medical office space, which will provide the services for residents to actively participate in protecting and enhancing their health.

Goal #7, Water Resources, states: "Florida shall assure the availability of an adequate supply of water for all competing uses deemed responsible and beneficial and shall maintain the functions of natural systems and the overall present level of service and ground water quality. Florida shall improve and restore the quality of waters not presently meeting water quality standards."

Also, Seacoast Utility Authority has provided a service letter indicating it has sufficient capacity to provide potable water for the proposed uses within the Avenir community. In addition, the

majority of the site, an area larger than the PGA National DRI, is proposed to be set aside for conservation purposes. These lands are adjacent to other environmentally-sensitive lands and slough, which assist with groundwater recharge and supply water for the headwaters of the Loxahatchee River, a federally-designated Wild and Scenic River. For these reasons, the proposed Avenir development is consistent with this goal of the State Comprehensive Plan.

Goal #9, Natural Systems and Recreational Lands, states that: "Florida shall protect and acquire unique natural habitats and ecological systems, such as wetlands, tropical hardwood hammocks, palm hammocks, and virgin longleaf pine forests, and restore degraded natural systems to a functional condition."

As stated above, the applicant is proposing, at no cost to the public, to designate 2,407 acres of the subject site for conservation purposes. This conservation area includes wetland and pine habitats. This conservation area will be adjacent to Hungryland and Loxahatchee Slough conservation areas. This designation of conservation lands within the site is consistent with this goal of the State Comprehensive Plan.

Goal #15, Land Use, states: "In recognition of the importance of preserving the natural resources and enhancing the quality of life of the state, development shall be directed to those areas which have in place, or have agreements to provide, the land and water resources, fiscal abilities, and service capacity to accommodate growth in an environmentally acceptable manner."

As indicated in the by report by Fishkind & Associates**,** the City's population is anticipated to grow an average of 1,066 new residents annually until 2040. A review of the future residential capacity of the existing vacant lands, as determined by the City's existing Future Land Use designations, revealed that the City has the ability to meet this anticipated population growth and housing needs for the next 8.8 years. With the requested amendment, the Avenir will extend the City's ability to accommodate the anticipated growth for more than 17 years, which falls within the typical 15 to 20 year planning timeframe. The report also concludes that at the time of the Avenir build out that there will be an unmet need in the area for more than 873,000 square feet of retail space. The Avenir project is proposing 400,000 square feet of commercial space within the mixed-use community. In addition, the report also concludes that the proposed office, hotel and medical office within the community will meet an unmet need within the area.

The applicant has also secured serviced capacity letters from Seacoast Utility Authority and the Solid Waste Authority, indicating that potable water, sanitary sewer and solid waste capacity exists for the Avenir project. Other municipal services will be provided through on-site dedications for police, fire, civic and recreational uses. As such, the proposed Avenir development is consistent with this referenced goal of the State Comprehensive Plan.

Goal #16, Urban and Downtown Revitalization, states: "In recognition of the importance of Florida's vital urban centers and of the need to develop downtowns to the state's ability to use

existing infrastructure and to accommodate growth in an orderly, efficient, and environmentally acceptable manner, Florida shall encourage the centralization of commercial, governmental, retail, residential and cultural activities within a downtown area."

The City does not have a downtown area nor has it designated a downtown area. Development within the city is grouped in commercial nodes or associate with large planned development projects. The proposed Avenir development is consistent with this latter development pattern as it will be a large, planned development. As indicated above, the development is proposed to meet the unmet housing, commercial and employment needs of the project and surrounding area, which consists of low-density housing and little to no services. In meeting this unmet need, the applicant is proposing to cluster all development on the southern portion of the site while conserving 2,407 acres of land for environmental purposes. As such, the proposed Avenir mixed-use community is consistent with the referenced goal of the State Comprehensive Plan.

Section 163.3177 of the Florida Statutes identifies the elements required for comprehensive plans within the state. The statute also requires that comprehensive plans and any amendment to those plans to discourage urban sprawl.

The surrounding areas around the subject site consist of low-density and very low-density housing tracts. Thousands are exclusively residential homes are provided in the area without any municipal services. The existing development in the area can easily be described as sprawl.

The Avenir project is looking to rectify this sprawl by providing a community center to the area. As described above, Avenir is proposing to create a pedestrian-friendly, mixed-use community on the southern portion of the site. The northern portion of the site, an area larger than PGA National, will be dedicated for conservation purposes. Because of the proposed conservation of the majority of the site, Avenir will be providing a clustered development with various home lot sizes with employment, shopping, educational and recreational opportunities within biking or walking distance to the new residents. The proposed uses will also serve the needs of the existing area, where residents often must travel by car more than 15 minutes to reach employment, shopping, educational and recreational opportunities. The provision of a mixed use community center amidst the existing sprawling development will provide a community focus and center that doesn't exist at this time. As such, the proposed Avenir community is consistent with this section of the Florida Statutes.

IV. REZONING/PLANNED COMMUNITY DISTRICT

Description of Master Plan

The PCD Master Plan is attached as **Exhibit I - PCD Master Plan**.

In addition to the requested amendments and rezoning, the applicant is proposing a master plan for a mixed-use community. As illustrated on the Master Plan, the proposed Avenir community will be comprised of the following mix of uses:

MXD PCD Development Program	
Conservation Land	**2,407 acres**
Development Area	**2,350.6 acres**
Single Family	3,735 units
Townhomes	250 units
Professional and Medical Office	1,800,000 square feet
Medical Office	200,000 square feet
Commercial	400,000 square feet
Hotel	300 Rooms (approx 80,000 square feet)
Field-To-Table Farm	20 acres
Park (land dedication)	55 acres
Civic/Recreation (land dedication)	60 acres
Police/Fire City Annex (land dedication)	15 acres
Public School – Elementary (land dedication)	15 acres (approx. 600 students)
ROW Dedication (Northlake)	**5.3 acres**
TOTAL MXD PCD LAND AREA	**4,762.9 acres**
Residential Density	0.84 du/ac
Office/Commercial/Hotel Intensity	0.01

Since the submittal of the Avenir Master Plan in October 2014, significant modifications have been made to the plan. The overall number of residential units proposed has been reduced from 7,500 homes (1.57 du/ac) to 3,935 homes (0.84 du/ac). A 664 acre area of development in the northern portion of the property (known as the "northern village") has been removed in its entirety to allow for a more cohesive connection of the flow way with the adjacent properties that are in conservation. As a result, the conservation area proposed for the site has grown from 1,889 acres to 2,408 acres, a 27% increase in the proposed conservation area. Also, the north-south roadway connecting Northlake Boulevard to Beeline Highway was moved from a central location within the property to the eastern property line to allow for greater area of continual and a more functional conservation area. The 2013 Master Plan provided for two "Town Center" districts, and two "Workplace Districts", one each in the western and in the eastern portions of the property adjacent to Northlake Boulevard. The modified master plan consolidates the town centers or Neighborhood Commercial Uses and the Workplace Districts or Employment Center uses to the provide one location for each in the eastern portion of the property. The proposed Employment Center parcel and the proposed Neighborhood Commercial parcel, which includes up to 250 townhomes, are located adjacent to each other so they can enjoy a symbiotic relationship. Lastly, the modified master plan now provides for a 55-acre public park site.

It is anticipated that Avenir will be a destination location, including shopping, entertainment, educational and employment opportunities that attract thousands of residents from within and outside the community, absorbing substantial trips. As a result, residents and neighbors should experience less congestion on Northlake Boulevard, as: (a) significant numbers of trips are reversed, as residents and visitors who currently travel east for many of these services have a reason to stay west, at Avenir's Main Street and office areas; (b) external trips are captured, drawn by alternatives for medical care, grocery stores, shopping, classes, and jobs for the more than 40,000 residents in surrounding communities; and (c) internal trips are captured, as residents enjoy the live, work and play design for Avenir and find most of their needs met inside the community.

As an integral part of its plan, Avenir proposes a much needed north/south transportation connection in Western Palm Beach County. A roadway, extending over four miles, is envisioned to connect Northlake Boulevard to the Beeline Expressway, minimizing travel times for residents and connecting people to more local jobs and businesses. This connection is also designed to provide a much needed emergency evacuation route for surrounding communities.

Avenir is a 20-year project, and the first phases will include uses that absorb traffic the most – retail and commercial components. These uses will actually do much to improve the traffic situation along Northlake, especially as new and existing users enter the traffic landscape. Over time, as units come on line at Avenir and as the project matures with employment and medical centers, more and more cars will find their way into Avenir's streets and away from Northlake Boulevard, which will also benefit from transportation improvements, phased consistent with the growth of Avenir and surrounding areas.

Roadway Sections

The Master Plan illustrates the approximate location of seven (7) vehicular access points to the project from Northlake Boulevard. The proposed Roadway Cross Sections for the spine roads within the PCD are attached. The Master Plan illustrates the location, roadway section and right-of-way width of the primary transportation network, or spine roads, proposed for the project, which correspond with the Roadway Cross Sections. The main spine roads extend from Northlake Boulevard at 140th Avenue N and at Coconut Boulevard with 4 lane facilities, extending to a 6 lane facility to accommodate turn lanes. The roadways are connected by an east-west 4-lane roadway section. The main spine road extending from Coconut Boulevard extends northward to connect Northlake Boulevard with Beeline Highway. The Coconut Boulevard extension is reduced to a 4-lane, 76-foot wide section once it leaves the development area and enters the conservation area. The Roadway Cross Sections illustrate that an 8-foot wide pedestrian sidewalk and a 5 foot wide bicycle lane is provided on both sides of the street on the main spine roads within the development area. Once the roadway enters the conservation area, a 12-foot wide multi-purpose pathway will be provided on the west side of the roadway. The roadway cross sections

also provide for areas for utilities and landscaping on both sides of the roadway and well as a landscaped median.

The other roadways within the development area will provide pedestrian and bicycle friendly design. The design of the secondary roads in the development area will be determined during the refinement of the design standards with staff's input.

In addition to the pedestrian and bicycle network proposed with the vehicular transportation network, the applicant anticipates providing a system of greenways and bicycle trails to link the various park, open spaces, and if appropriate, to the conservation area.

Northlake Parkway & Other Perimeter Buffers

The Buffer Cross Sections proposed for the PCD are attached. As illustrated on the Master Plan, a 90-foot wide buffer is provided along the majority of the project frontage along Northlake Boulevard. This PCD buffer will be similar to the City's 90-foot parkway sections that are provide throughout the northern portion of the City. At the Town Center District, the Northlake PCDD buffer has reduced to 50-feet in width. Similar to the buffers provided along PGA Boulevard, the Town Center buffer will provide a larger buffer from Northlake Boulevard while ensuring some visibility from the roadway, which is critical to the economic health of the district. The Master Plan also illustrates that a 25 foot wide buffer will be provided adjacent to the approximately 100 acre vacant parcel that is located at approximately the mid-point of the PCD's Northlake Boulevard frontage (Spear), and to the vacant property to the east (Balsamo). The remainder of the PCD's perimeter property lines will be conservation area adjacent to other adjacent conservation lands on the surrounding properties. The proposed buffer sections will comprise of newly planted vegetation and are designed to be naturalistic to reflect the character of the area.

Upland Preserve

The City requires that 25% of environmentally-significant lands be preserved on site or mitigated. The FLUCS included in the Environmental Assessment indicates that 728 acres of upland habitat exist on site, of which 182 or 25% is required to be preserved. The applicant is proposing to preserve 350 acres of native uplands (pine flatwoods), which is 48% of the existing upland habitat. The location of the 350 acres of native uplands to be preserved is provided on Master Plan. The conservation of this habitat will ensure long-term functional viability of the preserve.

Phasing

The project will be phased and built over a 20 year period with anticipated buildout in 2035. The anticipated phasing schedule is as follows:

MXD PCD Development Phasing Schedule

LAND USE	Total	Phase 1 (2015-2020)	Phase 2 (2021-2025)	Phase 3 (2026-2030)	Phase 4 (2031-Buildout)
Civic/Recreation	9 holes (land dedication)	60 ac			
Professional Office	1,800,000 SF	225,000	225,000	450,000	900,000
Medical Office	200,000 SF	50,000	100,000	50,000	
Commercial	400,000 sf	200,000	100,000	100,000	
Hotel	300 rooms		150	150	
Park	55 acres (land dedication)	55 ac			
Police/Fire/City Annex	15 acres (land dedication)	15 ac			
Public School	15 acres (land dedication)	15 ac			
Townhomes	250 units	250			
Single Family	3,735 units	1,000	1,000	1,000	735

Permitted Use List

The proposed Permitted and Conditional Use List is attached.

Art in Public Places

The applicant acknowledges Section 78-261 of the LDRs which requires Art in Public Places.

Community Design

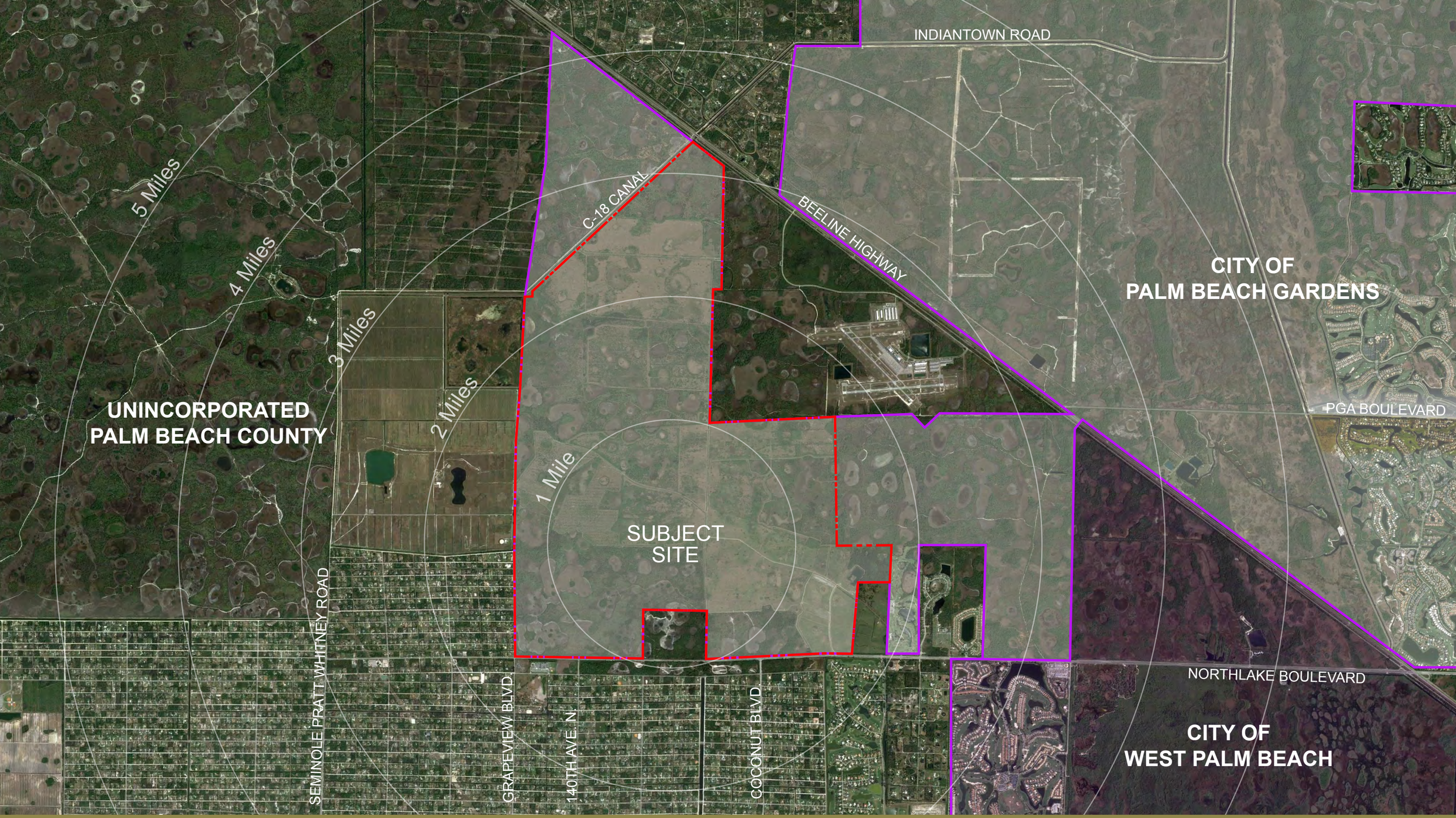
Sec. 78-157 (i) (1) through (6) of the LDRs requires that a MXD development include a specific community design element in both a written and graphic form to include at a minimum a Master Site Plan, Thoroughfare Plan, Thoroughfare Enhancement Plan, Pedestrian Linkage Map, Overall Design Theme, an a plan showing the orientation of nonresidential buildings. Design Standards that illustrate the mentioned components were provided in 2013. Once the reviewing agencies have had an opportunity to review the amended submittal, including the location of areas development and the development program, the applicant is requesting that the community design elements be discussed and refined based on the desires of the community at a workshop with staff and the applicant.

As was outlined in the Development Standards submitted for the project, and which are pending an update, the individual uses, buildings and development parcels within the MXD will provide

interconnecting pedestrian ways, plazas, trails, will connect to the rural parkway on Northlake, will provide internalized pedestrian connections between residential and nonresidential uses.

VI. CONCURRENT PROCESSING

The applicant is requesting Concurrent Processing for a Large Scale Future Land Use Map Amendment, a Comprehensive Plan Text Amendment, a Rezoning/PCD and Concurrency applications. The concurrent review of the applications will allow the City Council to have a cohesive understanding of the proposed development, and will provide assurances with regard to development densities and intensities and the design of the development.



Palm Beach Gardens Municipal Boundary
West Palm Beach Municipal Boundary
Unincorporated Palm Beach County Boundary

0 0.5 1 2′ Miles

AVENIR
PALM BEACH GARDENS

Location Map
Exhibit A

ORDINANCE 4, 2016

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF PALM BEACH GARDENS, FLORIDA REZONING CERTAIN REAL PROPERTY, SUCH PROPERTY BEING COMPRISED OF 4,763 ACRES IN SIZE, MORE OR LESS, AND LOCATED ON THE NORTH SIDE OF NORTHLAKE BOULEVARD, EAST OF GRAPEVIEW BOULEVARD, WEST OF BAY HILL DRIVE, AND SOUTH OF BEELINE HIGHWAY, INFORMALLY KNOWN AS THE AVENIR PCD; PROVIDING THAT THIS PARCEL(S) OF REAL PROPERTY, WHICH IS MORE PARTICULARLY DESCRIBED HEREIN, SHALL BE REZONED FROM PLANNED DEVELOPMENT AREA (PDA) DISTRICT TO PLANNED COMMUNITY DEVELOPMENT (PCD) OVERLAY WITH AN UNDERLYING ZONING DESIGNATION OF MIXED USE DEVELOPMENT (MXD) DISTRICT WITH A CONSERVATION PRESERVED LAND OVERLAY ON 2,407 ACRES; PROVIDING THAT THE ZONING MAP OF THE CITY OF PALM BEACH GARDENS BE AMENDED ACCORDINGLY; PROVIDING A CONFLICTS CLAUSE AND A SEVERABILITY CLAUSE; PROVIDING AN EFFECTIVE DATE; AND FOR OTHER PURPOSES.

WHEREAS, the City Council, as the governing body of the City of Palm Beach Gardens, Florida, pursuant to the authority in Chapter 163 and Chapter 166, *Florida Statutes*, and the City's Land Development Regulations (LDRs), is authorized and empowered to consider petitions related to zoning and land development orders; and

WHEREAS, the subject site is currently zoned Planned Development Area (PDA) and has a future land-use designation of Mixed Use Development (MXD) District; and

WHEREAS, the Planning and Zoning Department has reviewed the application, has determined that it is sufficient and consistent with the City's Comprehensive Plan and Land Development Regulations, and has recommended approval; and

WHEREAS, the Planning, Zoning, and Appeals Board reviewed the petition at its December 8, 2015, meeting and recommended approval of the subject petition (PPCD-13-07-000005) by a vote of 7 to 0; and

WHEREAS, the City Council has considered the evidence and testimony presented by the Applicant and other interested parties and the recommendations of the various City of Palm Beach Gardens and Palm Beach County reviewing agencies and staff; and

WHEREAS, the City Council deems approval of this Ordinance to be in the best interest of the health, safety, and welfare of the residents and citizens of the City of Palm Beach Gardens and the public at large; and

WHEREAS, the City Council has determined that this Ordinance is consistent with the City's Comprehensive Plan based on the following findings of fact:

1. The proposed rezoning of Planned Community Development (PCD) Overlay with an underlying zoning of Mixed Use Development (MXD) District is consistent with the overall goals, objectives, and policies of the City's Comprehensive Plan and the future land-use designation of Mixed Use Development (MXD).

2. The proposed rezoning is in harmony with the general purpose and intent of the Comprehensive Plan and the Land Development Regulations (LDRs), and is compatible with the intensity and density of the surrounding, existing, and future land uses.

3. Public benefits are provided as intended in Section 78-155 of the City's Land Development Code and as listed in the City's Staff Report for this Ordinance.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF PALM BEACH GARDENS, FLORIDA that:

SECTION 1. The foregoing recitals are hereby affirmed and ratified.

SECTION 2. That certain parcel of real property located within the corporate limits of the City of Palm Beach Gardens totaling approximately 4,763 acres, more or less, located on the north side of Northlake Boulevard, east of Grapeview Boulevard, west of Bay Hill Drive, and south of Beeline Highway, and currently zoned Planned Development Area (PDA) is hereby rezoned Planned Community Development (PCD) Overlay with an underlying Mixed Use Development (MXD) District and a Conservation Preserved Lands Overlay on approximately 2,407 acres as depicted on Exhibit "A". The certain parcel of real property totaling 4,763 acres, more or less, is legally described as follows:

(See Exhibit "B" for Legal Description)

SECTION 3. The City Zoning Map is hereby amended in accordance with Exhibit "A", which is attached hereto and incorporated herein, and the City Manager is hereby authorized and directed to implement these changes to the City Zoning Map.

SECTION 4. All ordinances or parts of ordinances in conflict be and the same are hereby repealed.

SECTION 5. Should any section or provision of this Ordinance or any portion thereof, any paragraph, sentence, or word be declared by a Court of competent jurisdiction to be invalid, such decision shall not affect the validity of the remainder of this Ordinance.

SECTION 6. This Ordinance shall become effective immediately upon adoption.

(The remainder of this page intentionally left blank)

PASSED this _____day of _____, 2016, upon first reading.

PASSED AND ADOPTED this _____day of _____, 2016, upon second and final reading.

CITY OF PALM BEACH GARDENS	**FOR**	**AGAINST**	**ABSENT**
BY:_____ Eric Jablin, Mayor	_____	_____	_____
_____ David Levy, Vice Mayor	_____	_____	_____
_____ Joseph R. Russo, Councilmember	_____	_____	_____
_____ Robert G. Premuroso, Councilmember	_____	_____	_____
_____ Marcie Tinsley, Councilmember	_____	_____	_____

ATTEST:

BY:_____
Patricia Snider, CMC, City Clerk

APPROVED AS TO FORM AND LEGAL SUFFICIENCY

BY:_____
R. Max Lohman, City Attorney

EXHIBIT "A"

AVENIR CONSERVATION OVERLAY EXHIBIT

12-17-2015

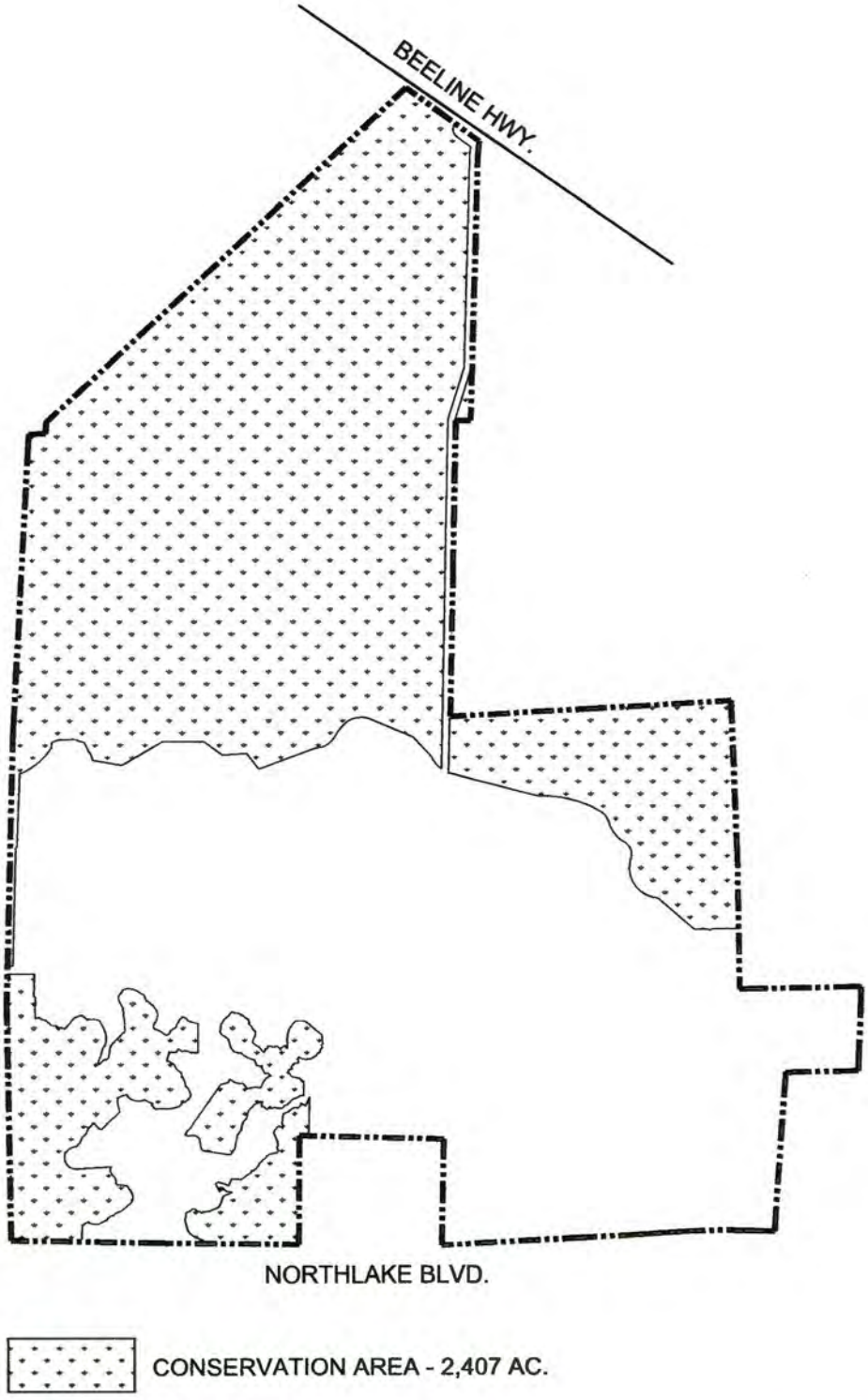


EXHIBIT "B"

LEGAL DESCRIPTION:

ALL OF SECTIONS 28, 32, AND 33, LYING SOUTHEAST OF THE CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT CANAL C-18 AS RECORDED JUNE 8, 1954, IN DEED BOOK 1056, PAGE 456, PUBLIC RECORDS OF PALM BEACH COUNTY, FLORIDA, AND SOUTHWEST OF THE SEABOARD AIRLINE RAILROAD, TOWNSHIP 41 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA;

TOGETHER WITH

ALL OF SECTION 4, AND THE EAST ONE-HALF (E-1/2) OF SECTION 5 LYING SOUTHEAST OF THE CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT CANAL C-18 AS RECORDED JUNE 8, 1954, IN DEED BOOK 1056, PAGE 456, PUBLIC RECORDS OF PALM BEACH COUNTY, FLORIDA, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA;

TOGETHER WITH

THE EAST ONE-HALF (E-1/2) OF SECTION 8, ALL OF SECTIONS 9 AND 10, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA;

TOGETHER WITH

THE WEST ONE-HALF (W-1/2) OF SECTION 14, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA, LYING NORTH OF LAKE PARK ROAD WEST EXTENSION (A/K/A NORTHLAKE BOULEVARD);

EXCEPTING THE LANDS LYING IN SAID SECTION 14 AS RECORDED IN OFFICIAL RECORDS BOOK 6114, PAGE 637, PUBLIC RECORDS, PALM BEACH COUNTY, FLORIDA;

TOGETHER WITH

ALL OF SECTION 15, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA, LYING NORTH OF LAKE PARK ROAD WEST EXTENSION (A/K/A NORTHLAKE BOULEVARD);

TOGETHER WITH

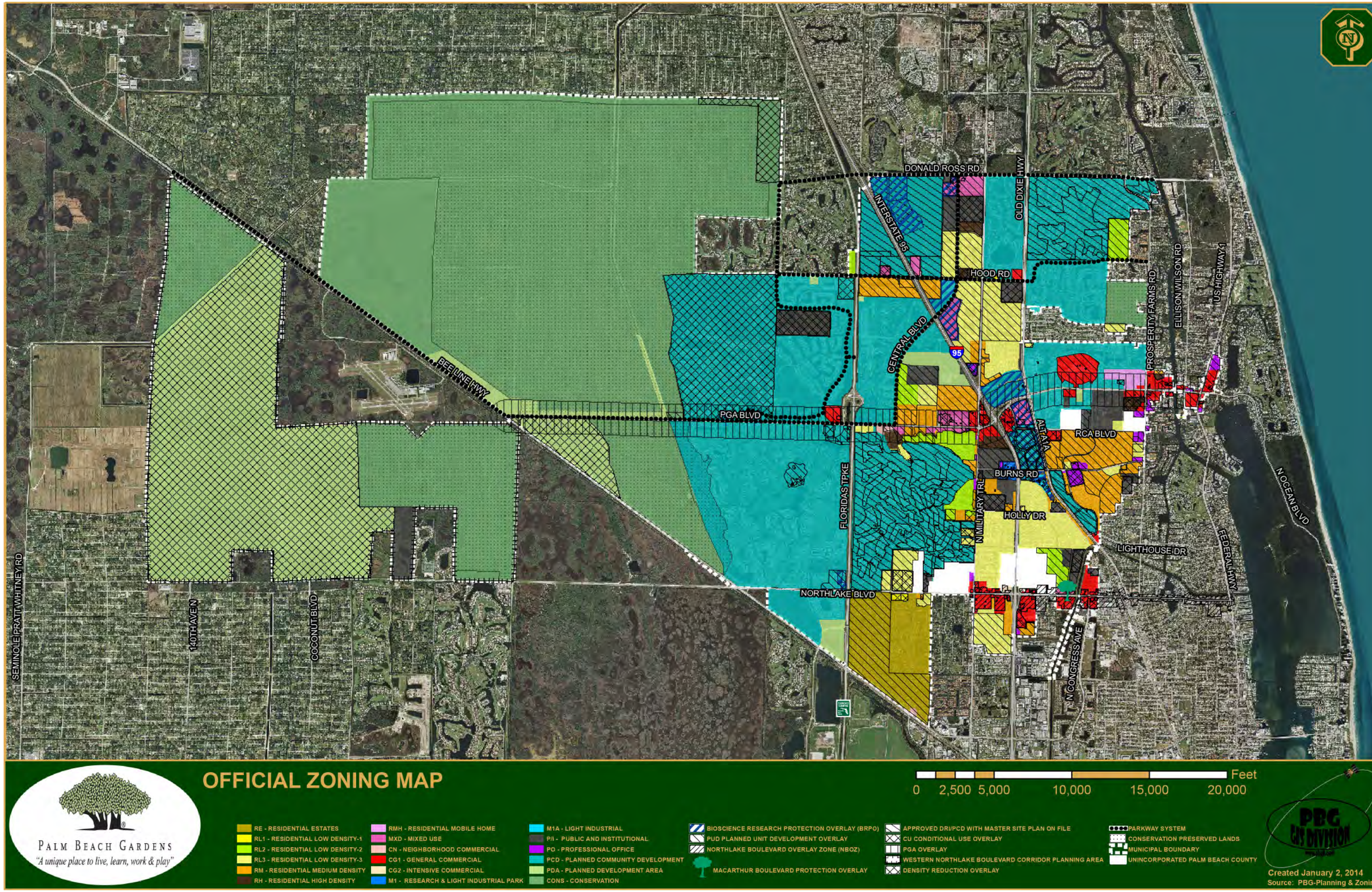
ALL OF SECTION 16, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA. LESS AND EXCEPT THE SOUTHEAST ONE-QUARTER THEREOF, LYING NORTH OF LAKE PARK ROAD WEST EXTENSION (A/K/A NORTHLAKE BOULEVARD);

TOGETHER WITH

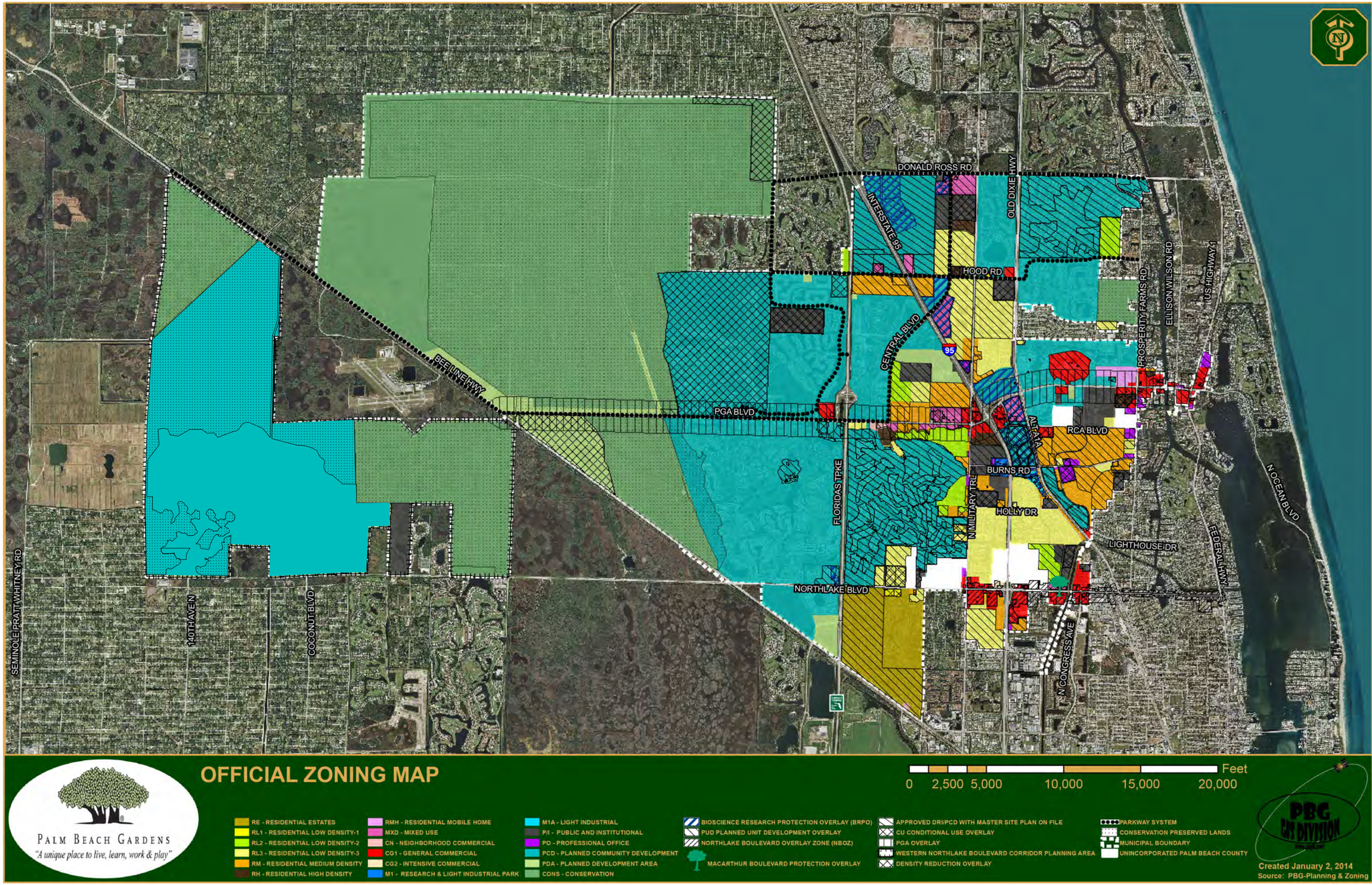
THE EAST ONE-HALF (E-1/2) OF SECTION 17, TOWNSHIP 42 SOUTH, RANGE 41 EAST, PALM BEACH COUNTY, FLORIDA, LYING NORTH OF LAKE PARK ROAD WEST EXTENSION (A/K/A NORTHLAKE BOULEVARD).

CONTAINING 4762.9 ACRES, MORE OR LESS.

SUBJECT TO EASEMENTS, RESERVATIONS, AND/OR RIGHTS-OF-WAY OF RECORD.

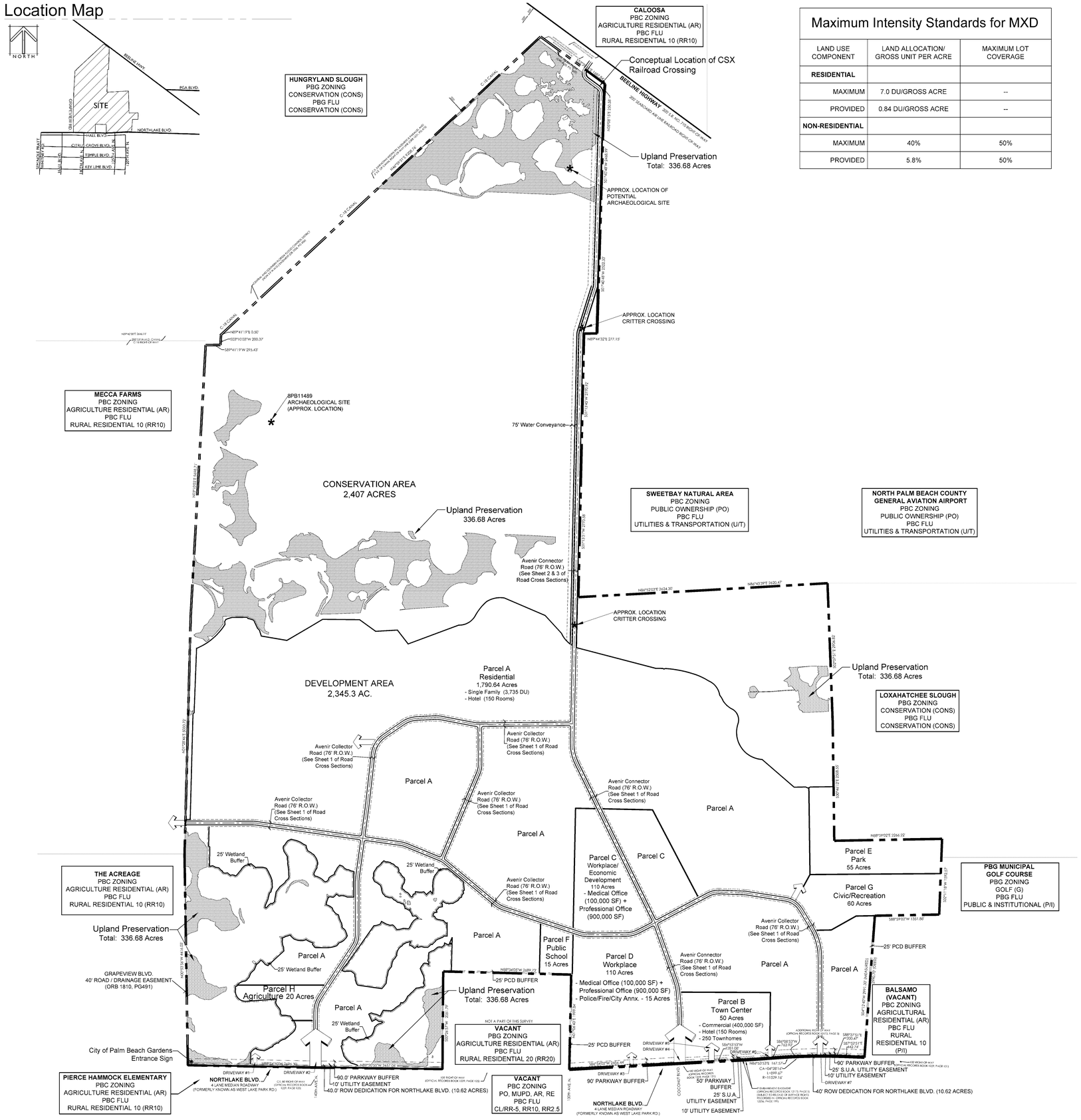


EXISTING ZONING MAP EXHIBIT F



Proposed Zoning Map

Location Map



Maximum Intensity Standards for MXD

LAND USE COMPONENT	LAND ALLOCATION/ GROSS UNIT PER ACRE	MAXIMUM LOT COVERAGE
RESIDENTIAL		
MAXIMUM	7.0 DU/GROSS ACRE	--
PROVIDED	0.84 DU/GROSS ACRE	--
NON-RESIDENTIAL		
MAXIMUM	40%	50%
PROVIDED	5.8%	50%

Site Data

PETITION NUMBER:	PPCD-13-07-000005
PROPERTY CONTROL NUMBERS:	
52-41-41-28-00-000-5010	52-41-41-32-00-000-5010 / 52-41-41-33-00-000-1020
52-41-42-05-00-000-1000	52-41-42-04-00-000-9000 / 52-41-42-10-00-000-9000
52-41-42-08-00-000-1010	52-41-42-09-00-000-1010 / 52-41-42-17-00-000-1000
52-41-42-16-00-000-1010	52-41-42-15-00-000-1000 / 52-41-42-14-00-000-3020
GROSS ACREAGE:	4,762.9 ACRES
EXISTING LAND USE DESIGNATION:	RR10 & RR20
PROPOSED LAND USE DESIGNATION:	MIXED USE (MXD) - 4,762.9 ACRES
EXISTING ZONING:	PDA
PROPOSED ZONING:	MXD PCD
EXISTING LAND USE OVERLAY:	WESTERN NORTHLAKE BLVD CORRIDOR PLANNING AREA
EXISTING & PROPOSED ZONING OVERLAY:	CONDITIONAL USE FOR AGRICULTURAL USES - 20 ACRES

Land Use Designation Summary

GROSS ACREAGE:	4,762.9 ACRES	
ROW DEDICATION:	10.6 ACRES (20' ROW DEDICATION - NORTHLAKE BLVD)	
NET ACREAGE:	4,752.3 ACRES	
DEVELOPMENT AREA:	2,345.3 ACRES (49% OF NET)	
PARCEL A, RESIDENTIAL:		1,790.64 ACRES
PARCEL B, TOWN CENTER:		50 ACRES
PARCEL C, WORKPLACE/ECONOMIC DEVELOPMENT:		110 ACRES
PARCEL D, WORKPLACE:		110 ACRES
PARCEL E, PARK:		55 ACRES
PARCEL F, PUBLIC SCHOOL:		15 ACRES
PARCEL G, CIVIC/RECREATION:		60 ACRES
PARCEL H, AGRICULTURE		20 ACRES
PCD BUFFERS:		4.15 ACRES
ROW BUFFERS:		32.62 ACRES
PARKWAY BUFFER:		22.17 ACRES
RIGHT OF WAYS:		70.83 ACRES
UTILITY EASEMENTS ALONG NORTHLAKE		4.89 ACRES
CONSERVATION OVERLAY AREA:	2,407 ACRES (51% OF NET)	
TOTAL NET ACREAGE:	4,752.3 ACRES	

MXD PCD DEVELOPMENT PROGRAM	
CONSERVATION AREA	**2,406.9 ACRES**
DEVELOPMENT AREA	**2,345.3 ACRES**
SINGLE FAMILY	3,735 UNITS
TOWNHOMES	250 UNITS
COMMERCIAL	400,000 SF
MEDICAL OFFICE	200,000 SF
PROFESSIONAL OFFICE	1,800,000 SF
HOTEL	300 ROOMS (APPROX 80,000 SF)
PARK (LAND DEDICATION)	55 ACRES
POLICE/FIRE/CITY ANNEX (LAND DEDICATION)	15 ACRES
CIVIC/RECREATION (LAND DEDICATION)	60 ACRES
PUBLIC SCHOOL (LAND DEDICATION)	15 ACRES
AGRICULTURAL	20 ACRES
ROW DEDICATION (NORTHLAKE)	**10.6 ACRES**
TOTAL PCD MXD LAND AREA	**4,762.9 ACRES**
RESIDENTIAL DENSITY	0.84 DU/AC
OFFICE/COMMERCIAL/HOTEL INTENSITY	0.01

Residential Summary

GROSS DENSITY:	0.84 DU/AC (3,985 UNITS/4,762.9 ACRES)
SINGLE FAMILY:	3,735 UNITS
TOWNHOMES:	250 UNITS
MAXIMUM HEIGHT:	4 STORIES

Non-Residential Summary

PCD GROSS INTENSITY:	0.01 FAR (2,480,100 SF/ 4,762.9 ACRES)
COMMERCIAL:	400,000 SF
MEDICAL OFFICE:	200,000 SF
PROFESSIONAL OFFICE:	1,800,000 SF
HOTEL:	300 ROOMS (APPROX. 80,000 SF)
MAXIMUM HEIGHT:	4 STORIES

MXD PCD Open Space Summary

PER SEC. 78-155 (o)(1) - MIN. 20% COMMUNITY SERVING OPEN SPACE REQUIRED FOR OVERALL 4,752.3 ACRES (950.46 ACRES)

REQUIRED OPEN SPACE:	950.46 ACRES
PROVIDED OPEN SPACE:	1,279.2 ACRES (26.9%)
ENVIRONMENTALLY SENSITIVE LANDS	
UPLAND PRESERVE:	297 ACRES *(COMBINATION OF UPLAND PRESERVE AND WETLAND AREAS MAY NOT EXCEED 50% OF THE REQUIRED 950.46 AC OR 475.23 AC PER SEC. 78-681 (b)(3))*
WETLAND/WETLAND BUFFERS/FLOW WAY:	178 ACRES
PEDESTRIAN AREAS:	
ROW BUFFERS:	32.62 ACRES *(ALONG INTERNAL ROW)*
PARKWAY BUFFER:	22.17 ACRES
PUBLIC PARKS:	
PARK:	55 ACRES *(100% INCLUDED PER SEC. 78-681(b)(5))*
RECREATION FACILITIES:	
CIVIC/RECREATION:	30 ACRES *(LIMITED TO 50% PER SEC. 78-681(b)(1))*
PRIVATE OPEN SPACE:	
PARCEL A (1,790.64 ACRES) - 35% MIN.:	626.72 ACRES
PARCEL B (50 ACRES) - 20% MIN.:	10 ACRES
PARCEL C & D (220 ACRES) - 10% MIN.:	22 ACRES
PARCEL F (15 ACRES) - 10% MIN.:	1.5 ACRES
OTHER OPEN SPACE:	
PCD BUFFERS:	4.15 ACRES

Upland Preserve

MIN. 25% OF EXISTING UPLANDS REQUIRED FOR PRESERVATION PER SECTION 78-250(a)(1)a.

PCD NATIVE UPLANDS (EXISTING):	728 ACRES PINE FLATWOODS
REQUIRED PCD UPLAND PRESERVE:	182 ACRES (25%)
PROVIDED PCD UPLAND PRESERVE:	336.68 Acres ACRES (46.2%)

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Avenir
A Planned Community Development
Palm Beach Gardens, Florida
PCD Master Plan

Drawing name: H:\JOBS\Avenir Ibis Vanrui Ranch_12-065\Avenir_001\Drawings\PCD Master Plan\2015-10-17_MP.dwg

NORTH

0 500' 1000' 2000'

Scale: 1" = 1000'-0"

Date:	8/07/2014
Project No.:	12-065.001
Designed By:	
Drawn By:	
Checked By:	

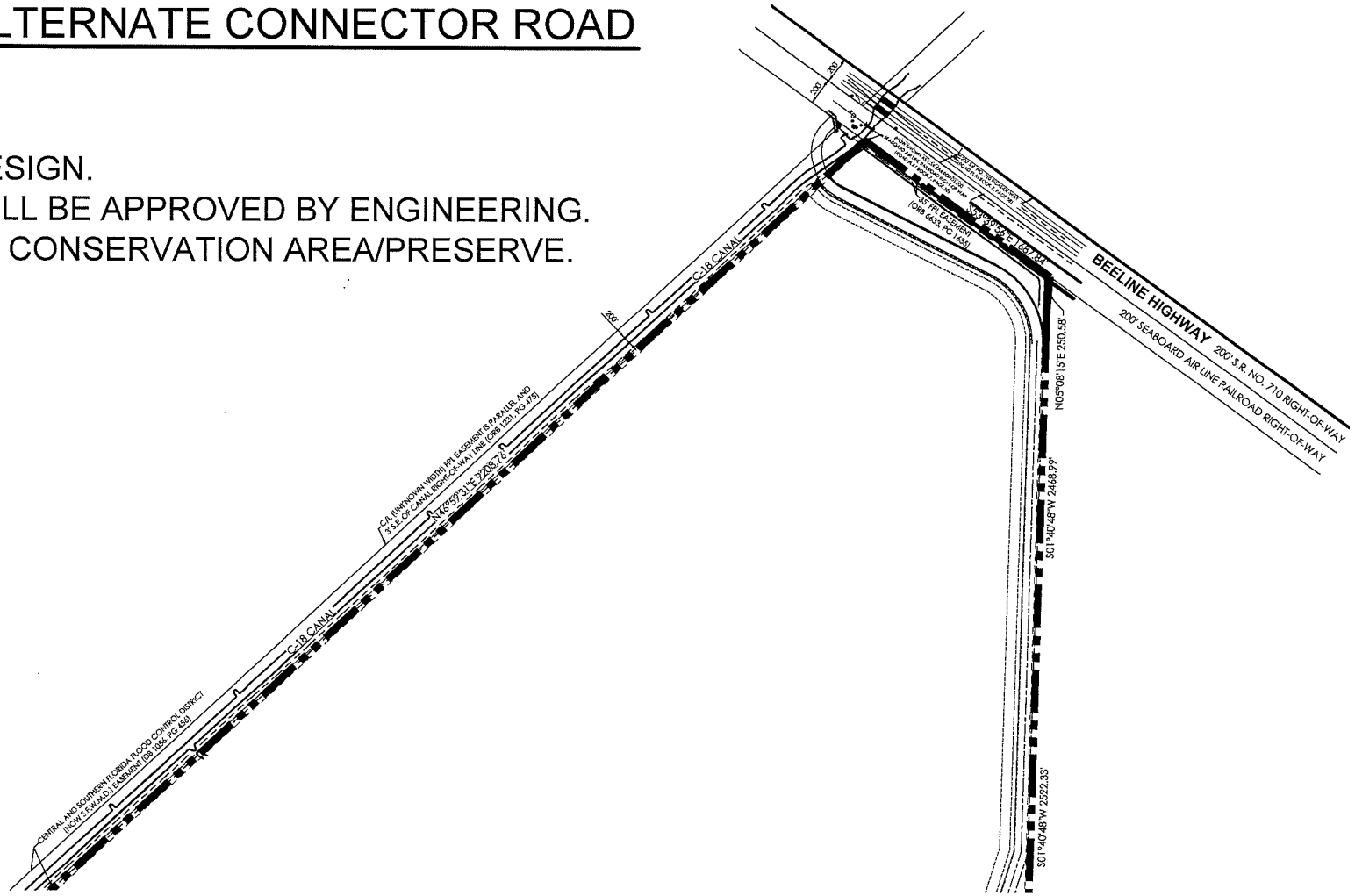
Revision Dates:

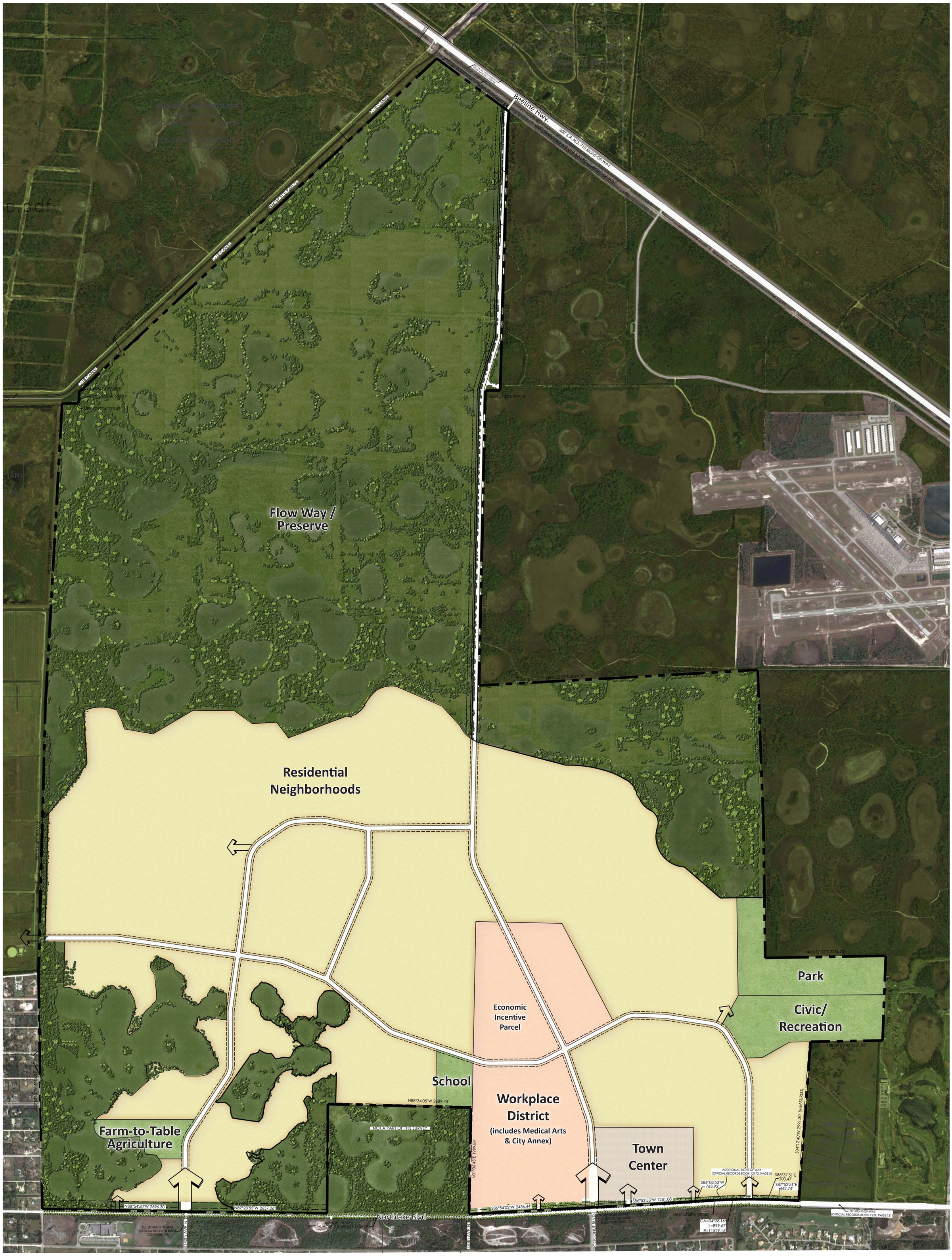
10-01-2014		
04-17-2015	TLM	Resubmittal
07-27-2015	WJT	Resubmittal
09-11-2015	LMB	Resubmittal
10-02-2015	LMB	Resubmittal
11-04-2015	LMB	Resubmittal
12-01-2015	LMB	Resubmittal
12-17-2015	LMB	Resubmittal

MP-1
of 1

CONCEPTUAL ALTERNATE CONNECTOR ROAD

CONCEPTUAL DESIGN.
FINAL DESIGN WILL BE APPROVED BY ENGINEERING.
NO NET LOSS OF CONSERVATION AREA/PRESERVE.





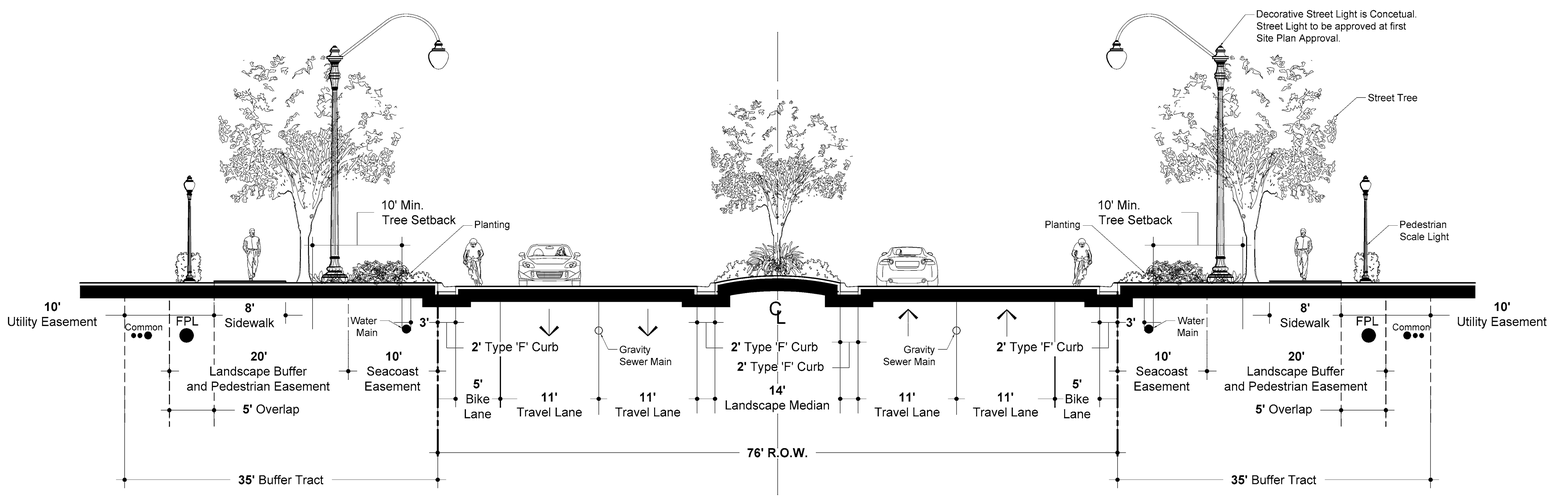
Rendered Master Plan

AVENIR

prepared for
Avenir Holdings, LLC

PALM BEACH GARDENS, FL
DRAFT December 3, 2015

0 800 2400
400 1600 3200
Scale: 1 to 800

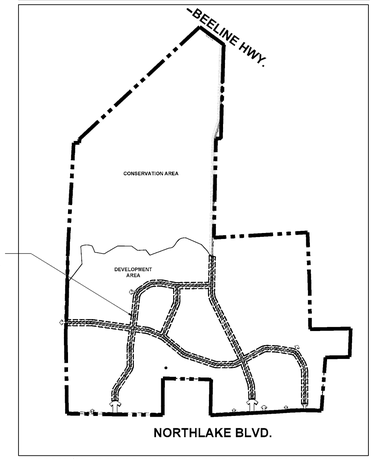


Avenir Collector Roads and Avenir Connector Road Within the Development Area

76' ULTIMATE R.O.W.

Scale: $1\frac{1}{2}$" = 1'-0"

Site Key



* Hatching for illustrative purposes only. Indicates approximate location. Not to scale.

Plant List

BOTANICAL NAME / COMMON NAME	CONT	CAL	SIZE	SPR	
Bursera simaruba / Gumbo Limbo	B & B		12' ht.		
Myrica cerifera / Wax Myrtle	B & B		Min. 8' ht.		
Magnolia grandiflora `D.D. Blanchard` TM / Southern Magnolia	1,400 gal	Min. 6" cal.	18'-20' o.a.	8' spr.	
Quercus virginiana / Southern Live Oak	B & B	16" cal.	25' o.a.	20' spr.	
Quercus virginiana / Southern Live Oak	B & B	8" cal.	20' .o.a.	15' spr.	
BOTANICAL NAME / COMMON NAME	CONT	CAL	SIZE	SPR	
Bismarckia nobilis / Bismark Palm	B & B		10' clear wood		
Phoenix dactylifera `Medjool` / Medjool Date Palm	B & B		20' clear wood		
Roystonea elata / Florida Royal Palm	B & B		20' clear wood		
BOTANICAL NAME / COMMON NAME	CONT	@ OC	SIZE	SPR	SPACING
Clusia guttifera / Small-Leaf Clusia	3 gal		24" ht.	24" spr.	24" o.c.
Crinum augustum `Queen Emma` / `Queen Emma` Crinum	15 gal		36" ht.	36" spr.	36" o.c.
Ficus microcarpa `Green Island` / Green Island Ficus	3 gal		12" ht.	12" spr.	24" o.c.
Hamelia nodosa / Dwarf Firebush	3 gal		18" ht.	18" spr.	24" o.c.
Chrysobalanus icaco "Red Tip" / Red Tip Cocoplum	3 gal		24" ht.	24" spr.	24" o.c.
Spartina bakeri / Sand Cord Grass	3 gal		20" ht.	18" spr.	24" o.c.
Tripsacum floridanum / Dwarf Fakahatchee Grass	3 gal		20" ht.	18" spr.	24" o.c.
Viburnum obovatum / Walter's Viburnum	3 gal		24" ht.	24" spr.	24" o.c.
Zamia pumila / Coontie	3 gal		12" ht.	12" spr.	30" o.c.

NOTES:

- Road Section Design Is Conceptual and is subject to final engineering.
- All site furnishings and plantings to be approved by The City of PBG.
- Pedestrian lights to be located at intersections and designated areas. Specific locations will be identified on the civil engineering plans.

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Avenir
A Planned Community Development
Palm Beach Gardens, Florida
Avenir Collector Road Within the Development Area - 76' R.O.W.

Drawing name: H:\UDKS\Avenir Ba Vernon Beach_12-065\Avenir_001\Drawings\PCD Master Plan\2015-12-17_Roadway Cross Sections.dwg

NORTH

0 10' 20' 40'

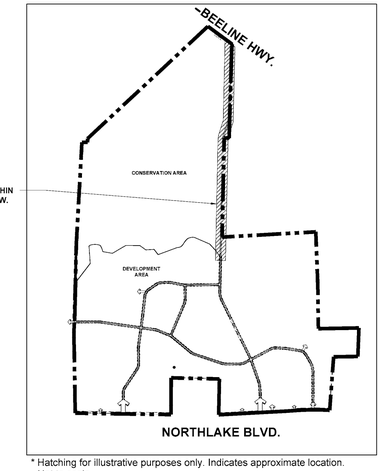
Scale: 1" = 20'-0"

Date:	08-22-2014
Project No.:	12-065.001
Designed By:	LMB
Drawn By:	LMB
Checked By:	WT

Revision Dates:

11-04-2015 LMB Submittal
11-12-2015 LMB Resubmittal
12-01-2015 LMB Resubmittal
12-17-2015 LMB Resubmittal

Site Key



AVENIR CONNECTOR ROAD WITHIN CONSERVATION AREA 76' R.O.W.

* Hatching for illustrative purposes only. Indicates approximate location. Not to scale.

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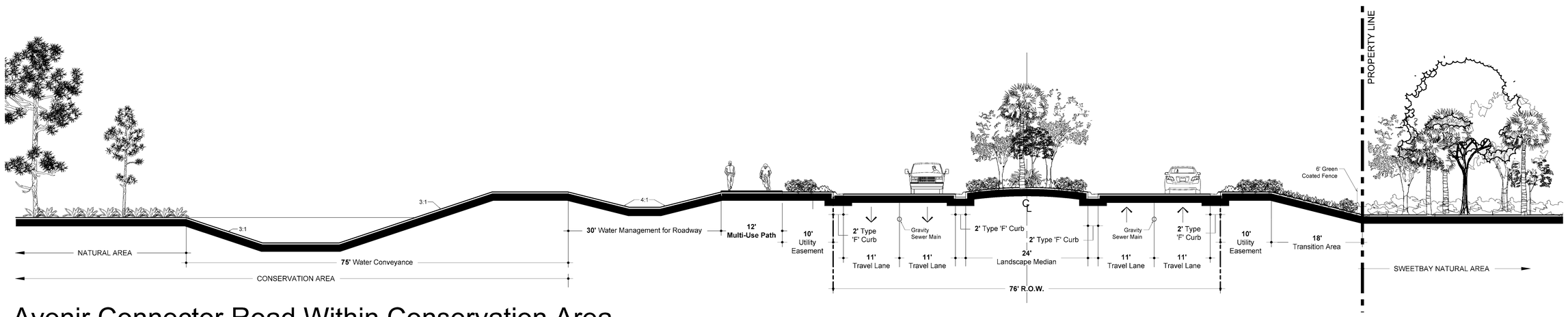


Avenir Connector Road Within Conservation Area

76' ULTIMATE R.O.W.

Scale: $1\frac{1}{4}$" = 1'-0"

Plant List

BOTANICAL NAME / COMMON NAME	CONT	CAL	SIZE	SPR	
Bursera simaruba / Gumbo Limbo	B & B		12' ht.		
Myrica cerifera / Wax Myrtle	B & B		Min. 8' ht.		
Magnolia grandiflora `D.D. Blanchard` TM / Southern Magnolia	1,400 gal.	Min. 6" cal.	18'-20' o.a.	8' spr.	
Quercus virginiana / Southern Live Oak	B & B	16" cal.	25' o.a.	20' spr.	
Quercus virginiana / Southern Live Oak	B & B	8" cal.	20' o.a.	15' spr.	
BOTANICAL NAME / COMMON NAME	CONT	CAL	SIZE	SPR	
Bismarckia nobilis / Bismark Palm	B & B		10' clear wood		
Phoenix dactylifera `Medjool` / Medjool Date Palm	B & B		20' clear wood		
Roystonea elata / Florida Royal Palm	B & B		20' clear wood		
BOTANICAL NAME / COMMON NAME	CONT	@ OC	SIZE	SPR	SPACING
Clusia guttifera / Small-Leaf Clusia	3 gal		24" ht.	24" spr.	24" o.c.
Crinum augustum `Queen Emma` / `Queen Emma` Crinum	15 gal		36" ht.	36" spr.	36" o.c.
Ficus microcarpa `Green Island` / Green Island Ficus	3 gal		12" ht.	12" spr.	24" o.c.
Hamelia nodosa / Dwarf Firebush	3 gal		18" ht.	18" spr.	24" o.c.
Chrysobalanus icaco "Red Tip" / Red Tip Cocoplum	3 gal		24" ht.	24" spr.	24" o.c.
Spartina bakeri / Sand Cord Grass	3 gal		20" ht.	18" spr.	24" o.c.
Tripsacum floridanum / Dwarf Fakahatchee Grass	3 gal		20" ht.	18" spr.	24" o.c.
Viburnum obovatum / Walter's Viburnum	3 gal		24" ht.	24" spr.	24" o.c.
Zamia pumila / Coontie	3 gal		12" ht.	12" spr.	30" o.c.

NOTES:

- Road Section Design Is Conceptual and is subject to final engineering.
- All site furnishings and plantings to be approved by The City of PBG.
- Pedestrian lights to be located at intersections and designated areas. Specific locations will be identified on the civil engineering plans.

Avenir
A Planned Community Development
Palm Beach Gardens, Florida
Avenir Connector Road Within Conservation Area - 76' R.O.W.

Drawing name: H:\UDKS\Avenir Rio Vanos Ranch, 12-065\Avenir_001\Drawings\PDD Master Plan\2015-12-17_Roadway Cross Sections.dwg

NORTH

0 10' 20' 40'

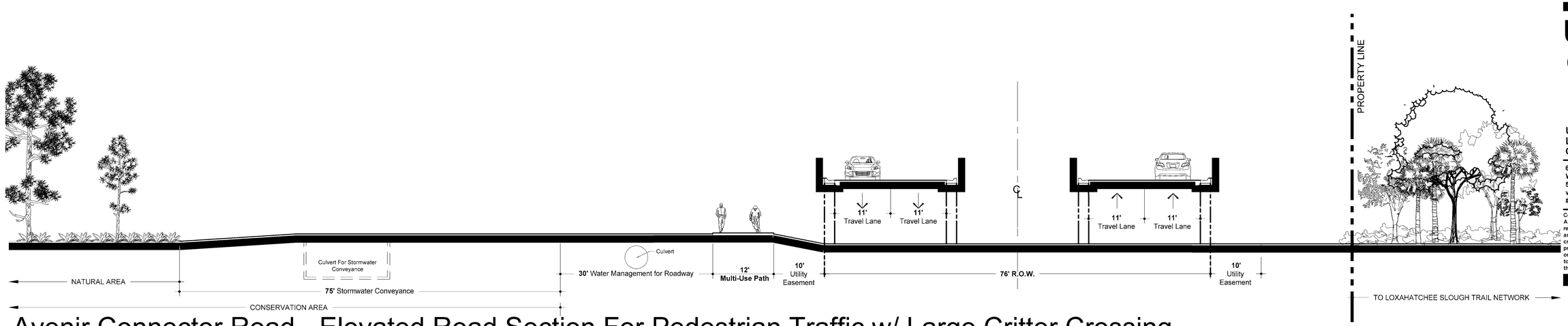
Scale: 1" = 20'-0"

Date:	08-22-2014
Project No.:	12-065.001
Designed By:	LMB
Drawn By:	LMB
Checked By:	WT

Revision Dates:

11-04-2015 LMB Submittal
11-12-2015 LMB Resubmittal
12-01-2015 LMB Resubmittal
12-17-2015 LMB Resubmittal

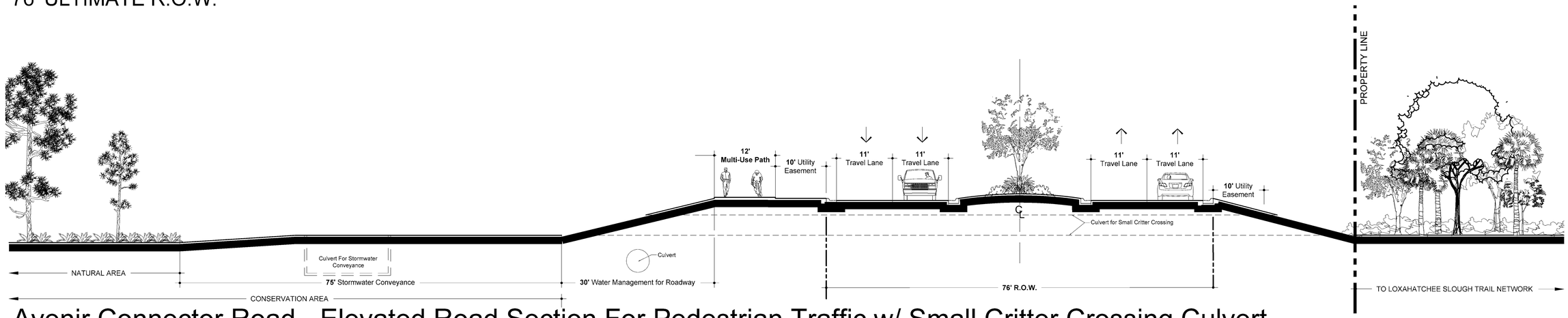
Sheet 2
of 3



Avenir Connector Road - Elevated Road Section For Pedestrian Traffic w/ Large Critter Crossing

76' ULTIMATE R.O.W.

Scale: $1\frac{1}{4}$" = 1'-0"

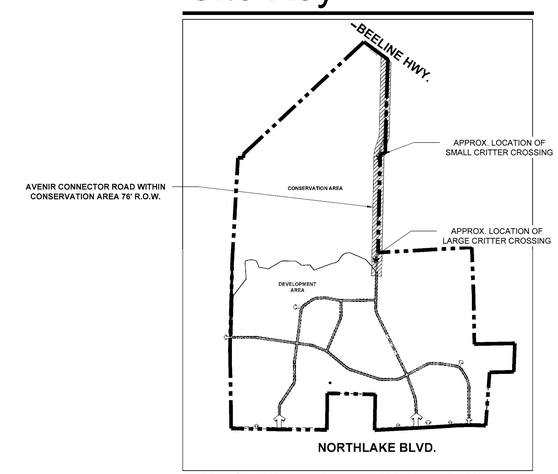


Avenir Connector Road - Elevated Road Section For Pedestrian Traffic w/ Small Critter Crossing Culvert

76' ULTIMATE R.O.W.

Scale: $1\frac{1}{4}$" = 1'-0"

Site Key



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Avenir

A Planned Community Development

Palm Beach Gardens, Florida

Avenir Connector Road - Conservation Area - Critter Crossing Details

Drawing name: H:\JOBS\Avenir Rio Vienna Ranch_12-065\Avenir_001\Drawings\PDD Master Plan\2015-12-17_Roadway Cross Sections.dwg

NORTH

0 10' 20' 40'

Scale: 1" = 20'-0"

Date:	08-22-2014
Project No.:	12-065.001
Designed By:	LMB
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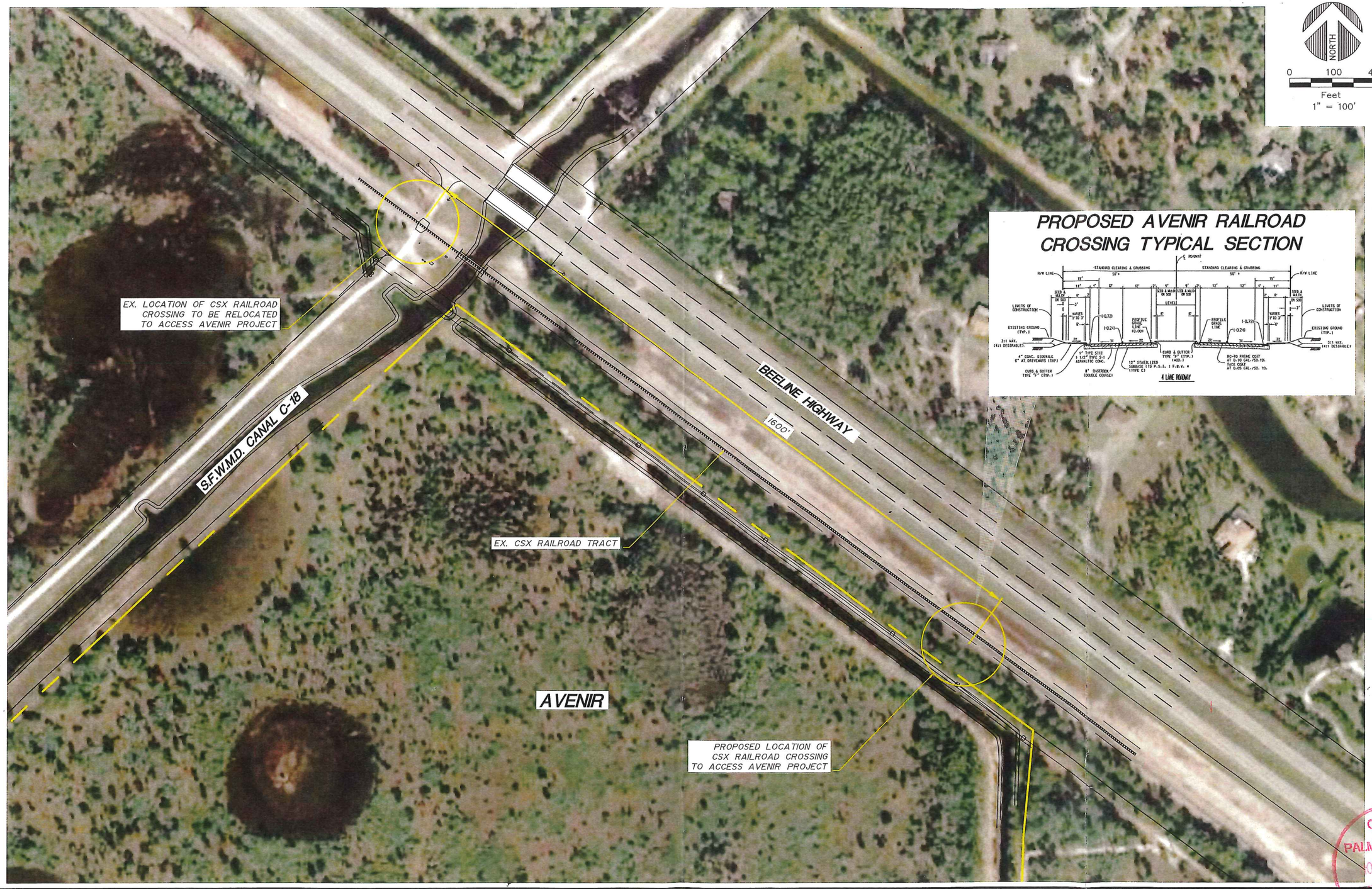
Checked By:	WT

Revision Dates:

11-04-2015	LMB	Submittal
11-12-2015	LMB	Resubmittal
12-01-2015	LMB	Resubmittal
12-17-2015	LMB	Resubmittal



NO.	DATE	BY	REVISION	NO.	DATE	BY	REVISION

Designed by: M.A.G. Date: 9/2015
Drawn by: M.A.G. Date: 9/2015
Checked by: C.J.B. Date: _____

BALLBÉ & ASSOCIATES
Civil Engineering • Planning • Surveying

2737 Northeast 30th Place
Fort Lauderdale, Florida 33306
Phone: (954) 491-7811
Authorization No. EB-26343

Engineer of Record: CARLOS J. BALLBÉ
Registered Engineer Number: 41811
State of Florida
Date: 09/16/2015

PROPOSED CSX CROSSINGS LOCATION

AVENIR
AVENIR HOLDINGS, LLC

Project Number: 201212
Sheet Number: 3 OF 3

CONCEPTUAL

NORTH

0 100 200

Feet

1" = 100'

NO.	DATE	BY	REVISION	NO.	DATE	BY	REVISION

Designed by: C.J.B. Date: 8/2015

Drawn by: C.J.B. Date: 8/2015

Checked by: C.J.B. Date: _____

BALLBÉ & ASSOCIATES

Civil Engineering • Planning • Surveying

2737 Northeast 30th Place
Fort Lauderdale, Florida 33306
Phone: (954) 491-7811
Authorization No. EB-26343

Engineer of Record: CARLOS J. BALLBE'

Registered Engineer Number: 41811
State of Florida

Date: 8/26/2015

CSX CROSSING CONCEPTUAL LAYOUT

PLAN

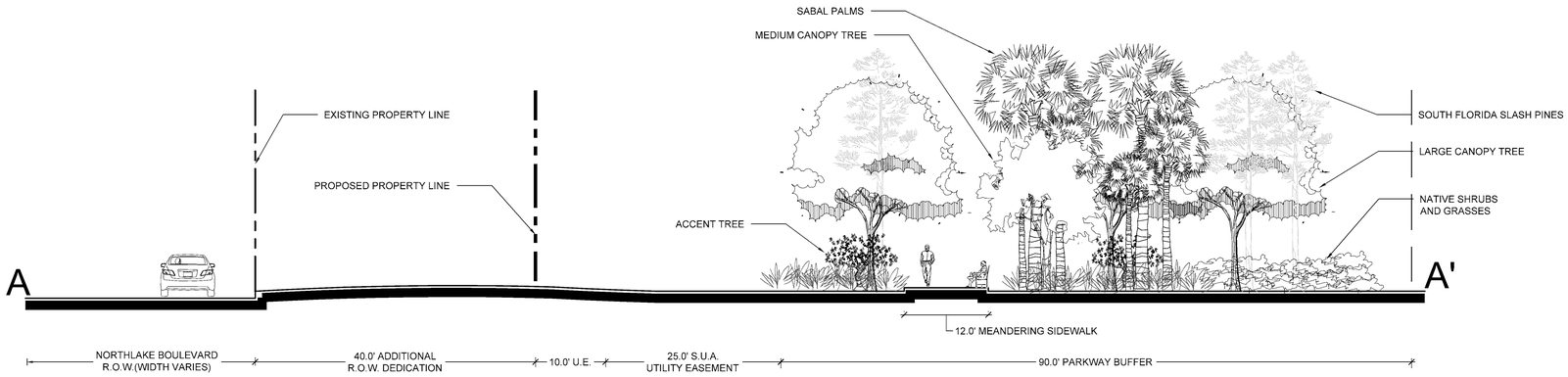
AVENIR

AVENIR HOLDINGS, LLC

Project Number: 201212

Sheet Number: 1 OF 1

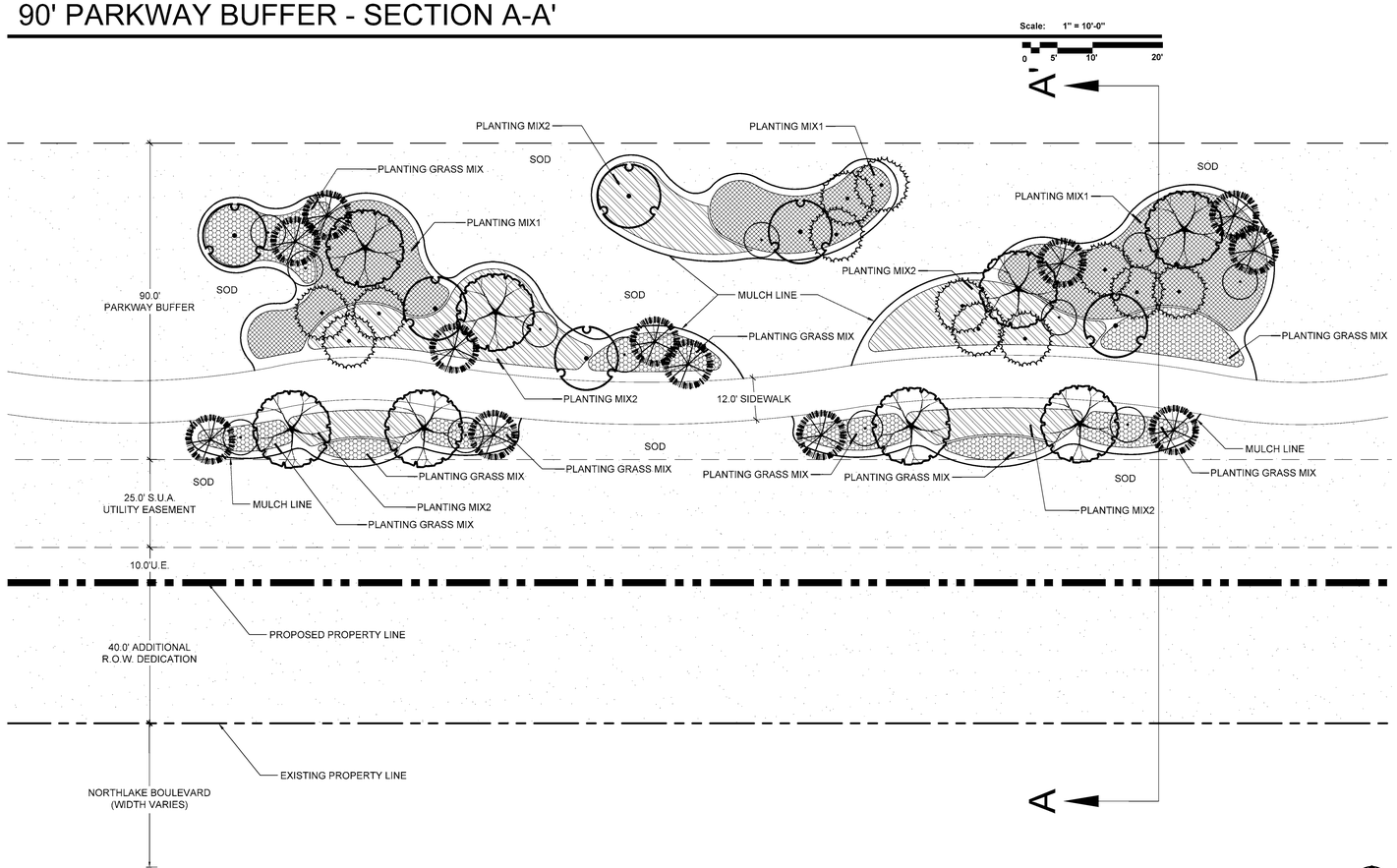
CONCEPTUAL



90' PARKWAY BUFFER - SECTION A-A'

Scale: 1" = 10'-0"

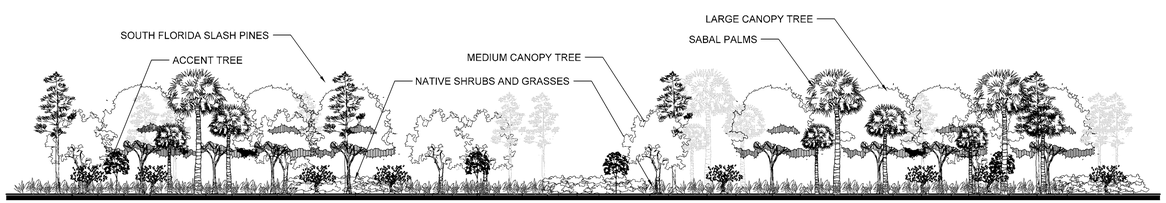
0 5' 10' 20'



90' PARKWAY BUFFER - PLAN VIEW

Scale: 1" = 20'-0"

0 10' 20' 40'

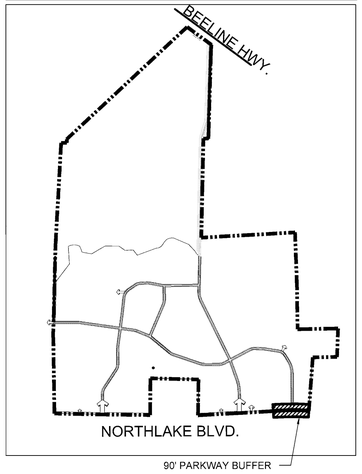


90' PARKWAY BUFFER - ELEVATION

Scale: 1" = 20'-0"

0 10' 20' 40'

SITE KEY



90' PARKWAY BUFFER PLANT PALETTE	
LARGE CANOPY TREES	
	Bursera simaruba / Gumbo Limbo Quercus virginiana / Southern Live Oak Swietenia mahagoni / Mahogany
MEDIUM CANOPY TREES	
	Acer rubrum / Red Maple Ilex x attenuata `East Palatka` / East Palatka Holly
ACCENT TREES	
	Ligustrum japonicum / Japanese Privet Myrica cerifera / Wax Myrtle
PALMS	
	Sabal palmetto / Cabbage Palmetto
PINES	
	Pinus elliotti / South Florida Slash Pine
PLANTING MIX1	
	Chrysobalanus icaco `Red Tip` / Red Tip Cocoplum Hamelia patens `nana` / Dwarf Fire Bush Myrcianthes fragrans / Simpson`s Stopper Serenoa repens / Saw Palmetto Psychotria nervosa / Wild Coffee
PLANTING MIX2	
	Eugenia foetida / Spanish Stopper Hamelia patens `nana` / Dwarf Fire Bush Serenoa repens / Saw Palmetto Viburnum obovatum / Walter`s Viburnum
PLANTING GRASS MIX	
	Spartina bakeri / Sand Cord Grass Tripsacum floridanum / Florida Gamagrass

NOTE: ALL PROPOSED PLANTING SYMBOLS REPRESENT 5 YEARS OF GROWTH

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Avenir

A Planned Community Developement

Palm Beach Gardens, Florida

90' Parkway Buffer - Northlake Blvd. (East of Avenir Connector Road)

Drawing name: H:\URBS\Avenir\ka Vienna Ranch_12-065\Avenir_001\Drawings\PDD Master Plan\2015-12-17_Buffer Cross Sections.dwg

NORTH

0 00' 00' 000'

Scale: 1" = ##'-0"

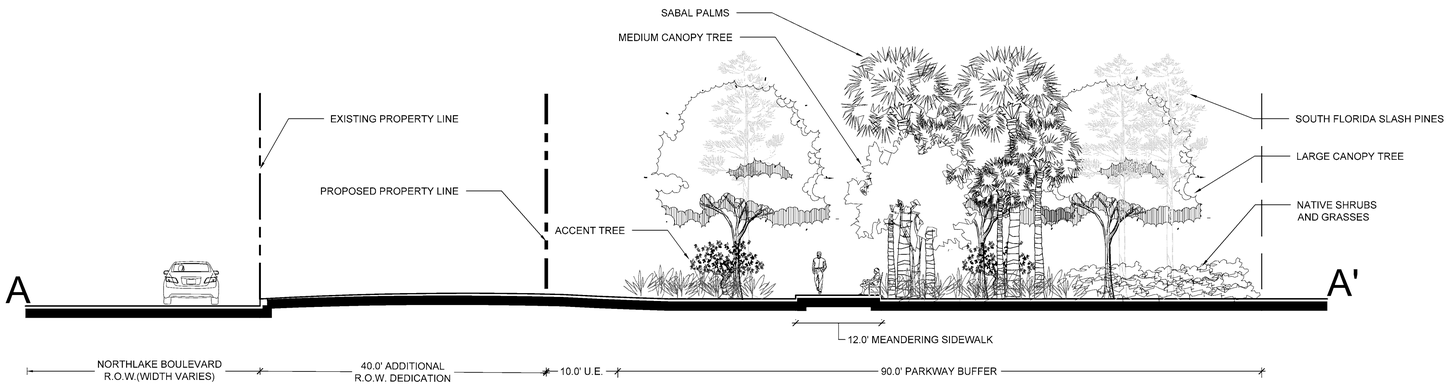
Date:	09-16-2014
Project No.:	12-065.001
Designed By:	LMB
Drawn By:	LMB
Checked By:	JB

Revision Dates:

09-16-2014	Submittal
11-12-2015	Resubmittal
12-01-2015	Resubmittal
12-17-2015	Resubmittal

LP - 1

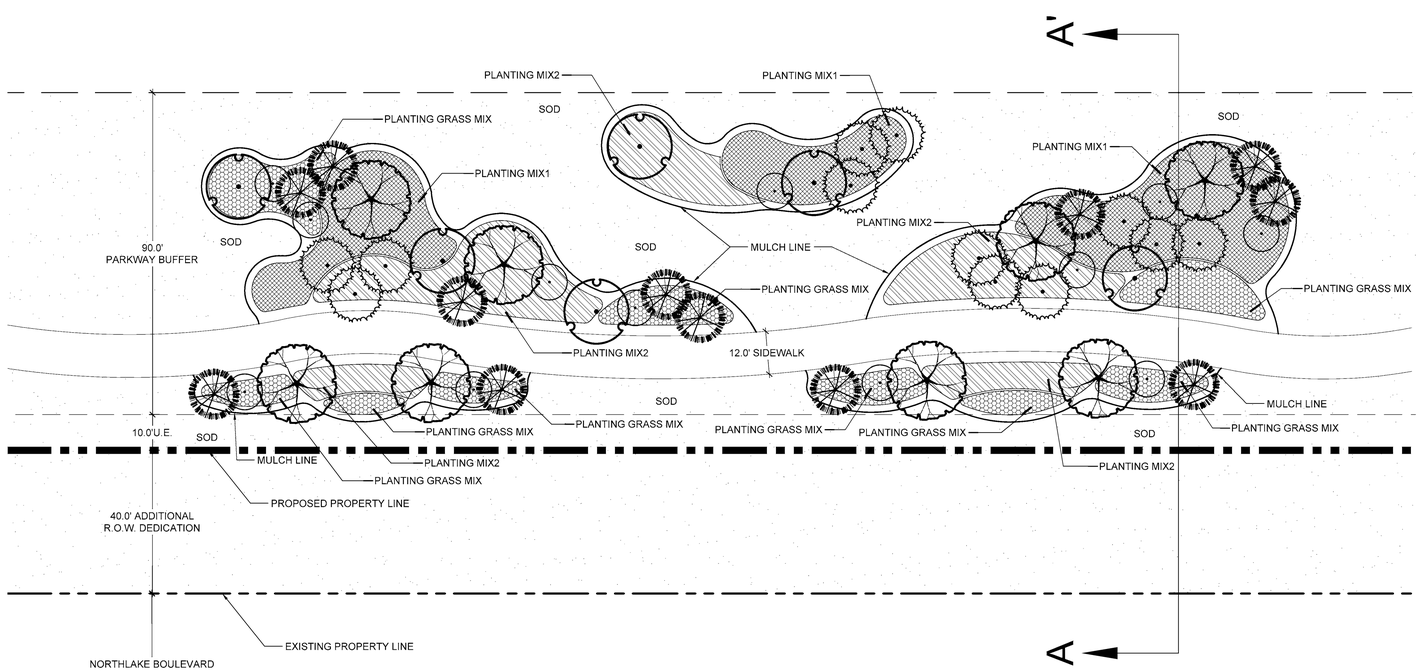
of 5



90' PARKWAY BUFFER - SECTION A-A'

Scale: 1" = 10'-0"

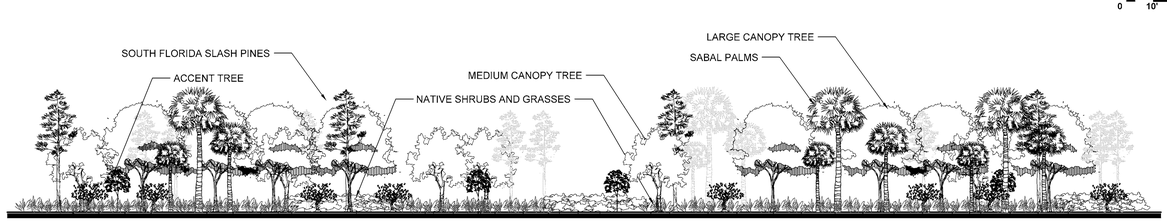
0 5' 10' 20'



90' PARKWAY BUFFER - PLAN VIEW

Scale: 1" = 20'-0"

0 10' 20' 40'

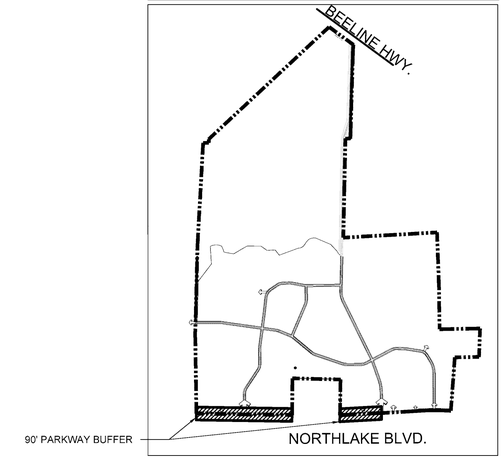


90' PARKWAY BUFFER - ELEVATION

Scale: 1" = 20'-0"

0 10' 20' 40'

SITE KEY



90' PARKWAY BUFFER PLANT PALETTE

LARGE CANOPY TREES	
	Bursera simaruba / Gumbo Limbo Quercus virginiana / Southern Live Oak Swietenia mahagoni / Mahogany
MEDIUM CANOPY TREES	
	Acer rubrum / Red Maple Ilex x attenuata `East Palatka` / East Palatka Holly
ACCENT TREES	
	Ligustrum japonicum / Japanese Privet Myrica cerifera / Wax Myrtle
PALMS	
	Sabal palmetto / Cabbage Palmetto
PINES	
	Pinus elliotti / South Florida Slash Pine
PLANTING MIX1	
	Chrysobalanus icaco `Red Tip` / Red Tip Cocoplum Hamelia patens `nana` / Dwarf Fire Bush Myrcianthes fragrans / Simpson`s Stopper Serenoa repens / Saw Palmetto Psychotria nervosa / Wild Coffee
PLANTING MIX2	
	Eugenia foetida / Spanish Stopper Hamelia patens `nana` / Dwarf Fire Bush Serenoa repens / Saw Palmetto Viburnum obovatum / Walter`s Viburnum
PLANTING GRASS MIX	
	Spartina bakeri / Sand Cord Grass Tripsacum floridanum / Florida Gamagrass

NOTE: ALL PROPOSED PLANTING SYMBOLS REPRESENT 5 YEARS OF GROWTH

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Avenir
A Planned Community Developement
Palm Beach Gardens, Florida
90' Parkway Buffer - Northlake Blvd. (West of Avenir Connector Road)

Drawing name: H:\UDS\Avenir Rio Vista Ranch_12-065\Avenir_001\Drawings\PUD Master Plan\2015-12-17_Buffer Cross Sections.dwg

NORTH

0 00' 00' 000'

Scale: 1" = ##'-0"

Date:	09-16-2014
Project No.:	12-065.001
Designed By:	LMB
Drawn By:	LMB
Checked By:	JB

Revision Dates:

09-16-2014	Submittal
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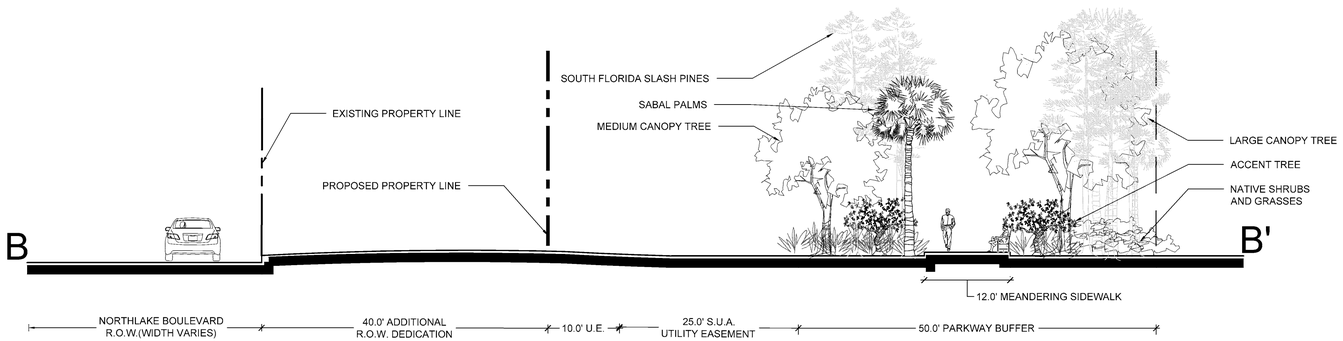
12-17-2015	Resubmittal

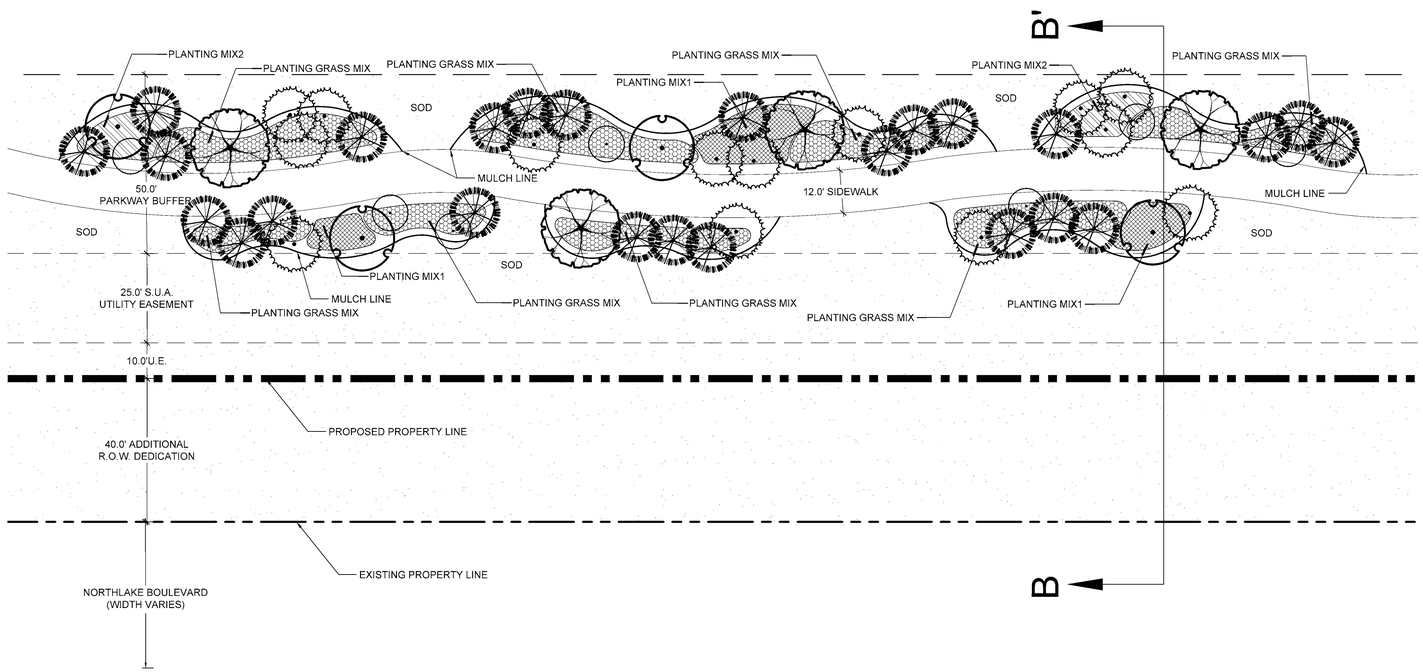
LP - 2
of 5



50' PARKWAY BUFFER - SECTION A-A'

Scale: 1" = 10'-0"

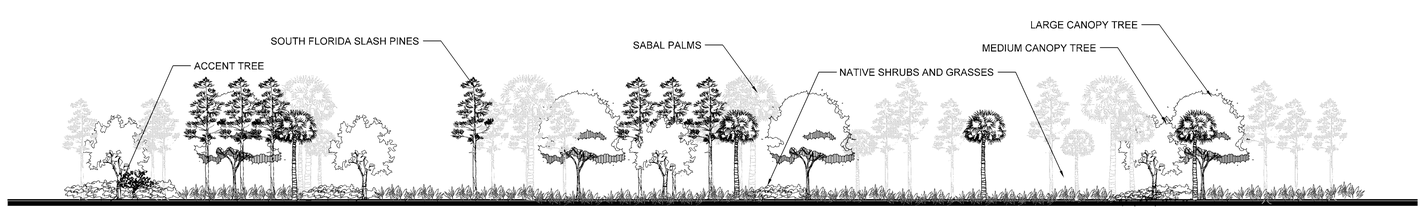
0 5' 10' 20'



50' PARKWAY BUFFER - PLAN VIEW

Scale: 1" = 20'-0"

0 10' 20' 40'

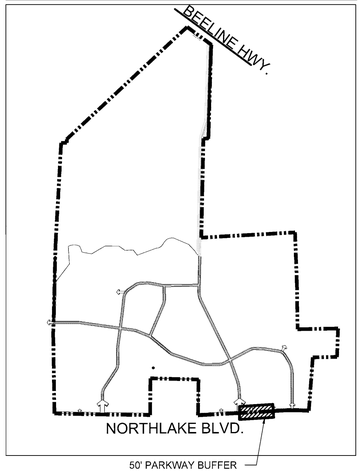


50' PARKWAY BUFFER - ELEVATION

Scale: 1" = 20'-0"

0 10' 20' 40'

SITE KEY



90' PARKWAY BUFFER PLANT PALETTE	
LARGE CANOPY TREES	
	Bursera simaruba / Gumbo Limbo Quercus virginiana / Southern Live Oak Swietenia mahagoni / Mahogany
MEDIUM CANOPY TREES	
	Acer rubrum / Red Maple Ilex x attenuata `East Palatka` / East Palatka Holly
ACCENT TREES	
	Ligustrum japonicum / Japanese Privet Myrica cerifera / Wax Myrtle
PALMS	
	Sabal palmetto / Cabbage Palmetto
PINES	
	Pinus elliotti / South Florida Slash Pine
PLANTING MIX1	
	Chrysobalanus icaco `Red Tip` / Red Tip Cocoplum Hamelia patens `nana` / Dwarf Fire Bush Myrcianthes fragrans / Simpson`s Stopper Serenoa repens / Saw Palmetto Psychotria nervosa / Wild Coffee
PLANTING MIX2	
	Eugenia foetida / Spanish Stopper Hamelia patens `nana` / Dwarf Fire Bush Serenoa repens / Saw Palmetto Viburnum obovatum / Walter`s Viburnum
PLANTING GRASS MIX	
	Spartina bakeri / Sand Cord Grass Tripsacum floridanum / Florida Gamagrass

NOTE: ALL PROPOSED PLANTING SYMBOLS REPRESENT 5 YEARS OF GROWTH

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Avenir
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Palm Beach Gardens, Florida
50' Parkway Buffer - Northlake Blvd.

Drawing name: H:\UDES\Avenir Rla Venice Revgn_12-05\Avenir_ 001\Drawings\PCD Master Plan\2015-12-17_Buffer Cross Sections.dwg

NORTH

0 00' 00' 000'

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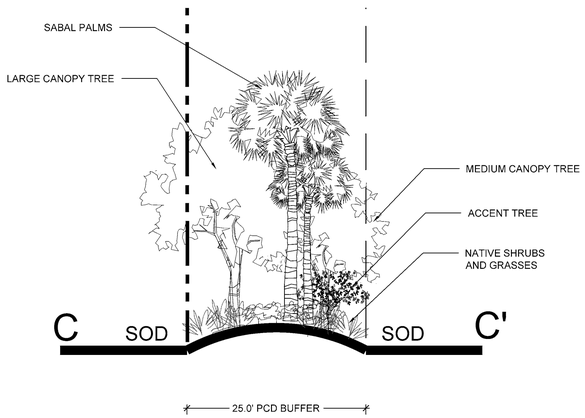
12-01-2015	Resubmittal
12-17-2015	Resubmittal

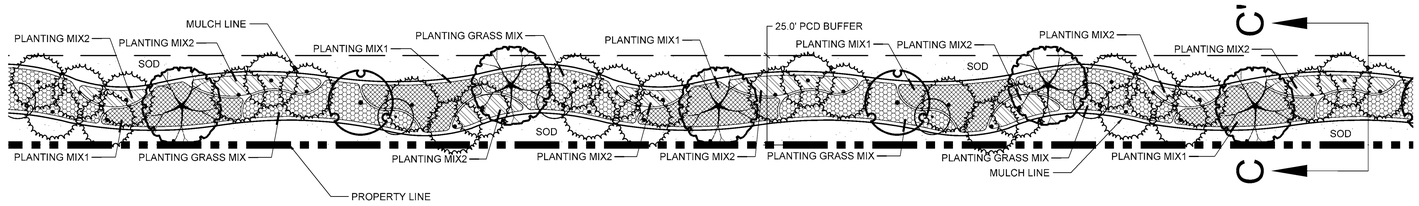
LP - 3
of 5



25' PCD BUFFER - SECTION C-C'

Scale: 1" = 10'-0"

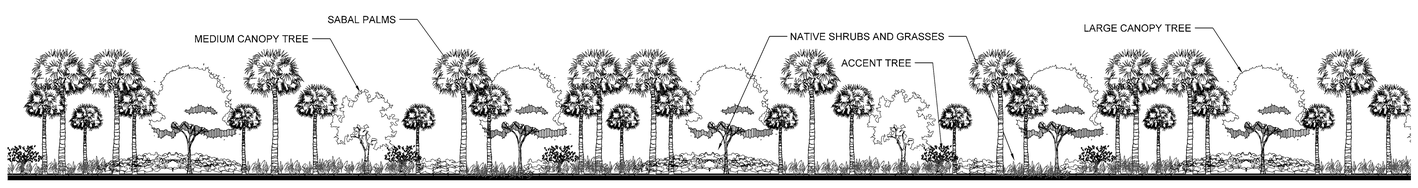
0 5' 10' 20'



25' PCD BUFFER - PLAN VIEW

Scale: 1" = 20'-0"

0 10' 20' 40'

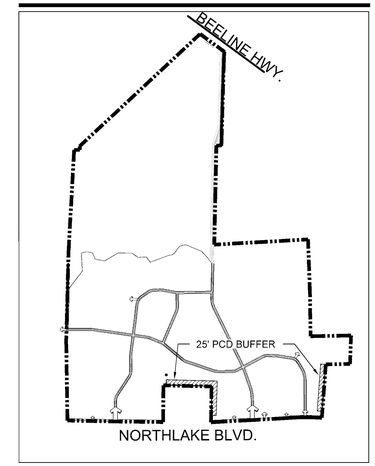


25' PCD BUFFER - ELEVATION

Scale: 1" = 20'-0"

0 10' 20' 40'

SITE KEY



25' PCD BUFFER PLANT PALETTE

LARGE CANOPY TREES	
	Bursera simaruba / Gumbo Limbo Quercus virginiana / Southern Live Oak Swietenia mahagoni / Mahogany
MEDIUM CANOPY TREES	
	Acer rubrum / Red Maple Ilex x attenuata `East Palatka` / East Palatka Holly
ACCENT TREES	
	Ligustrum japonicum / Japanese Privet Myrica cerifera / Wax Myrtle
PALMS	
	Sabal palmetto / Cabbage Palmetto
PINES	
	Pinus elliotti / South Florida Slash Pine
PLANTING MIX1	
	Chrysobalanus icaco `Red Tip` / Red Tip Cocoplum Hamelia patens `nana` / Dwarf Fire Bush Myrcianthes fragrans / Simpson`s Stopper Serenoa repens / Saw Palmetto Psychotria nervosa / Wild Coffee
PLANTING MIX2	
	Eugenia foetida / Spanish Stopper Hamelia patens `nana` / Dwarf Fire Bush Serenoa repens / Saw Palmetto Viburnum obovatum / Walter`s Viburnum
PLANTING GRASS MIX	
	Spartina bakeri / Sand Cord Grass Tripsacum floridanum / Florida Gamagrass

NOTE: ALL PROPOSED PLANTING SYMBOLS REPRESENT 5 YEARS OF GROWTH

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Avenir
A Planned Community Developement
Palm Beach Gardens, Florida
25' PCD Buffer

Drawing name: H:\JOBS\Avenir Ra Vienna Ranch_12-005\Avenir_001\Drawings\PCD Master Plan\2015-12-17_Buffer Cross Sections.dwg

NORTH

0 00' 00' 000'

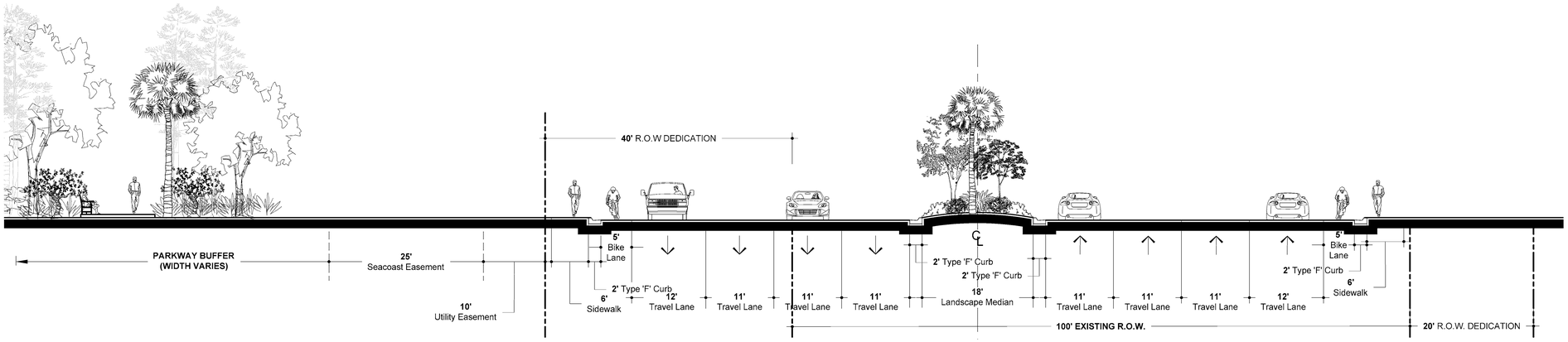
Scale: 1" = ##'-0"

Date:	09-16-2014
Project No.:	12-065.001
Designed By:	LMB
Drawn By:	LMB
Checked By:	JB

Revision Dates:

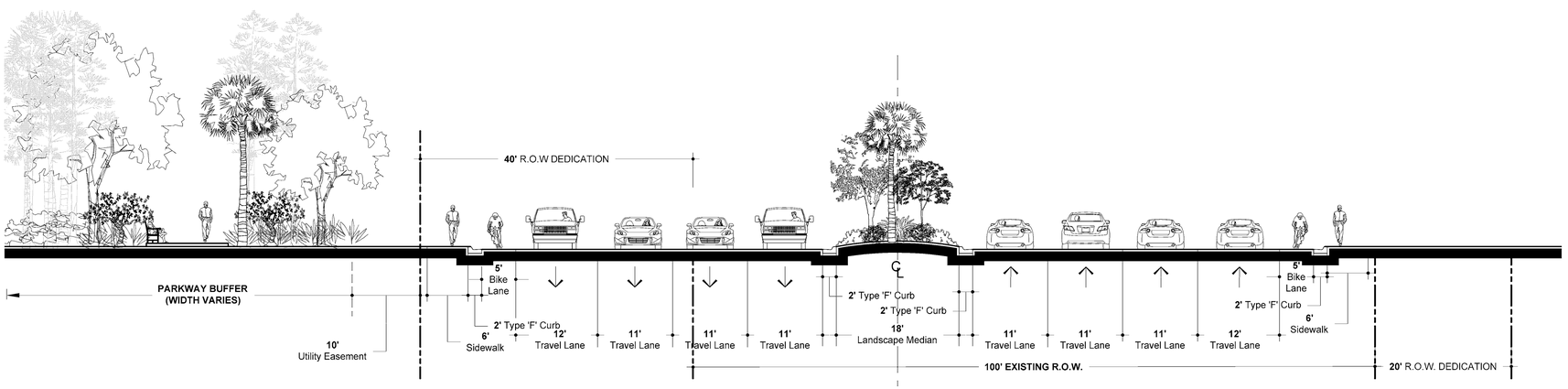
09-16-2014	Submittal
11-12-2015	Resubmittal
12-01-2015	Resubmittal
12-17-2015	Resubmittal

LP - 4
of 5



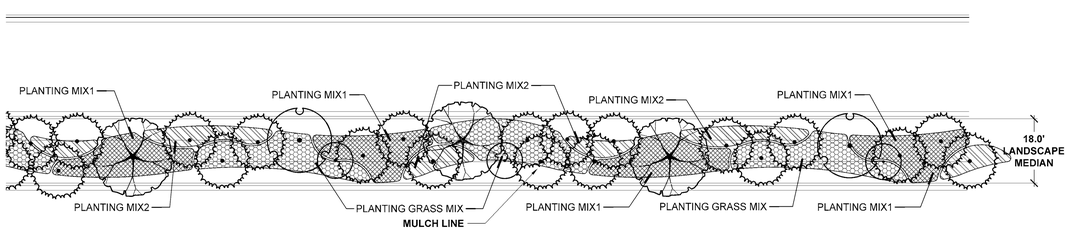
Northlake Boulevard Beautification Plan - Section View East of Avenir Connector Road

Scale: $1\frac{1}{4}$" = 1'-0"



Northlake Boulevard Beautification Plan - Section View West of Avenir Connector Road

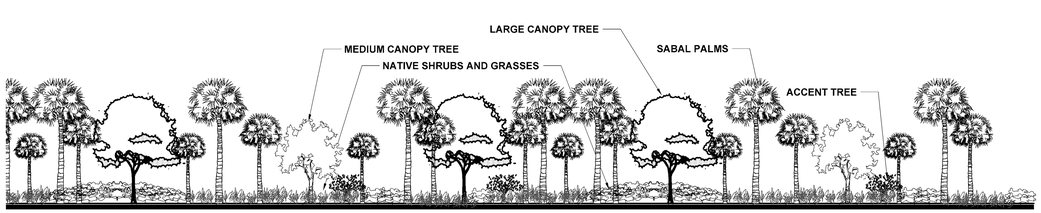
Scale: $1\frac{1}{4}$" = 1'-0"



Northlake Boulevard Beautification Plan - Plan View

Scale: 1" = 20'-0"

0 10' 20' 40'

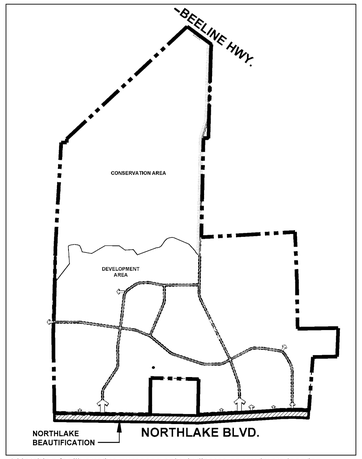


Northlake Boulevard Beautification Plan - Elevation View

Scale: 1" = 20'-0"

0 10' 20' 40'

Site Key



* Hatching for illustrative purposes only. Indicates approximate location. Not to scale.

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Avenir
A Planned Community Development
Palm Beach Gardens, Florida
Northlake Beautification Plan

Drawing name: H:\JOBS\Avenir Pga Verde Ranch_12-065\Avenir_2015\Drawings\PCD Master Plan\2015-12-17_Roadway Cross Sections.dwg

NORTHLAKE BEAUTIFICATION PLANT PALETTE

LARGE CANOPY TREES	
	Bursera simaruba / Gumbo Limbo Quercus virginiana / Southern Live Oak Swietenia mahagoni / Mahogany
MEDIUM CANOPY TREES	
	Acer rubrum / Red Maple Ilex x attenuata `East Palatka` / East Palatka Holly
ACCENT TREES	
	Ligustrum japonicum / Japanese Privet Myrica cerifera / Wax Myrtle
PALMS	
	Sabal palmetto / Cabbage Palmetto
PINES	
	Pinus elliotti / South Florida Slash Pine
PLANTING MIX1	
	Chrysobalanus icaco `Red Tip` / Red Tip Cocoplum Hamelia patens `nana` / Dwarf Fire Bush Myrcianthes fragrans / Simpson`s Stopper Serenoa repens / Saw Palmetto Psychotria nervosa / Wild Coffee
PLANTING MIX2	
	Eugenia foetida / Spanish Stopper Hamelia patens `nana` / Dwarf Fire Bush Serenoa repens / Saw Palmetto Viburnum obovatum / Walter`s Viburnum
PLANTING GRASS MIX	
	Spartina bakeri / Sand Cord Grass Tripsacum floridanum / Florida Gamagrass

NOTE: ALL PROPOSED PLANTING SYMBOLS REPRESENT 5 YEARS OF GROWTH

NORTH

0 10' 20' 40'

Scale: 1" = 20'-0"

Date:	08-22-2014
Project No.:	12-065.001
Designed By:	LMB
Drawn By:	LMB
Checked By:	WT

Revision Dates:

12-01-2015 LMB Submittal
12-17-2015 LMB Submittal

FISHKIND
& ASSOCIATES
ECONOMIC CONSULTANTS

THE

FISCAL IMPACTS OF THE

AVENIR PROJECT

October 20, 2015

Prepared By:

Fishkind & Associates, Inc.

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Orlando, Florida 32817

407-380-5225

http://www.fishkind.com

Executive Summary

Fishkind & Associates was asked to analyze the potential fiscal and economic impacts from the development of the Avenir project for the City of Palm Beach Gardens.

From a fiscal perspective, the Project will be a significant revenue generator for the City for many years to come by substantially increasing the overall taxable property base and improving the City's employment base.

Avenir will have a very positive fiscal impact for the City of Palm Beach Gardens. The annual net fiscal impact to the City at buildout is projected to reach $12.3 million per year. The 20-year net present value of the fiscal impact on the City is $30.8 million.

Year	Ad Valorem Revenue	Net Impact
2021	$5,330,733	$3.066,773
2026	$10,762,736	$5,111,391
2031	$16,965,684	$8,764,111
2036	$22,693,786	$12,386,616

Avenir will provide a steady stream of ad Valorem tax collections for the City. The projected annual ad valorem revenue will be $5.3 million by 2021 and $22.6 million by buildout. This tax revenue will result in an additional $210 million in ad valorem revenue to the City over the next twenty years.

Avenir will contribute over $27.0 million in impact fees to the City.

Avenir will make land donations of approximately 130 acres, conservatively valued at $1.76 million, for a city annex, expansion of the city golf course, and land for a city park. Application has been made requesting impact fee credits for a portion of this value.

Avenir will also contribute land to the School District for the construction of a school.

In addition to the City impact fees, Avenir will pay County Transportation Impact Fees of $38.5 million.

Avenir will dedicate approximately 2,407 acres of flow-way and upland preserve area conservatively valued at $32.6 million to a governmental agency (based upon comparable value of the Mecca Farms property sale).

1.0 Introduction

Avenir Holdings, LLC ("Developer") would like to develop a 4,763 acre site in the City of Palm Beach Gardens. The Project calls for 3,735 single family homes; 250 multifamily townhomes; 2 million square feet of office; 400,000 square feet of commercial space and 300 hotel rooms. The Project has a projected buildout of 20 years.

Fishkind & Associates, Inc ("Fishkind") has contracted with the Developer to conduct a fiscal impact analysis to determine the impact of the proposed Avenir ("the Project") on the City of Palm Beach Gardens.

2.0 Fiscal Impacts of Avenir

2.1 Introduction

The focus of this section of the report is to quantify the revenues and expenditures generated by the residents, employees and visitors for the City of Palm Beach Gardens. The primary revenue source from new development is typically ad valorem taxes. These taxes are calculated using the projected taxable values provided in Table 1. Additional tax revenues include sales taxes, utility taxes, and gas taxes. Other revenues and most expenditures result from the day-to-day activities and services to be provided by the City to the Project's residents, employees and customers.

2.2 Fiscal Impacts – The City of Palm Beach Gardens

Avenir will provide a very strong tax base for the City. After the end of phase 1, in 2021(appearance on tax roll occurs the year after construction), the Project will have a taxable value of $940.1 million. At buildout, the taxable value will be $4.0 billion. Detailed taxable value calculations are provided in Appendix Table 3.

The fiscal impacts of Avenir on the City are summarized in Table 1. In 2021, after the end of phase 1, the Project will generate annual operating ad valorem revenue for the City totaling $5.3 million. Total operating revenues associated with the Project are $6.5 million per year. After projected buildout and stabilization in 2036, the Project will generate $22.6 million in ad valorem annually, with total revenues of $28.2 million. Yearly revenue projections are provided in Appendix Table 4.

The City will also be required to make expenditures for governmental services, including police, fire and parks and recreation, on behalf of the new residents, employees and visitors of Avenir. The expenditures are summarized below in Table 1. Additional detail of the expenditures by function and year is provided in Appendix Table 4.

Subtracting the total expenditures from the total revenues yields the annual net fiscal benefit or (cost) to the City (see details in Appendix Table 4). The proposed Avenir, as projected in this report, will provide a net fiscal benefit to the City. The annual net benefit to the City will reach $3.0million in 2021. After buildout, in 2036 the net annual benefit to the City is $12.3 million. Over 20 years, the net present value of this annual benefit is $30.8 million.

Table 1: Operating Fiscal Impacts Summary

Year	Taxable Value	Ad Valorem Revenue	Total Revenue	Total Expenditure	Net Impact
2021	$940,164,519	$5,330,733	$6,553,477	$3,486,704	$3.066,773
2026	$1,898,189,777	$10,762,736	$13,806,395	$8,695,004	$5,111,391
2031	$2,992,184,162	$16,965,684	$21,380,294	$12,616,183	$8,764,111
2036	$4,002,431,309	$22,693,786	$28,236,553	$15,849,937	$12,386,616

Based upon current millage rates, and current per capita expenditures.

2.3 Capital Fiscal Impacts

The City has in place impact fees for roads, law enforcement, fire and parks. These fees are designed to cover the cost of the new capital facilities needed by new development. Avenir will pay over $27.0 million in impact fees by buildout, including $8.6 million in transportation fees and $13.9 million in park fees.

Table 2: Capital Revenues for the City

	Total Impact Fees thru Buildout
Roads	$8,656,745
Law Enforcement	$2,470,186
Fire	$1,943,253
Parks	$13,957,695
Total Impact Fees	$27,027,880
Land Donations	
City Annex/Police/Fire	$203,220
City Golf Course	$812,880
City Park	$745,140
	$1.761,240
Total Fees & Donations	$28,789,120

In addition to the impact fees, Avenir has agreed to make several land donations to the City including land for a city hall annex with police and fire facilities, land to expand the existing city golf course by 9 holes of golf, and land for a city park. These land donations totaling 130 acres have been conservatively valued at $1.76 million dollars (based upon recent Mecca Farms land sale). The Developer has applied to the City to get a park impact fee credit for the value of the park land being donated (currently estimated at $745,140).

The capital impact fees and donations from Avenir to the City will total $28.7 million.

Avenir will also pay impact fees to Palm Beach County. The transportation impact fees payable to the County will total $38.5 million (Appendix Table 5).

Finally, Avenir will dedicate to a government agency the approximately 2,407 acre flow-way and upland preserve area. The conservative value of this land without improvements is $32.6 million based on the recent sale of the adjacent Mecca Farms from Palm Beach County to South Florida Water Management District. The property owner believes that the actual value will far exceed previous valuations.

3.0 Methodology

3.1 Fiscal Impact Methodology

The Consultant developed the Fiscal Impact Analysis Model (FIAM) methodology under contract with the State of Florida. FIAM is designed to serve as the prototype fiscal and economic assessment tool for local governments in Florida. FIAM provides estimates of the costs and revenues to local governments associated with their land use decisions. FIAM examines both the long range and near term impacts and it provides estimates for the effects of land use decisions on both the operating budget and the capital budget of the local government. FIAM is suitable for conducting analysis of individual projects, development corridors, and entire comprehensive plans.

3.2 Fiscal Impact Analysis Model Calibration

The FIAM model used in the development scenario has been calibrated based on the latest adopted budget and demographics for the City. In this way, FIAM is properly calibrated to reflect the specific environment of the City with its unique budget and characteristics.

3.3 Modified Per Capita Method

Local governments receive revenues from the land, development and the activities of their populations of residents, workers and visitors. The major portion

of these revenues is in the form of taxes (Property Tax, Sales Tax, Gas Taxes, Utility Taxes, Resort Tax, etc.) and fees, assessments and charges for service (permits, impact fees, waste collection and lighting assessments, etc.).

Local governments also render services to all residents, to all who are working in the City, and to all visitors to the City. Therefore, on the cost side of the equation, cities incur costs to provide services to residents, those employed in the City, and to visitors. At some point during a 24-hour period, a resident may become a person employed in the City, and then later in the day may be a resident again. To such an individual, the City has rendered services for a full 24 hours. Other residents may leave the City to work in another City. In this case, the City only provides services to that person when they are physically in the town. For those workers that do not live in the City, services are only provided to those workers when they are in the City. Finally, visitors receive service during the whole time period of their visit, but obviously not when they leave.

To properly measure the services provided to each of these groups, a weighting procedure is needed that reflects the duration of time each group is resident in the City. This calculation provides us with the full-time equivalent (FTE) population, employees and visitors. For both residents and workers, a working period assumption of 2,000 hours per year is applied. In this way, the fiscal impact of the FTE residents, employees and visitors can be properly identified.

A variety of methods exist for quantifying the revenue and cost impacts flowing from a development opportunity such as the one presented here. The approach used in this FIAM is the modified per capita approach. When possible, the revenues and expenditures that can be identified from the subject population(s) are directly estimated or calculated. For this project, ad Valorem and impact fee revenues were calculated using current millage, fees and costs. The remaining cost and revenue categories were estimated based on modified per capita estimates.

The modified per capita approach involves the calculation of revenues using the latest published budgets for the appropriate population basis (i.e. per person, per employee, per tourist, per student). From an economic perspective, this is equivalent to assuming that average revenue generation applies to the particular situation being evaluated. This is a reasonable assumption in most cases for two reasons. First, local governments must run balanced budgets, so that current costs and current revenues balance and are appropriate for current circumstances. Second, using long run averages also means that any excess capital is maintained in the various systems and not allocated to the project. Furthermore, there is nothing peculiar about the location or the type of this particular project that indicates that per capita parameters estimated from the latest budgets would not be reflective of actual costs and revenues.

The numerator for each cost or revenue item is the cost or revenue shown in the City's budget. The denominator depends upon the type of cost or revenue. Each category of cost and revenue was examined to determine the impact of population and/or employment (businesses). Then each category was divided by the appropriate divisor (FTE population; FTE population + FTE employment) to yield the average per capita revenues and expenditures for all budget categories. The arithmetic is shown below.

$$\frac{\text{Revenue}}{\text{FTE Population + FTE Employees}} = \text{Per Capita}$$

3.4 Fiscal Impact Calculations

Property taxes are calculated by multiplying the taxable property value (Appendix Table 1) by the current millage rates (Appendix Table 5) and adjusting for any homestead exemptions and the taxable assessment ratio when appropriate.

Most of the other budget revenues and expenditures were calculated using the per capita methodology. The per capita numbers used are the full-time equivalents (FTE) residents and employees calculated using The University of Florida data and the estimates of employment. The revenues and expenditures are calculated by multiplying the FTE residents and employees by the per capita revenue and expenditure amounts from the budget. The City averages were used to maintain a conservative methodology.

The per capita calculations for the City's budget were calculated using revenues and expenditures from the budget's General Fund. The revenues and expenditures from this fund were divided by the appropriate Population. These Budget per capita amounts are then multiplied by the number of new FTE employees in order to generate the projected revenues and expenditures found in Appendix Table 4.

3.5 Assumptions

Appendix Table 6 contains the assumptions and sources used in the City fiscal impact model. These are provided for completeness and allow for the replication of our results.

APPENDIX TABLES

Table 1
Avenir
Development Impact Summary

(End of Year Totals)	2016	2017	2018	2019	2020	2021	2022
Households	**250**	**500**	**750**	**1,000**	**1,250**	**1,450**	**1,650**
Peak Population	**568**	**1,135**	**1,703**	**2,270**	**2,838**	**3,314**	**3,790**
Resident Population	397	795	1,192	1,589	1,986	2,319	2,653
Seasonal Resident Population	170	341	511	681	851	994	1,137
Full-Time Equivalent Population	*367*	*735*	*1,102*	*1,469*	*1,837*	*2,145*	*2,453*
Employment							
Office	169	337	506	674	843	1,051	1,260
Retail / Commercial	73	145	218	291	364	400	436
Hotel	0	0	0	0	0	25	50
Total Employees	**241**	**483**	**724**	**965**	**1,206**	**1,476**	**1,746**
Full-Time Equivalent Employees	*57*	*115*	*172*	*230*	*287*	*352*	*416*
Full-Time Equivalent Visitors	**0**	**0**	**0**	**0**	**0**	**70**	**140**

City of Palm Beach Gardens	2016	2017	2018	2019	2020	2021	2022
Total Operating Revenues Generated	$334,880	$1,494,518	$2,717,589	$3,921,914	$5,220,699	$6,553,477	$7,844,593
Total Operating Expenditures Generated	$539,382	$1,093,991	$1,664,169	$2,250,266	$2,852,639	$3,486,704	$4,138,191
Net Fiscal Impact of Operations	-$204,502	$400,528	$1,053,421	$1,671,648	$2,368,060	$3,066,773	$3,706,402

	5 Years	10 Years	20 Years	30 Years
Net Present Value of Operating Impact	$3,548,691	$12,535,933	$30,826,940	$42,466,569

Total Capital Revenue	$3,121,290	$1,423,745	$1,423,745	$1,423,745	$1,423,745	$1,443,125	$1,443,125

Table 1
Avenir
Development Impact Summary

(End of Year Totals)	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
Households	**1,850**	**2,050**	**2,250**	**2,450**	**2,650**	**2,850**	**3,050**
Peak Population	**4,266**	**4,742**	**5,218**	**5,694**	**6,170**	**6,646**	**7,122**
Resident Population	2,986	3,319	3,652	3,985	4,319	4,652	4,985
Seasonal Resident Population	1,280	1,422	1,565	1,708	1,851	1,994	2,136
Full-Time Equivalent Population	*2,761*	*3,069*	*3,377*	*3,685*	*3,993*	*4,301*	*4,610*
Employment							
Office	1,469	1,677	1,886	2,183	2,480	2,777	3,074
Retail / Commercial	473	509	545	582	618	655	691
Hotel	75	75	75	75	100	125	150
Total Employees	**2,016**	**2,261**	**2,506**	**2,840**	**3,198**	**3,557**	**3,915**
Full-Time Equivalent Employees	*480*	*538*	*597*	*676*	*761*	*847*	*932*
Full-Time Equivalent Visitors	**210**	**210**	**210**	**210**	**280**	**350**	**420**
City of Palm Beach Gardens	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
Total Operating Revenues Generated	$9,163,941	$11,171,528	$12,470,202	$13,806,395	$15,244,872	$16,768,283	$18,324,558
Total Operating Expenditures Generated	$4,807,487	$7,386,187	$8,018,080	$8,695,004	$9,493,651	$10,313,361	$11,154,593
Net Fiscal Impact of Operations	$4,356,454	$3,785,341	$4,452,122	$5,111,391	$5,751,220	$6,454,922	$7,169,965
Net Present Value of Operating Impact							
Total Capital Revenue	$1,443,125	$1,397,525	$1,397,525	$1,423,910	$1,469,510	$1,469,510	$1,469,510

Table 1
Avenir
Development Impact Summary

(End of Year Totals)	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**
Households	**3,250**	**3,397**	**3,544**	**3,691**	**3,838**	**3,985**	**3,985**
Peak Population	**7,598**	**7,947**	**8,297**	**8,647**	**8,997**	**9,347**	**9,347**
Resident Population	5,318	5,563	5,808	6,053	6,298	6,543	6,543
Seasonal Resident Population	2,279	2,384	2,489	2,594	2,699	2,804	2,804
Full-Time Equivalent Population	*4,918*	*5,144*	*5,371*	*5,597*	*5,823*	*6,050*	*6,050*
Employment							
Office	3,371	3,886	4,400	4,914	5,429	5,943	5,943
Retail / Commercial	727	727	727	727	727	727	727
Hotel	150	150	150	150	150	150	150
Total Employees	**4,249**	**4,763**	**5,277**	**5,792**	**6,306**	**6,820**	**6,820**
Full-Time Equivalent Employees	*1,012*	*1,134*	*1,257*	*1,379*	*1,501*	*1,624*	*1,624*
Full-Time Equivalent Visitors	**420**	**420**	**420**	**420**	**420**	**420**	**420**
City of Palm Beach Gardens	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**
Total Operating Revenues Generated	$19,875,740	$21,380,294	$22,733,398	$24,115,289	$25,526,479	$26,967,488	$28,236,553
Total Operating Expenditures Generated	$11,909,328	$12,616,183	$13,340,910	$14,083,893	$14,845,522	$15,626,194	$15,849,937
Net Fiscal Impact of Operations	$7,966,412	$8,764,111	$9,392,488	$10,031,396	$10,680,957	$11,341,294	$12,386,616
Net Present Value of Operating Impact							
Total Capital Revenue	$1,423,910	$1,118,415	$1,118,415	$1,118,415	$1,118,415	$1,118,415	$28,789,120

Table 1
Avenir
Development Impact Summary

(End of Year Totals)	**2037**	**2038**	**2039**	**2040**
Households	**3,985**	**3,985**	**3,985**	**3,985**
Peak Population	**9,347**	**9,347**	**9,347**	**9,347**
Resident Population	6,543	6,543	6,543	6,543
Seasonal Resident Population	2,804	2,804	2,804	2,804
Full-Time Equivalent Population	*6,050*	*6,050*	*6,050*	*6,050*
Employment				
Office	5,943	5,943	5,943	5,943
Retail / Commercial	727	727	727	727
Hotel	150	150	150	150
Total Employees	**6,820**	**6,820**	**6,820**	**6,820**
Full-Time Equivalent Employees	*1,624*	*1,624*	*1,624*	*1,624*
Full-Time Equivalent Visitors	**420**	**420**	**420**	**420**
City of Palm Beach Gardens	**2037**	**2038**	**2039**	**2040**
Total Operating Revenues Generated	$28,558,456	$28,884,222	$29,213,899	$29,547,536
Total Operating Expenditures Generated	$16,077,036	$16,307,541	$16,541,504	$16,778,976
Net Fiscal Impact of Operations	$12,481,421	$12,576,681	$12,672,395	$12,768,560

Net Present Value of Operating Impact

	Total
Total Capital Revenue	$27,027,880

Table 2
Avenir
Development Scenario

	2016	2017	2018	2019	2020	2021	2022
Residential (cumulative units)							
Single-Family	200	400	600	800	1,000	1,200	1,400
Townhouse	50	100	150	200	250	250	250
Total Residential Units	250	500	750	1,000	1,250	1,450	1,650
Non-Residential (cumulative units)							
Professional Office (sq.ft.)	45,000	90,000	135,000	180,000	225,000	270,000	315,000
Medical Office (sq.ft.)	10,000	20,000	30,000	40,000	50,000	70,000	90,000
Total Office (sq.ft.)	55,000	110,000	165,000	220,000	275,000	340,000	405,000
Retail/Commercial (sq.ft.)	40,000	80,000	120,000	160,000	200,000	220,000	240,000
Hotel (rooms)	0	0	0	0	0	50	100

Table 3
Avenir
Taxable Property Values

	2016	2017	2018	2019	2020	2021	2022
Residential Development							
Single-Family	$14,594,500	$145,945,000	$294,808,900	$446,635,484	$601,469,118	$759,354,761	$920,337,971
Townhouse	$1,893,750	$18,937,500	$38,253,750	$57,954,431	$78,045,301	$98,532,192	$99,517,514
Residential Taxable Value	$16,488,250	$164,882,500	$333,062,650	$504,589,915	$679,514,419	$857,886,953	$1,019,855,485
Commercial Development							
Professional Office (sq.ft.)	$753,638	$7,536,375	$15,298,841	$23,292,486	$31,522,497	$39,994,169	$48,712,897
Medical Office (sq.ft.)	$187,775	$1,877,750	$3,811,833	$5,803,515	$7,854,090	$9,964,877	$14,160,090
Retail/Commercial	$609,000	$6,090,000	$12,362,700	$18,822,211	$25,472,725	$32,318,520	$36,083,628
Hotel (rooms)	$0	$0	$0	$0	$0	$0	$8,747,546
Commercial Taxable Value	$1,550,413	$15,504,125	$31,473,374	$47,918,212	$64,849,313	$82,277,566	$107,704,161
Total Taxable Value	$18,038,663	$180,386,625	$364,536,024	$552,508,126	$744,363,731	$940,164,519	$1,127,559,646

Taxable values are shown in the year following construction

Table 2
Avenir
Development Scenario

	2023	2024	2025	2026	2027	2028	2029
Residential (cumulative units)							
Single-Family	1,600	1,800	2,000	2,200	2,400	2,600	2,800
Townhouse	250	250	250	250	250	250	250
Total Residential Units	1,850	2,050	2,250	2,450	2,650	2,850	3,050
Non-Residential (cumulative units)							
Professional Office (sq.ft.)	360,000	405,000	450,000	540,000	630,000	720,000	810,000
Medical Office (sq.ft.)	110,000	130,000	150,000	160,000	170,000	180,000	190,000
Total Office (sq.ft.)	470,000	535,000	600,000	700,000	800,000	900,000	1,000,000
Retail/Commercial (sq.ft.)	260,000	280,000	300,000	320,000	340,000	360,000	380,000
Hotel (rooms)	150	150	150	150	200	250	300

Table 3
Avenir
Taxable Property Values

	2023	2024	2025	2026	2027	2028	2029
Residential Development							
Single-Family	$1,084,464,909	$1,251,782,352	$1,422,337,697	$1,596,178,971	$1,773,354,837	$1,953,914,602	$2,137,908,227
Townhouse	$100,512,689	$101,517,816	$102,532,994	$103,558,324	$104,593,907	$105,639,847	$106,696,245
Residential Taxable Value	$1,184,977,598	$1,353,300,168	$1,524,870,691	$1,699,737,295	$1,877,948,745	$2,059,554,449	$2,244,604,472
Commercial Development							
Professional Office (sq.ft.)	$57,684,189	$66,913,660	$76,407,035	$86,170,156	$104,955,250	$124,284,509	$144,170,030
Medical Office (sq.ft.)	$18,478,918	$22,924,124	$27,498,529	$32,205,008	$34,867,289	$37,602,191	$40,411,296
Retail/Commercial	$39,954,417	$43,933,211	$48,022,379	$52,224,337	$56,541,549	$60,976,527	$65,531,832
Hotel (rooms)	$17,757,519	$27,035,822	$27,441,359	$27,852,980	$28,270,774	$38,259,781	$48,542,098
Commercial Taxable Value	$133,875,043	$160,806,817	$179,369,302	$198,452,481	$224,634,862	$261,123,009	$298,655,256
Total Taxable Value	$1,318,852,641	$1,514,106,985	$1,704,239,994	$1,898,189,777	$2,102,583,607	$2,320,677,457	$2,543,259,729

Table 2
Avenir
Development Scenario

	2030	2031	2032	2033	2034	2035	2036
Residential (cumulative units)							
Single-Family	3,000	3,147	3,294	3,441	3,588	3,735	3,735
Townhouse	250	250	250	250	250	250	250
Total Residential Units	3,250	3,397	3,544	3,691	3,838	3,985	3,985
Non-Residential (cumulative units)							
Professional Office (sq.ft.)	900,000	1,080,000	1,260,000	1,440,000	1,620,000	1,800,000	1,800,000
Medical Office (sq.ft.)	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Total Office (sq.ft.)	1,100,000	1,280,000	1,460,000	1,640,000	1,820,000	2,000,000	2,000,000
Retail/Commercial (sq.ft.)	400,000	400,000	400,000	400,000	400,000	400,000	400,000
Hotel (rooms)	300	300	300	300	300	300	300

Table 3
Avenir
Taxable Property Values

	2030	2031	2032	2033	2034	2035	2036
Residential Development							
Single-Family	$2,325,386,333	$2,516,400,211	$2,666,100,859	$2,818,543,881	$2,973,769,153	$3,131,817,076	$3,292,728,580
Townhouse	$107,763,207	$108,840,840	$109,929,248	$111,028,540	$112,138,826	$113,260,214	$114,392,816
Residential Taxable Value	$2,433,149,541	$2,625,241,050	$2,776,030,107	$2,929,572,421	$3,085,907,978	$3,245,077,290	$3,407,121,396
Commercial Development							
Professional Office (sq.ft.)	$164,624,153	$185,659,462	$226,133,225	$267,779,427	$310,624,135	$354,693,934	$400,015,937
Medical Office (sq.ft.)	$43,296,214	$46,258,586	$46,952,465	$47,656,752	$48,371,604	$49,097,178	$49,833,635
Retail/Commercial	$70,210,077	$75,013,924	$76,139,133	$77,281,220	$78,440,438	$79,617,045	$80,811,300
Hotel (rooms)	$59,124,275	$60,011,139	$60,911,306	$61,824,976	$62,752,351	$63,693,636	$64,649,040
Commercial Taxable Value	$337,254,719	$366,943,112	$410,136,129	$454,542,375	$500,188,527	$547,101,792	$595,309,913
Total Taxable Value	$2,770,404,260	$2,992,184,162	$3,186,166,236	$3,384,114,796	$3,586,096,506	$3,792,179,082	$4,002,431,309

Table 2
Avenir
Development Scenario

	2037	2038	2039	2040
Residential (cumulative units)				
Single-Family	3,735	3,735	3,735	3,735
Townhouse	250	250	250	250
Total Residential Units	3,985	3,985	3,985	3,985
Non-Residential (cumulative units)				
Professional Office (sq.ft.)	1,800,000	1,800,000	1,800,000	1,800,000
Medical Office (sq.ft.)	200,000	200,000	200,000	200,000
Total Office (sq.ft.)	2,000,000	2,000,000	2,000,000	2,000,000
Retail/Commercial (sq.ft.)	400,000	400,000	400,000	400,000
Hotel (rooms)	300	300	300	300

Table 3
Avenir
Taxable Property Values

	2037	2038	2039	2040
Residential Development				
Single-Family	$3,325,655,866	$3,358,912,424	$3,392,501,549	$3,426,426,564
Townhouse	$115,536,744	$116,692,112	$117,859,033	$119,037,623
Residential Taxable Value	$3,441,192,610	$3,475,604,536	$3,510,360,582	$3,545,464,187
Commercial Development				
Professional Office (sq.ft.)	$406,016,176	$412,106,419	$418,288,015	$424,562,335
Medical Office (sq.ft.)	$50,581,140	$51,339,857	$52,109,955	$52,891,604
Retail/Commercial	$82,023,470	$83,253,822	$84,502,629	$85,770,169
Hotel (rooms)	$65,618,776	$66,603,058	$67,602,103	$68,616,135
Commercial Taxable Value	$604,239,562	$613,303,155	$622,502,702	$631,840,243
Total Taxable Value	$4,045,432,172	$4,088,907,691	$4,132,863,284	$4,177,304,430

Table 4
Avenir
Fiscal Impact Detail

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Revenues										
Ad Valorem Taxes	$102,279	$1,022,792	$2,066,919	$3,132,721	$4,220,542	$5,330,733	$6,393,263	$7,477,894	$8,584,987	$9,663,041
Local Option Fuel Taxes	$5,168	$10,492	$15,974	$21,618	$27,428	$33,638	$40,028	$46,602	$71,301	$77,468
Franchise Fees	$1,854	$3,764	$5,730	$7,755	$9,839	$12,067	$14,359	$16,717	$25,578	$27,790
Utility Taxes	$55,498	$112,661	$171,527	$232,133	$294,519	$361,200	$429,816	$500,409	$765,630	$831,853
Occupational Licenses	$13,809	$28,032	$42,679	$57,759	$73,281	$89,873	$106,945	$124,510	$190,502	$206,979
Building Permits	$64,892	$131,731	$133,707	$90,475	$114,790	$140,780	$167,523	$195,037	$298,408	$324,219
Intragovernmental	$1,159	$2,352	$3,581	$4,847	$6,149	$7,542	$8,974	$10,448	$15,986	$17,369
State Revenue Sharing Proceeds	$10,388	$21,087	$32,104	$43,448	$55,125	$65,338	$75,844	$86,652	$141,875	$153,965
Sales Tax - Half Cent	$31,513	$63,972	$97,397	$131,811	$167,235	$205,099	$244,061	$284,145	$434,745	$472,347
Gas Tax Rebate	$185	$376	$573	$776	$984	$1,207	$1,436	$1,672	$2,558	$2,779
Charges for Services	$31,801	$64,556	$98,286	$133,014	$168,762	$206,971	$246,288	$286,738	$438,712	$476,658
Judgments, Fines and Forfeitures	$1,236	$2,509	$3,821	$5,171	$6,560	$7,826	$9,128	$10,468	$16,365	$17,830
Interest and Other Earnings	$1,947	$3,894	$5,841	$7,789	$9,736	$11,763	$13,791	$15,819	$23,846	$25,525
Miscellaneous Revenues	$6,642	$13,284	$19,926	$26,568	$33,210	$40,127	$47,044	$53,961	$81,340	$87,070
Interfund Transfers	$6,508	$13,015	$19,523	$26,030	$32,538	$39,315	$46,092	$52,869	$79,695	$85,309
Total Revenues	**$334,880**	**$1,494,518**	**$2,717,589**	**$3,921,914**	**$5,220,699**	**$6,553,477**	**$7,844,593**	**$9,163,941**	**$11,171,528**	**$12,470,202**
Expenditures										
General Government	$3,493	$7,091	$10,796	$14,610	$18,537	$22,734	$27,052	$31,495	$48,188	$52,356
Executive	$4,717	$9,576	$14,579	$19,730	$25,033	$30,700	$36,532	$42,532	$65,075	$70,704
Financial and Administrative	$14,913	$30,273	$46,091	$62,377	$79,141	$97,059	$115,497	$134,466	$205,734	$223,529
Legal Counsel	$2,669	$5,417	$8,248	$11,162	$14,162	$17,368	$20,667	$24,062	$36,814	$39,999
Comprehensive Planning	$11,864	$24,083	$36,667	$49,622	$62,958	$77,212	$91,880	$106,970	$163,666	$177,822
Debt Service Payments	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other General Government	$62,270	$126,407	$192,455	$260,456	$330,454	$405,271	$482,259	$561,465	$859,047	$933,349
Public Safety	$165,155	$335,265	$510,441	$690,797	$876,449	$1,074,884	$1,279,075	$1,489,150	$2,278,414	$2,475,483
Fire Control	$142,897	$290,081	$441,648	$597,697	$758,328	$930,020	$1,106,691	$1,288,453	$1,971,347	$2,141,856
Public Works	$51,163	$103,861	$158,128	$214,000	$271,512	$332,985	$396,240	$461,318	$705,822	$766,871
Road/Street Facilities	$7,605	$15,439	$23,506	$31,811	$40,360	$49,498	$58,901	$68,575	$104,920	$113,995
Neighborhood Services	$6,265	$12,718	$19,363	$26,205	$33,248	$39,408	$45,745	$52,263	$85,570	$92,862
Parks/Recreation	$34,552	$70,140	$106,788	$144,520	$183,359	$217,330	$252,279	$288,228	$471,913	$512,128
Interfund Transfers Out	$17,666	$35,331	$52,997	$70,662	$88,328	$106,725	$125,122	$143,519	$216,341	$231,579
Capital Outlay	$14,154	$28,308	$42,462	$56,616	$70,770	$85,510	$100,250	$114,990	$173,336	$185,546
Total Expenditures	**$539,382**	**$1,093,991**	**$1,664,169**	**$2,250,266**	**$2,852,639**	**$3,486,704**	**$4,138,191**	**$4,807,487**	**$7,386,187**	**$8,018,080**
Net Fiscal Impact	**-$204,502**	**$400,528**	**$1,053,421**	**$1,671,648**	**$2,368,060**	**$3,066,773**	**$3,706,402**	**$4,356,454**	**$3,785,341**	**$4,452,122**

Table 4
Avenir
Fiscal Impact Detail

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Revenues										
Ad Valorem Taxes	$10,762,736	$11,921,649	$13,158,241	$14,420,283	$15,708,192	$16,965,684	$18,065,563	$19,187,931	$20,333,167	$21,501,655
Local Option Fuel Taxes	$84,102	$92,006	$100,128	$108,474	$115,908	$122,955	$130,186	$137,607	$145,221	$153,032
Franchise Fees	$30,170	$33,005	$35,919	$38,913	$41,580	$44,107	$46,702	$49,364	$52,095	$54,897
Utility Taxes	$903,087	$987,961	$1,075,178	$1,164,789	$1,244,623	$1,320,284	$1,397,935	$1,477,619	$1,559,379	$1,643,259
Occupational Licenses	$224,703	$245,821	$267,522	$289,819	$309,683	$328,509	$347,830	$367,656	$388,000	$408,870
Building Permits	$351,983	$385,063	$419,056	$453,982	$485,098	$514,587	$544,852	$575,909	$607,776	$640,468
Intragovernmental	$18,856	$20,628	$22,449	$24,320	$25,987	$27,567	$29,189	$30,852	$32,559	$34,311
State Revenue Sharing Proceeds	$166,386	$179,145	$192,249	$205,706	$219,523	$230,822	$242,411	$254,296	$266,482	$278,977
Sales Tax - Half Cent	$512,796	$560,990	$610,514	$661,397	$706,729	$749,691	$793,784	$839,030	$885,455	$933,085
Gas Tax Rebate	$3,017	$3,301	$3,592	$3,891	$4,158	$4,411	$4,670	$4,936	$5,210	$5,490
Charges for Services	$517,476	$566,110	$616,085	$667,433	$713,179	$756,533	$801,028	$846,687	$893,536	$941,600
Judgments, Fines and Forfeitures	$19,406	$21,046	$22,731	$24,461	$26,217	$27,880	$29,587	$31,338	$33,136	$34,980
Interest and Other Earnings	$27,301	$29,426	$31,550	$33,675	$35,451	$37,050	$38,650	$40,249	$41,848	$43,448
Miscellaneous Revenues	$93,129	$100,376	$107,623	$114,869	$120,929	$126,384	$131,840	$137,295	$142,751	$148,206
Interfund Transfers	$91,245	$98,345	$105,446	$112,546	$118,482	$123,828	$129,173	$134,518	$139,863	$145,208
Total Revenues	**$13,806,395**	**$15,244,872**	**$16,768,283**	**$18,324,558**	**$19,875,740**	**$21,380,294**	**$22,733,398**	**$24,115,289**	**$25,526,479**	**$26,967,488**
Expenditures										
General Government	$56,840	$62,182	$67,671	$73,311	$78,336	$83,098	$87,985	$93,000	$98,146	$103,426
Executive	$76,758	$83,972	$91,385	$99,002	$105,787	$112,218	$118,818	$125,591	$132,540	$139,669
Financial and Administrative	$242,670	$265,477	$288,913	$312,992	$334,445	$354,776	$375,642	$397,054	$419,023	$441,563
Legal Counsel	$43,424	$47,505	$51,699	$56,007	$59,846	$63,484	$67,218	$71,050	$74,981	$79,014
Comprehensive Planning	$193,049	$211,192	$229,836	$248,992	$266,058	$282,231	$298,831	$315,864	$333,342	$351,272
Debt Service Payments	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other General Government	$1,013,275	$1,108,504	$1,206,363	$1,306,907	$1,396,482	$1,481,375	$1,568,501	$1,657,907	$1,749,642	$1,843,757
Public Safety	$2,687,468	$2,940,040	$3,199,586	$3,466,256	$3,703,831	$3,928,990	$4,160,069	$4,397,198	$4,640,504	$4,890,119
Fire Control	$2,325,271	$2,543,804	$2,768,370	$2,999,100	$3,204,657	$3,399,470	$3,599,407	$3,804,577	$4,015,092	$4,231,066
Public Works	$832,541	$910,785	$991,188	$1,073,799	$1,147,397	$1,217,148	$1,288,733	$1,362,192	$1,437,565	$1,514,893
Road/Street Facilities	$123,757	$135,388	$147,340	$159,620	$170,560	$180,929	$191,570	$202,489	$213,694	$225,188
Neighborhood Services	$100,354	$108,049	$115,953	$124,070	$132,403	$139,218	$146,208	$153,376	$160,726	$168,262
Parks/Recreation	$553,444	$595,883	$639,472	$684,233	$730,194	$767,778	$806,325	$845,856	$886,391	$927,952
Interfund Transfers Out	$247,695	$266,969	$286,243	$305,518	$321,633	$336,143	$350,653	$365,164	$379,674	$394,184
Capital Outlay	$198,458	$213,901	$229,344	$244,786	$257,699	$269,324	$280,950	$292,576	$304,202	$315,828
Total Expenditures	**$8,695,004**	**$9,493,651**	**$10,313,361**	**$11,154,593**	**$11,909,328**	**$12,616,183**	**$13,340,910**	**$14,083,893**	**$14,845,522**	**$15,626,194**
Net Fiscal Impact	**$5,111,391**	**$5,751,220**	**$6,454,922**	**$7,169,965**	**$7,966,412**	**$8,764,111**	**$9,392,488**	**$10,031,396**	**$10,680,957**	**$11,341,294**

Table 4
Avenir
Fiscal Impact Detail

	2036	2037	2038	2039	2040
Revenues					
Ad Valorem Taxes	$22,693,786	$22,937,600	$23,184,107	$23,433,335	$23,685,316
Local Option Fuel Taxes	$155,328	$157,658	$160,023	$162,423	$164,859
Franchise Fees	$55,721	$56,557	$57,405	$58,266	$59,140
Utility Taxes	$1,667,908	$1,692,926	$1,718,320	$1,744,095	$1,770,256
Occupational Licenses	$415,003	$421,229	$427,547	$433,960	$440,470
Building Permits	$650,075	$659,827	$669,724	$679,770	$689,966
Intragovernmental	$34,825	$35,348	$35,878	$36,416	$36,962
State Revenue Sharing Proceeds	$283,161	$287,409	$291,720	$296,096	$300,537
Sales Tax - Half Cent	$947,081	$961,287	$975,707	$990,342	$1,005,197
Gas Tax Rebate	$5,572	$5,656	$5,740	$5,827	$5,914
Charges for Services	$955,724	$970,060	$984,611	$999,380	$1,014,371
Judgments, Fines and Forfeitures	$35,505	$36,038	$36,578	$37,127	$37,684
Interest and Other Earnings	$43,448	$43,448	$43,448	$43,448	$43,448
Miscellaneous Revenues	$148,206	$148,206	$148,206	$148,206	$148,206
Interfund Transfers	$145,208	$145,208	$145,208	$145,208	$145,208
Total Revenues	**$28,236,553**	**$28,558,456**	**$28,884,222**	**$29,213,899**	**$29,547,536**
Expenditures					
General Government	$104,977	$106,552	$108,150	$109,772	$111,419
Executive	$141,764	$143,891	$146,049	$148,240	$150,463
Financial and Administrative	$448,186	$454,909	$461,733	$468,659	$475,689
Legal Counsel	$80,199	$81,402	$82,623	$83,863	$85,121
Comprehensive Planning	$356,542	$361,890	$367,318	$372,828	$378,420
Debt Service Payments	$0	$0	$0	$0	$0
Other General Government	$1,871,413	$1,899,484	$1,927,977	$1,956,896	$1,986,250
Public Safety	$4,963,471	$5,037,923	$5,113,492	$5,190,194	$5,268,047
Fire Control	$4,294,532	$4,358,950	$4,424,334	$4,490,699	$4,558,060
Public Works	$1,537,616	$1,560,681	$1,584,091	$1,607,852	$1,631,970
Road/Street Facilities	$228,566	$231,995	$235,474	$239,007	$242,592
Neighborhood Services	$170,786	$173,348	$175,948	$178,587	$181,266
Parks/Recreation	$941,872	$956,000	$970,340	$984,895	$999,668
Interfund Transfers Out	$394,184	$394,184	$394,184	$394,184	$394,184
Capital Outlay	$315,828	$315,828	$315,828	$315,828	$315,828
Total Expenditures	**$15,849,937**	**$16,077,036**	**$16,307,541**	**$16,541,504**	**$16,778,976**
Net Fiscal Impact	**$12,386,616**	**$12,481,421**	**$12,576,681**	**$12,672,395**	**$12,768,560**

Table 5
Avenir
Capital Impacts

	2016	2017	2018	2019	2020	2021	2022
Capital Revenues - City							
Roads	$455,895	$455,895	$455,895	$455,895	$455,895	$458,425	$458,425
Law Enforcement	$89,771	$123,770	$123,770	$123,770	$123,770	$132,610	$132,610
Fire	$66,983	$96,680	$96,680	$96,680	$96,680	$104,690	$104,690
Land Donation to City Police/Fire/Annex	$203,220						
Parks	$747,400	$747,400	$747,400	$747,400	$747,400	$747,400	$747,400
Land Donation to City Golf Course	$812,880						
Land Donation to City Park	$745,140						
Total Impact Fee Revenue	$3,121,290	$1,423,745	$1,423,745	$1,423,745	$1,423,745	$1,443,125	$1,443,125
Capital Expenditures - City							
Roads	$455,895	$455,895	$455,895	$455,895	$455,895	$458,425	$458,425
Law Enforcement	$89,771	$123,770	$123,770	$123,770	$123,770	$132,610	$132,610
Fire	$66,983	$96,680	$96,680	$96,680	$96,680	$104,690	$104,690
Parks	$747,400	$747,400	$747,400	$747,400	$747,400	$747,400	$747,400
Total Capital Cost	$1,360,050	$1,423,745	$1,423,745	$1,423,745	$1,423,745	$1,443,125	$1,443,125
Transportation Impact Fees - County	$2,059,363	$2,059,363	$2,059,363	$2,059,363	$2,059,363	$2,039,080	$2,039,080
Flow-way Upland Preserve Dedication	$32,610,036						

Table 5
Avenir
Capital Impacts

	2023	2024	2025	2026	2027	2028	2029
Capital Revenues - City							
Roads	$458,425	$434,875	$434,875	$447,330	$470,880	$470,880	$470,880
Law Enforcement	$132,610	$121,010	$121,010	$128,500	$140,100	$140,100	$140,100
Fire	$104,690	$94,240	$94,240	$100,680	$111,130	$111,130	$111,130
Land Donation to City Police/Fire/Annex							
Parks	$747,400	$747,400	$747,400	$747,400	$747,400	$747,400	$747,400
Land Donation to City Golf Course							
Land Donation to City Park							
Total Impact Fee Revenue	$1,443,125	$1,397,525	$1,397,525	$1,423,910	$1,469,510	$1,469,510	$1,469,510
Capital Expenditures - City							
Roads	$458,425	$434,875	$434,875	$447,330	$470,880	$470,880	$470,880
Law Enforcement	$132,610	$121,010	$121,010	$128,500	$140,100	$140,100	$140,100
Fire	$104,690	$94,240	$94,240	$100,680	$111,130	$111,130	$111,130
Parks	$747,400	$747,400	$747,400	$747,400	$747,400	$747,400	$747,400
Total Capital Cost	$1,443,125	$1,397,525	$1,397,525	$1,423,910	$1,469,510	$1,469,510	$1,469,510
Transportation Impact Fees - County	$2,039,080	$1,941,666	$1,941,666	$1,993,868	$2,091,282	$2,091,282	$2,091,282
Flow-way Upland Preserve Dedication							

Table 5
Avenir
Capital Impacts

	2030	2031	2032	2033	2034	2035	Total
Capital Revenues - City							
Roads	$447,330	$364,989	$364,989	$364,989	$364,989	$364,989	$8,656,745
Law Enforcement	$128,500	$113,637	$113,637	$113,637	$113,637	$113,637	$2,470,186
Fire	$100,680	$90,450	$90,450	$90,450	$90,450	$90,450	$1,943,253
Land Donation to City Police/Fire/Annex							$203,220
Parks	$747,400	$549,339	$549,339	$549,339	$549,339	$549,339	$13,957,695
Land Donation to City Golf Course							$812,880
Land Donation to City Park							$745,140
Total Impact Fee Revenue	$1,423,910	$1,118,415	$1,118,415	$1,118,415	$1,118,415	$1,118,415	$28,789,120
Capital Expenditures - City							
Roads	$447,330	$364,989	$364,989	$364,989	$364,989	$364,989	$8,656,745
Law Enforcement	$128,500	$113,637	$113,637	$113,637	$113,637	$113,637	$2,470,186
Fire	$100,680	$90,450	$90,450	$90,450	$90,450	$90,450	$1,943,253
Parks	$747,400	$549,339	$549,339	$549,339	$549,339	$549,339	$13,957,695
Total Capital Cost	$1,423,910	$1,118,415	$1,118,415	$1,118,415	$1,118,415	$1,118,415	$27,027,880
Transportation Impact Fees - County	$1,993,868	$1,594,705	$1,594,705	$1,594,705	$1,594,705	$1,594,705	$38,532,492
Flow-way Upland Preserve Dedication							$32,610,036

Table 6
Avenir
Fiscal Impact Assumptions

Taxable Assessment Ratio	90%	(from iput data)	
Homestead Exemption	$50,000	(from iput data)	
% Single-Family with Homestead	85%	(from iput data)	
% Multifamily with Homestead	60%	(from iput data)	
Millage			
City of Palm Beach Gardens	5.6700	Mills	
Debt Millage	0.0000	Mills	
		Equivalent Factor	Full-Time Equivalent
Population-Working Residents	15,841	0.7619	12,069
Population-Non-Working Residents	34,226	1.0000	34,226
Population- Seasonal	641	0.34615	222
Population (peak season)	50,708		46,517
Population (total)	50,067	City Budget 2015	
Student Residents Equivalent Factor		0.692307692	
Employment (total)	31,681	0.2381	7,543
ISITE 2010			
County Population (unincorporated)	596,187		
(Fl Population Studies, 2013)			
Persons per Household - Single Family *	2.38		
Persons per Household - Multifamily	1.83		
(Fl Population Studies, 2013)			
Total Households	553,517	(Fl Population Studies, 2013)	
Hotel Assumptions			
Total Number of Rooms	1,250	(Occupational Licenses Data Base)	
Average Occupancy	70.0%	(FLA USA Visit FloridaTourism Study)	
Average Persons per Room	2.0	(FLA USA Visit FloridaTourism Study)	
Employment Assumptions	Project		
Office - Class A (sq.ft.)	350	sq. ft. per employee	
Office - Medical/Professional (sq.ft.)	250	sq. ft. per employee	
Retail - Community	550	sq. ft. per employee	
Hotel (rooms)	0.50	employees per room	
Annual growth rate of Residential Property V	1.0%		
Annual growth rate of Non-Residential Prope	1.5%		
	Average		
Single-Family	$850,000		
Townhouse	$450,000		
Office - Class A (sq.ft.)	$165		
Office - Medical/Professional (sq.ft.)	$185		
Retail - Community (sq.ft.)	$150		
Hotel (rooms)	$160,000		

ECONOMIC IMPACT ANALYSIS OF AVENIR

July 13, 2015

Prepared for:

AVENIR HOLDINGS, LLC

Prepared by:

Fishkind & Associates, Inc.
12051 Corporate Blvd.
Orlando, Florida 32817
407-382-3256

FISHKIND
& ASSOCIATES
ECONOMIC CONSULTANTS

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Executive Summary

Avenir Holdings, LLC ("Client") is requesting a land use plan amendment associated with its Avenir project located in western Palm Beach Gardens, Florida (see Map 1). The project encompasses 4,700+/- acres and is designed to be developed in four phases and includes the following:

- 3,985 residential units (3,735 single family & 250 townhomes)
- 2,000,000 sqft of office space (1,600k professional & 400k medical)
- 400,000 sqft retail space
- 300 hotel rooms

This analysis describes the economic impacts of Avenir as proposed. The report details two aspects of economic impact. First, is the economic impact of project construction. Second, is the ongoing economic impact resulting from economic activity generated through the mixed use development, once completed. This includes household spending, and employment related activity.

The direct project construction costs to be spent locally are estimated to reach $1.6 billion over the construction period. Construction and related service employment plus induced and indirect employment will support an average of 15,900 jobs, divided across the length of time of construction. Construction jobs will end when the development at Avenir is complete.

Permanent economic impacts of the project include 5,860 permanent jobs, $368 million in annual wages and $725 million in ongoing local economic activity after completion. The economic impacts indicate the project is well balanced creating approximately 1.5 new jobs for each new dwelling unit planned.

The summary of Avenir economic impacts are as follows:

<u>Economic Impacts – Construction</u>

- Economic Activity - $1,600,000,000
- Earnings - $1,000,000,000
- Employment – 15,900 persons employed

<u>Economic Impacts of Ongoing Activity</u>

- Economic Activity - $725,000,000 annually
- Earnings - $368,000,000 annually
- Permanent Employment – 5,860 permanent jobs

1.0 Introduction

Avenir Holdings, LLC ("Client") is requesting a land use plan amendment associated with its Avenir project located in western Palm Beach Gardens, Florida (see Map 1). The project encompasses 4,700+/- acres and is designed to be developed in four phases and includes the following:

- 3,985 residential units (3,735 single family & 250 townhomes)
- 2,000,000 sqft of office space (1,800k professional & 200k medical)
- 400,000 sqft retail space
- 300 hotel rooms

This analysis describes the economic impacts of Avenir as proposed. The report details two aspects of economic impact. First, is the economic impact of project construction. Second, is the ongoing economic impact resulting from economic activity generated through the mixed use development, once completed. This includes household spending, and employment related activity as well as the other land uses.

2.0 Economic Impact Analysis

2.1 Economic Impact Analysis Overview

The Consultant conducted the analysis to determine the economic impacts of the construction and ongoing economic activity flowing from Avenir. This study relies on data gathered from the following sources:

- Primary Data for development volumes and construction as provided by Avenir LLC
- Primary Data for post construction ongoing impacts prepared by Fishkind & Associates, Inc.
- Economic Impact Modeling using IMPLAN

A systematic analysis of economic impacts is essential for effective planning in the public- and private-sectors. The Consultant has used IMPLAN multipliers for this analysis, for the Palm Beach County economy. Economic Impacts are analyzed and presented for construction related impacts and for ongoing permanent impacts which occur after construction is complete.

3.0 Avenir Construction Impacts

The economic impacts of this construction activity flow from expenditures in design, infrastructure and vertical construction. For the purposes of this analysis we have illustrated the economic impacts of construction providing an annual average construction impact number. While these construction impacts are "temporary" in as much as development work is finite, the construction period of work for designers, engineers and construction workers is viewed as a long term project with continuing economic impacts from development. Because Avenir is large, the construction impacts are quite substantial.

Construction values are estimated to be $2.7 billion. This includes design, engineering, infrastructure development such as internal roads, water/wastewater utilities and drainage as well as vertical construction.

Of these development costs, a substantial portion is spent outside of the community for the purchases of raw materials made out of area such as roof trusses or steel beams and provision of professional services from those located out of area. This results in only a portion of the direct construction spending being spent in the local area. It is estimated the direct construction spending expected to remain in the market after the purchase of out of area materials and services is $1.6 billion, nearly 60 percent of all development spending.

The total economic impacts including the multiplier effect of the development and construction program is $2.5 billion. Associated with this level of total economic activity is $1 billion in wages and 15,900 jobs. Table 1 details the cumulative economic impact of construction.

Table 1. Economic Impacts of Avenir Construction

Impact Type	Employment	Labor Income	Output
Direct Effect	8,973	$627,491,965	$1,621,585,736
Indirect Effect	3,677	$218,789,334	$464,334,782
Induced Effect	3,204	$158,092,369	$411,712,746
Total Effect	15,853	$1,004,373,668	$2,497,633,265

Source: Copyright 2015 Minnesota IMPLAN Group, Inc.; Fishkind & Associates, Inc.

3.1 Economic Impacts of Avenir Development - Key Industries Impacts

The construction/development impacts of Avenir can be described among different key construction related industries and areas of business. Table 2 illustrates the most prominent industries in the local economy which benefit from construction and development at Avenir.

Table 2. Avenir Construction Impacts Selected Key Sectors

Description	Employment	Labor Income	Output
Architec., engineering, and related svcs.	3,839	$315,734,393	$506,830,406
Construction of new resi. structures	2,946	$183,154,473	$700,710,059
Construction of new nonres. structures	1,480	$93,711,218	$265,814,557
Constr of new comm. & health care strucs	823	$52,144,702	$143,300,499
Food services and drinking places	599	$18,191,076	$41,533,197
Employment services	434	$16,423,878	$20,662,232
Construction of other new res. structures	373	$22,847,513	$69,300,995
Real estate establishments	319	$7,450,891	$54,704,025
Retail Stores - Food and beverage	270	$9,496,821	$17,036,980
Retail Stores - General merchandise	269	$8,873,123	$16,868,070
Ofcs of Drs., DDS., othr health practitioners	219	$19,017,740	$29,975,754
Monetary authorities and depository credit	155	$12,125,413	$52,211,135
Top Sectors of Economic Output	11,726	759,171,240	1,918,947,909
Total	15,853	$1,004,373,668	$2,497,633,265

Source: Copyright 2015 Minnesota IMPLAN Group, Inc.; Fishkind & Associates, Inc.

The impact of Avenir development and construction is felt throughout the local economy, benefitting a variety of industries, supporting economic diversity and creating needed construction industry jobs. Key industries benefitted by the new facility include construction firms, engineering and architectural services, real estate services and retailing in food and beverage, and general merchandise retailing.

4.0 Avenir Permanent Economic Impacts

Once development and construction is complete at Avenir, permanent ongoing economic impacts will occur. Ongoing impacts include economic activity which stem from the household spending from the new residents of the 3,985 new housing units to be constructed at Avenir. In addition, is the economic activity associated with retail, office, and hotel businesses. This includes retail sales and business revenues as well as the direct employment generated at the new establishments.

Some of the retail and business spending from new householders will be captured on site. Fishkind estimates as much as 25 percent of retail spending by Avenir households may by captured at on site retailers. Similarly, office related expenditures and needs may be captured on site. As well, some of the jobs held by new residents may be located on site at the office, retail and other establishments. As much as 25 percent of the direct economic impacts on office businesses may be a result of household spending. In order to eliminate double counting of household expenditures taking place at businesses on site, the direct retail and business impacts of the business space constructed were reduced 25 percent to prevent double counting of on-site household expenditure portions of the economic impacts.

When construction is completed, Avenir will generate 3,944 jobs in direct employment and total employment of 5,860 jobs, including the indirect and induced employment multiplier effects. These figures reflect the 25 percent reductions of direct business impacts to account for on-site spending by Avenir households. The estimated total annual payroll will reach $368 million annually. The total economic impact of the project will reach $725 million annually upon completion.

Table 3 shows the annual ongoing permanent economic output of Avenir, upon completion. Avenir is well a balanced community generating approximately 1.5 new jobs for each new household created.

Table 3. Annual Economic Impacts – AVENIR

Impact Type	Employment	Labor Income	Output
Direct Effect	3,944	$268,005,440	$480,548,054
Indirect Effect	741	$41,806,446	$92,969,197
Induced Effect	1,175	$57,972,103	$150,986,196
Total Effect	5,860	$367,783,989	$724,503,446

Source: Copyright 2014 Minnesota IMPLAN Group, Inc.; Fishkind & Associates, Inc.

4.1 AVENIR - Permanent Economic Impacts Among Key Industries

The impacts of Avenir can be described and illustrated among different industries and areas of business in the local economy. Table 4 illustrates the most prominent industries in the local economy which will benefit from ongoing economic activity generated through Avenir.

Table 4. Avenir – Community Economic Impacts for Selected Key Sectors

Description	Employment	Labor Income	Output
Retail Stores - General merchandise	1,284	$42,408,194	$80,619,242
Office administrative services	1,046	$114,997,355	$150,364,525
All other profess, and tech svcs	644	$58,452,320	$150,451,938
Offices of Drs, DDS., other health	492	$42,665,130	$67,248,763
Private household operations	343	$1,931,525	$1,948,222
Transit and ground transpo.	287	$14,551,946	$22,229,910
Food services and drinking places	209	$6,351,013	$14,500,399
Employment services	155	$5,850,612	$7,360,424
Real estate establishments	124	$2,882,634	$21,164,140
Private hospitals	66	$4,782,150	$9,561,850
Monetary authorities, depository credit	40	$3,165,851	$13,631,923
Electric power gen, transmission, and distr.	19	$3,532,749	$24,732,948
Top Sectors of Economic Output	4,709	$301,571,480	$563,814,284
Total Economic Impact	5,860	$367,783,989	$724,503,446

Source: Copyright 2015 Minnesota IMPLAN Group, Inc.; Fishkind & Associates, Inc.

The positive impacts of development at Avenir are felt throughout the local economy, benefitting a variety of businesses, industries and supporting economic diversity. Key businesses benefitted by the new facility and associated development include general retail sales activity, professional office and medical office activity, government, utilities and restaurant establishments.

5.0 Summary of Economic Impacts

Avenir will be a significant new addition to the local economic community. The permanent direct and indirect economic output for Avenir is $725 million annually. This figure is a function of new household spending, retail, hotel and business revenues. This level of activity will support 5,860 permanent jobs and $368 million in annual wages. These impacts will be reached upon full development. Portions of the permanent impacts will occur during the development period as the project is developed with homes being occupied and businesses opened.

Economic impacts of construction will occur annually during development, ending when construction is finished. The economic impacts of construction at Avenir will support 15,900 jobs during construction, including direct, indirect and induced effects. Accompanying wages will reach $1 billion. On average, total economic impact of construction at Avenir will add $2.5 billion to the local economy as a result of all construction activity.

6.0 Economic Impact Methodology - IMPLAN

The economic impact methodology utilized to determine the multiplier effects is IMPLAN (IMpact Analysis for PLANning).

IMPLAN's Social Accounting Matrices (SAMs) capture the actual dollar amounts of all business transactions taking place in a regional economy as reported each year by businesses and governmental agencies. SAM accounts are a better measure of economic flow than traditional input-output accounts because they include "non-market" transactions. Examples of these transactions would be taxes and unemployment benefits.

Multipliers
Social Accounting Matrices can be constructed to show the effects of a given change on the economy of interest. These are called Multiplier Models. Multiplier Models study the impacts of a user-specified change in the chosen economy for 440 different industries. Because the Multiplier Models are built directly from the region specific Social Accounting Matrices, they will reflect the region's unique structure and trade situation.

Multiplier Models are the framework for building impact analysis questions. Derived mathematically, these models estimate the magnitude and distribution of economic impacts, and measure three types of effects which are displayed in the final report. These are the direct, indirect, and induced changes within the economy. Direct effects are determined by the Event as defined by the user (i.e. a $10 million dollar order is a $10 million dollar direct effect). The indirect effects are determined by the amount of the direct effect spent within the study region on supplies, services, labor and taxes. Finally the induced effect measures the money that is re-spent in the study area as a result of spending from the indirect effect. Each of these steps recognizes an important leakage from the economic study region spent on purchases outside of the defined area. Eventually these leakages will stop the cycle.

INFRASTRUCTURE ELEMENT ANALYSIS

Project Name:

AVENIR

Prepared for:

CITY OF PALM BEACH GARDENS
10500 N. Military Trail
Palm Beach Gardens, FL 33410

Prepared by:

BALLBÉ & ASSOCIATES
Civil Engineering • Planning • Surveying

BALLBÉ & ASSOCIATES, INC.
2737 N.E. 30TH Place
Fort Lauderdale, Florida 33306
(954) 491-7811

Project Number:
201212

September 10, 2015 (Revised November 18, 2015)

BALLBÉ & ASSOCIATES
Civil Engineering • Planning • Surveying

November 18, 2015

Mrs. Natalie M. Crowley, AICP
Director of Planning and Zoning
CITY OF PALM BEACH GARDENS
10500 N. Military Trail
Palm Beach Gardens, FL 33410

Re: **AVENIR**
Project Number: **201212**

Dear Mrs. Crowley:

Pursuant to the City of Palm Beach Gardens requirements for the land use amendment for the above referenced project, enclosed please find the infrastructure element analysis for the following services:

- Sanitary sewer
- Potable water
- Stormwater Management
- SolidWaste

This revised version has been modified per the discussions with the City's staff and consultants. If you have any questions or require any additional information, please do not hesitate to call me.

Sincerely,

BALLBÉ & ASSOCIATES, INC.

Carlos J. Ballbé, P.E., LEED® A.P.

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LIST OF EXHIBITS

Exhibit A	Interlocal Agreement Between Palm Beach County and Seacoast Utility Authority for the Purchase and Sale of Bulk Potable Water and Wastewater Service
Exhibit B	Seacoast Utility Authority Water and Sewer Capacity Availability Letter and backup information
Exhibit C	City of Palm Beach Gardens 10-Year Water Supply Facilities Work Plan
Exhibit D	Existing Drainage Facilities Plan
Exhibit E	Solid Waste Authority Availability of Solid Waste Disposal Capacity and Waste Generation Rate Calculations

INFRASTRUCTURE ELEMENT ANALYSIS

CITY OF PALM BEACH GARDENS Goals, Objectives and Policies

A. SANITARY SEWER

GOAL 4.A.1.: PROVIDE ADEQUATE CENTRAL SANITARY SEWAGE FACILITIES FOR RESIDENTIAL AND NON-RESIDENTIAL DEVELOPMENT AND REDEVELOPMENT IN THE CITY.

Objective 4.A.1.1.: Require all submittals for development to obtain a statement of available capacity from Seacoast Utility Authority (Seacoast or SUA) prior to site-plan approval. The issuance of a building permit will require an executed developer agreement with Seacoast and a certificate of occupancy will not be issued prior to acceptance by Seacoast of the sanitary sewer facilities, which service the building.

Policy 4.A.1.1.3.: ***The City shall adopt an average annual daily sanitary sewage flow level of service standard of 107 gallons per City resident per day, until such time as it is revised by the Seacoast Utility Authority****. This shall serve as the level of service standard for the urban area. The rural area shall utilize septic tanks, unless an alternative service provision is approved by the City Council consistent with Policy 9.1.4.2.(a)-(d).*

Policy 4.A.1.1.4.: ***The City shall adopt a peak month, average day sanitary sewage flow level of service standard of 118 gallons per City resident per day, until such time as it is revised by the Seacoast Utility Authority.***

Policy 4.A.1.1.5.: ***The City shall adopt a minimum sanitary sewage treatment plant capacity level of service standard of 118 gallons per City resident per day, until such time as it is revised by the Seacoast Utility Authority.***

INTRODUCTION

The property is located within the Seacoast Utility Authority sewer service area. Subject to prevailing fees, charges, policies and practices, Seacoast proposes to provide sanitary sewer service collection, distribution and treatment. Currently, Seacoast does not have the facilities in place to service the site and therefore, will be providing service thru the existing Interlocal Agreement Between Palm Beach County and Seacoast Utility Authority for the Purchase and Sale of Bulk Potable Water and Wastewater Service (see attached Exhibit A).

Please refer to the attached revised service commitment letter from Seacoast Utility Authority ("SUA") dated November 2, 2015 (Exhibit B) describing two alternative service connections. **Subject to final land development plan approval and project sequencing, Seacoast anticipates that initial service shall be provided in the manner described as Alternative One below:**

Sanitary Sewage Alternative One

Connect to an existing 20" sewage force main owned by Palm Beach County Water Utilities ("PBCWU") located along the western property boundary (see attached

exhibit). SUA has entered into an interlocal agreement with PBCWU to bulk purchase up to 5.0 million gallons per day ("MGD") which represents more than enough capacity to services the subject site.

Sanitary Sewage Alternative Two

Connect to an existing 24" sewage force main owned by SUA located north of PGA Boulevard approximately one mile west of the Florida's Turnpike.

EXISTING AND PROPOSED SEWAGE COLLECTION/TRANSMISSION IMPROVEMENTS

The County currently owns and operates a 20" force main along Northlake Boulevard, a 20" force main along the west bank of the SFWMD C-18 Canal, and a 6" force main along the Bee Line Highway. The proposed improvements for the on-site sewage collection/transmission system consists of a network of gravity mains within the proposed development discharging to a series of sewage lift stations which will ultimately pump the generated sewage load to the County's existing facilities.

EXISTING SEWAGE TREATMENT FACILITIES

Sewage treatment will be provided by the East Central Regional Water Reclamation Facility (ECRWRF) which is funded and governed by a board comprised of the representatives of the entities served by that facility, namely: the City of West Palm Beach, the City of Lake Worth, the City of Riviera Beach, the Town of Palm Beach, and Palm Beach County. The ECRWR is licensed to function under specific guidelines by the State of Florida and the U.S. Environmental Protection Agency. The plant is operated by Florida licensed Wastewater Plant Operators and it is currently permitted to process 64 million gallons of wastewater per day (MGD).

Currently, the plant is treating approximately 45 million gallons per day and therefore, the plant has adequate capacity to treat the anticipated flow for this project.

SANITARY SEWER FLOWS

Domestic sewer flow demands were estimated by applying the demand rates stipulated by the Seacoast Utility Authority (SUA) Uniform Extension Policy as shown below (based on 1 Equivalent Residential Connection = 250 gallons per day):

SANITARY SEWER FLOW RATES

Land Use	Sewer Consumption Rates
Single Family Residential	250 GPD/Unit
Townhome Residential	227.5 GPD/Unit
Commercial	90.91 GPD/1,000 S.F.
Medical Office	90.91 GPD/1,000 S.F.
Professional Office	90.91 GPD/1,000 S.F.
Hotel	90.91 GPD/Room
Park	90.91 GPD/1,000 S.F.
Police/Fire/City Annex	90.91 GPD/1,000 S.F.
Golf Course	90.91 GPD/1,000 S.F.
Public School	Not included unless otherwise noted as a "Private School" per Seacoast Utility Authority regulations

GPD=gallons per day / SF=square feet of floor area

PROPOSED SANITARY SEWER FLOW DEMAND

Land Use Category	Unit	Equivalent Residential Connection (ERC)	Average Daily Flow (GPD)	Total Average Daily Flow (GPD)
Single Family Residential	3,735 Dwelling Units	3,735.000	250	933,750
Townhome Residential	250 Dwelling Units	227.5	250	56,875
Commercial	400,000 S.F.	145.454	250	36,364
Medical Office	200,000 S.F.	72.727	250	18,182
Professional Office	1,800,000 S.F.	654.545	250	163,636
Hotel	300 Rooms (Approx. 80,000 S.F.)	109.091	250	27,273
Park	20,000 S.F. Recreational Facility (55 Ac. Parcel land dedication)	7.273	250	1,818
Police/Fire/City Annex	40,000 S.F. Facility (8 Ac. Parcel land dedication)	14.545	250	3,636
Golf Course	15,000 S.F. Recreational Facility (60 Ac. Parcel land dedication)	5.455	250	1,364
Public School	600 Students (K-6) (15 Ac. Parcel land dedication)	Not included unless otherwise noted as a "Private School" per Seacoast Utility Authority regulations	N/A	N/A
TOTAL =		**4,971.590**		**1,242,897**

GPD=gallons per day
SF=square feet of floor area

IMPROVEMENTS/EXPANSIONS ALREADY PROGRAMMED OR NEEDED AS A RESULT OF THE PROPOSED AMENDMENT

The Seacoast Utility Authority (SUA) owns and operates the PGA Regional Waste Reclamation Facility located Jog Road, currently permitted to treat 12.0 million gallons per day, operating at 8.28 million gallons per day and has the necessary capacity to service the proposed development. Seacoast Utility is planning to service the subject site by extending sanitary sewer force mains along the extension of PGA Boulevard and by installing several pumping stations to carry the flow from the site to the treatment plant. Applicant will be responsible to construct the on-site sewage collection/transmission system. The cost of the off-site improvements will be financed by SUA and at no cost to the City of Palm Beach Gardens.

REGULATION COMPLIANCE

The proposed sewage collection/transmission system will be designed to meet the requirements of the following permitting agencies:

- Seacoast Utility Authority
- Palm Beach County Water Utilities Department
- City of West Palm Beach
- Palm Beach County Health Department
- Florida Department of Environmental Protection

LEVEL OF SERVICE ANALYSIS

Currently there are no facilities servicing the site and thus there is no existing sanitary sewer level of service. The proposed development generates substantially more sanitary sewer treatment demand than the potential demand generated by the current land use. However, the increased capacity required is currently available as stated in the letter provided by the Seacoast Utility Authority (see attached Exhibit "B") which complies with the City's adopted average annual daily sanitary sewage flow level of service standard of 107 gallons per City resident per day. Therefore, **the proposed development meets the level of service requirements as adopted in the City's Comprehensive Plan.**

B. ***POTABLE WATER***

GOAL 4.D.1.: PROVIDE A SAFE, HEALTHY, DEPENDABLE, AND SUSTAINABLE POTABLE WATER SUPPLY TO ALL RESIDENTS AND BUSINESSES IN THE CITY.

Objective 4.D.1.1.: The potable water facilities levels of service standards established in this element shall be maintained throughout the City, until such time as they are revised by the Seacoast Utility Authority.

Policy 4.D.1.1.1.: ***~~The City shall adopt an average annual daily potable water consumption level of service standard of 191 gallons per City resident per day. This shall serve as the level of service standard for the urban area. The rural area shall utilize water wells, unless alternative service provision is approved by the City Council consistent with Policy 9.1.4.2.(a)-(d).~~***

2015 Update:

The City shall adopt an average annual daily potable water consumption level of service standard of ~~191~~ 189 gallons per City Resident capita per day (gpcd). This shall serve as the level of service standard for the urban area. The rural area shall utilize water wells, unless an alternative service provision is approved by the City Council consistent with Policy 9.1.4.2.(a)-(d).

Policy 4.D.1.1.2.: ***The City shall adopt a peak 24-hour potable water consumption level of service standard of 258 gallons per City resident per day.***

Policy 4.D.1.1.3.: ***The City shall adopt a minimum potable water treatment plant capacity level of service standard of 258 gallons per City resident per day.***

Policy 4.D.1.1.4.: ***The City shall adopt a minimum potable water storage capacity level of service standard of 34.4 gallons per City resident per day.***

Policy 4.D.1.1.5.: ***The City shall adopt a minimum water pressure level of service standard of 20 pounds per square inch.***

2015 Update:

Policy 4.D.1.1.8.: ***The City shall coordinate with Seacoast Utility Authority and Palm Beach County in the preparation of their 10-Year Water Supply Facilities Work Plans, consistent with the directives of the Lower East Coast Water Supply Plan Update.***

Policy 4.D.1.1.9.: ***At the time of each required Evaluation and Appraisal Report required by the applicable statute, the City shall incorporate necessary 10-Year Water Supply Facilities Work Plan directives enacted by its water supplier and the regional water supply plan.***

Policy 4.D.1.1.10.: ***The 10-Year Water Supply Facilities Work Plan Update is hereby adopted by reference in the City's Comprehensive Plan and implemented by Seacoast Utility Authority, as the local water provider.***

Policy 4.D.2.2.3.: ***The City shall adopt a 10-Year Water Supply Facilities Work Plan and related amendments within 18months of the District's adoption of the Lower East Coast Water Supply Plan Update.***

INTRODUCTION

The property is located within the Seacoast Utility Authority domestic water service area. Subject to prevailing fees, charges, policies and practices, Seacoast proposes to provide domestic water service, distribution and treatment. Currently, Seacoast does not have the facilities in place to service the site and therefore, will be providing service thru an existing Interlocal Agreement Between Palm Beach County and Seacoast Utility Authority for the Purchase and Sale of Bulk Potable Water and Wastewater Service (see attached Exhibit A).

Please refer to the attached revised service commitment letter from Seacoast Utility Authority ("SUA") dated November 2, 2015 (Exhibit B). **Subject to final land development plan approval and project sequencing, Seacoast anticipates that initial service shall be provided in the manner described as Alternative One below:**

Potable Water Alternative One
Connect to an existing 24" water main owned by Palm Beach County Water Utilities ("PBCWU") located along the western property boundary (see attached exhibit). SUA has entered into an interlocal agreement with PBCWU to bulk purchase up to 5.0 million gallons per day ("MGD") which represents more than enough capacity to services the subject site.

Potable Water Alternative Two
Connect to an existing 24" water main owned by SUA located north of PGA Boulevard approximately one mile west of the Florida's Turnpike.

EXISTING AND PROPOSED WATER DISTRIBUTION SYSTEM IMPROVEMENTS

The County currently owns and operates a 24" water main along Northlake Boulevard, a 24" water main along the west bank of the SFWMD C-18 Canal, and a 12" water main along the Bee Line Highway. The proposed improvement for the on-site water distribution system consists of a network of water mains within the proposed development interconnected to the County's existing facilities.

EXISTING WATER TREATMENT FACILITIES

Potable water will be provided by Palm Beach County who currently owns and operates for water treatment plants which are interconnected and have the capacity of supplying approximately 101 million gallons per day. Water Treatment Plant #8 is the

closest plant to the site and it utilizes lime softening and ozone treatment, followed by disinfection, to provide clean drinking water for the surrounding suburban West Palm Beach area. The plant has the capacity to produce approximately 20 million gallons per day, and its raw water source is the underground surficial aquifer.

Currently, the total operating capacity for all the treatment plans is approximately 65 million gallons per day and therefore, the county has adequate capacity to supply the anticipated demand for this project.

WATER DEMAND CALCULATIONS

Potable demands were estimated by applying the demand rates stipulated by the Seacoast Utility Authority (SUA) Uniform Extension Policy as shown below (based on 1 Equivalent Residential Connection = 350 gallons per day):

POTABLE WATER CONSUMPTION RATES

Land Use	Potable Water Consumption Rates
Single Family Residential	444 GPD/Unit
Townhome Residential	444 GPD/Unit
Commercial	90.91 GPD/1,000 S.F.
Medical Office	90.91 GPD/1,000 S.F.
Professional Office	90.91 GPD/1,000 S.F.
Hotel	90.91 GPD/Room
Park	90.91 GPD/1,000 S.F.
Police/Fire/City Annex	90.91 GPD/1,000 S.F.
Golf Course	90.91 GPD/1,000 S.F.
Public School	Not included unless otherwise noted as a "Private School" per Seacoast Utility Authority regulations

GPD=gallons per day
SF=square feet of floor area

PROPOSED POTABLE WATER CONSUMPTION DEMAND

Land Use Category	Unit	Equivalent Residential Connection (ERC)	Average Daily Flow (GPD)	Total Average Daily Flow (GPD)
Single Family Residential	3,735 Dwelling Units	3,735.000	444	1,658,340
Townhome Residential	250 Dwelling Units	178.500	444	111,000
Commercial	400,000 S.F.	145.454	350	50,909
Medical Office	200,000 S.F.	72.727	350	25,454
Professional Office	1,800,000 S.F.	654.545	350	229,091
Hotel	300 Rooms (Approx. 80,000 S.F.)	109.091	350	38,182
Park	20,000 S.F. Recreational Facility (55 Ac. Parcel land dedication)	7.273	350	2,546
Police/Fire/City Annex	40,000 S.F. Facility (8 Ac. Parcel land dedication)	14.545	350	5,091
Golf Course	15,000 S.F. Recreational Facility (60 Ac. Parcel land dedication)	5.455	350	1,909
Public School	600 Students (K-6) (15 Ac. Parcel land dedication)	Not included unless otherwise noted as a "Private School" per Seacoast Utility Authority regulations	N/A	N/A
TOTAL =		**4,922.590**		**2,123,158**

GPD=gallons per day / SF=square feet of floor area

IMPROVEMENTS/EXPANSIONS ALREADY PROGRAMMED OR NEEDED AS A RESULT OF THE PROPOSED AMENDMENT

Seacoast obtains it's water from the surficial aquifer via thirty-five wells. These wells are located in four separate wellfields and are treated at two lime softening Water Treatment Plants. Both plants produce water of excellent quality, exceeding all Federal, State and Local drinking water standards. Seacoast currently distributes 17 million gallons per day of drinking water to its customers provided by its Water Treatment Plants.

The following information was obtained from the City of Palm Beach Gardens 10-Year Water Supply Facilities Work Plan dated February, 2015 (Please refer to attached Exhibit C for a full copy of the work plan):

The City of Palm Beach Gardens has implemented a Water Supply Facilities Work Plan to identify the water supply sources and facilities needed to serve the existing and new developments within the local government's jurisdiction. The City coordinates with Seacoast Utility Authority (SUA) to ensure that enough capacity is available for existing and future customers, and Seacoast ensures that supporting infrastructure, such as the water lines, are adequately maintained.

Seacoast currently operates two fully interconnected lime (Richard Road – 7.5 MGD capacity and Hood Road – 23.0 MGD) with a combined finished water treatment peak-day capacity of 30.5 MGD. The systems are fully interconnected and do not have individually assigned service areas.

Existing Conditions:

On May 21, 2014, Seacoast placed a new 30.5 MGD membrane treatment facility in service. This will allow Seacoast to decommission and demolish its two lime-softening water treatment facilities on Richard Road (7.5 MGD capacity) and Hood Road (23.0 MGD) later in 2015.

Water Source:

In 2013, Seacoast withdrew an average of 19.08 MGD of total raw water from the Surficial Aquifer System (SAS) for all customers, including Palm Beach Gardens. Current Seacoast plans will result in the use of both the Surficial and Floridan Aquifer Systems in the future.

Projections of raw water supply and finished water demand from Seacoast's 2012 SFWMD water use permit are presented in Table 1. Projections of finished water demand by expected supply component are presented in Table 2. Both tables include the proposed Scripps Florida Phase II/Briger DRI future water demand.

Table 1
Total Seacoast Current and Projected Water Supply and Demand

Year	Raw Water Withdrawal (MGD)	Finished Water Demand (MGD)
2010	18.21	17.65
2015**	21.88	17.50
2020	23.33	18.62
2025	24.77	19.69
2030	26.30	20.69

* Demand under average conditions.
** Converted to membrane treatment May 21, 2014; resulted in increased raw water demand.
Source: Seacoast Utility Authority (12/14).

Table 2
Total Seacoast Current and Projected Water Supply by Source

Year	Biscayne/Surficial Aquifer (MGD)	Floridian Aquifer (MGD)	Total (MGD)
2010	18.21	0.00	18.21
2015	21.88	0.00	21.88
2020	22.30	1.03	23.33
2025	22.30	2.47	24.77
2030	22.30	3.53	25.83

Source: Seacoast Utility Authority (12/14).

Raw water is presently drawn from four surficial aquifer wellfields (Hood Road, North Palm Beach, Burma Road, Palm Beach Gardens) and three Floridan aquifer wells located on Seacoast's 40-acre Hood Road administration/water plant site, pursuant to the current CUP. Each of the wellfields has permitted average and maximum daily withdrawal rates established by CUP conditions.

Each wellfield also has protection zones mapped by the Palm Beach County Department of Environmental Resources Management and are protected by the Palm Beach County Wellfield Protection Ordinance. Zones of protection are developed and

zone requirements enforced by the Palm Beach County Department of Environmental Resources Management.
The CUP further states that the potential for induced movement of contaminants from known sources of pollution to occur as a result of the withdrawal of the recommended allocation is considered minimal.

For planning purposes, Seacoast's service area may be divided into two areas: those east of the east leg of the C-18 Canal and those areas west of the C-18 Canal. The east leg of the C-18 Canal runs north-south from the intersection of the Beeline Highway and Northlake Boulevard from the south, along the western boundaries of Mirasol (within Palm Beach Gardens) and Old Marsh (within unincorporated Palm Beach County) developments through the Loxahatchee Slough.

Public Water Supply Demand Projections and Level of Service Standard:

Palm Beach Gardens uses Seacoast's average day generation rate of 189 gallons per capita per day (gpcd) for planning purposes. Seacoast also uses this average day generation rate for planning purposes, which is consistent with the current system-wide usage (i.e., CUP 50-00365-W). Seacoast does not employ a non-residential generation rate; rather, all consumption for planning purposes is expressed on a per capita basis. For the purpose of the Work Plan, the Seacoast generation rate of 189 gpcd is used to project the City's water demands.

Projections of finished water demand for the City are presented in Table 6. Seasonal adjustments were not considered in the 2012 SFWMD Water Use Permit projections and are not included in the table. Current (2015) finished potable water demand is estimated at 9.49 MGD (i.e., resident population of 50,221 residents x 189 gallons per capita per day), representing approximately 55.3% of the total within the Seacoast service area.

It is projected that the City's potable water demand for 2030, using population projections obtained from the Palm Beach County Planning Division (i.e., resident population of 59,722 residents per Table 6) will attain a level of 11.29 MGD by 2030, or approximately 57.8% of the total demand within the Seacoast Service Area. The City will continue coordinating with Seacoast through the DRC process to estimate and project potable water use and needs throughout the entire service area.

Table 6
Palm Beach Gardens Projected Finished Water Demand

Year	Palm Beach Gardens Population Projections	Potable Water Demand (MGD)[3]
	Residents	
2010	48,4402	9.16
2015	50,221	9.49
2020	55,276	10.45
2025	58,354	11.03
2030	59,722	11.29

1. Source: Palm Beach County Planning Division, Population Allocation Model, 2015, unless otherwise noted. Retrieved from: http://www.co.palm-beach.fl.us/pzb/Planning/population/populationproj.htm
2. Source: BEBR, 2014 / U.S. Census.
3. Residents x 189 gpcd.

Conservation and Reuse:

Seacoast has included an extensive conservation program as part of its CUP, including the following components:

- Permanent Irrigation Ordinance - Palm Beach County adopted a Water and Irrigation Conservation Ordinance on January 19, 1993. This ordinance, which limits lawn irrigation to the hours of 5 p.m. to 9 a.m., is in effect countywide unless municipalities adopt an irrigation ordinance of their own.

- Xeriscape Ordinance – Section 7.3.1 of the Palm Beach County Unified Land Development Code requires that all new landscape plans promote water conservation by achieving a minimum score on a water conservation point scale.

- Ultra-Low Volume Plumbing Fixtures - All five participating governments within Seacoast have adopted the Standard Plumbing Code, 1994 Edition, as amended, which provides for maximum flow of volumes for various plumbing fixtures in all new construction.

- Water Conservation Rate Structure - on June 1, 1994, Seacoast implanted a rate structure that incorporated inclining block commodity rates. Seacoast has indicated that the rate structure has been successful in encouraging water conservation.

- Leak Detection - Seacoast field personnel area trained to identify leaks using leak detection equipment and techniques. In addition, all accounts are

metered, and Seacoast has an active meter testing and change-out program that test all large meters annually for accuracy, and replaces smaller meters on either a "fixed service life" or "maximum mileage" basis.

- Rain Sensor Devices - Currently, all five member governments within Seacoast have code requirements for the installation of rain sensor overrides for new lawn irrigation systems.

- Water Conservation Education Program - Seacoast has an extensive public conservation education program and provides conservation-related pamphlets in its customer lobby.

- Reclaimed Water - Seacoast has been providing wastewater effluent for irrigation purposes since 1978. At present, Seacoast's entire average daily wastewater flow is committed to active on-line reclaimed water consumers. An inventory of contracts for reclaimed water in the Seacoast service area is presented in Table 7.

Seacoast's PGA Regional Water Reclamation Facility is located in Mirasol within the City limits. The facility has a 12.0 MGD capacity and has a current flow of 8.0 MGD. 100% of the daily flow is recycled to 33 large volume uses. The use of rain sensor devices is imposed through the City's DRC process. Additionally, reclaimed water use is strongly encouraged and is also often imposed as a condition of development approval. The City will continue its efforts to promote conservation and the use of reclaimed water as an alternative water supply.

Capital Improvements projects:

In September 2006, Seacoast entered into a Service Area Agreement (R2005-1769) with Palm Beach County defining the service area boundary between the two providers. Delineation of the service area boundary was intended to eliminate or minimize duplication of facilities, and to provide for the orderly growth, expansion, and extension of respective water, wastewater, and reclaimed water utility systems. The Agreement benefited existing and future Seacoast customers by ensuring the most efficient delivery of public utility services.

The Seacoast Consumptive Use Permit issued by the SFWMD in September 2012 will ensure adequate water supply throughout the service area through 2032. Further, by having implemented the improvements identified in the Lower East Coast Water Supply Plan, 2005-2006 Update, Seacoast has ensured adequate water supply for its service area through 2030, provided that there are no unforeseen impacts on existing and planned supplies.

In addition, the Seacoast system is interconnected with the Town of Jupiter and City of Riviera Beach water utility systems in the event of an emergency shortage. Interconnections are detailed in Table 8 and shown in Map 3. Further, in June 2006, a Utility Bulk Service Agreement (R2006-0687) was executed with Palm Beach County to provide Seacoast with up to 5 MGD of bulk potable water and bulk wastewater service during an initial term of five years. Seacoast has the option to extend the Bulk Agreement for a period of 25 years at the same capacity level.

The Lower East Coast (LEC) 2005-2006 water supply plan recommendeds two major capital improvement projects for the Seacoast water supply system:

- The Hood Road Water Treatment Plant (WTP) project for a 4.00 MGD Floridan reverse osmosis (RO) water treatment plant.

- Conversion of the 30.0 MGD lime-softening treatment capacity at the Hood Road WTP project to 26.0 MGD of nanofiltration treatment capacity. Losses in efficiency from the conversion to nanofiltration would be met by the expanded Floridan wells in the first project.

Both recommendations were placed in service by Seacoast in May 2014 and are fully operational.

Current and projected water supply and recommended projects for consideration by Seacoast are summarized in Table 9. Since these projects are part of the Seacoast capital improvement plan, they are not included in the City's Five-Year Schedule of Improvements.

Table 9
CURRENT AND PROJECTED WATER SUPPLY*

Item	Actual	Projected			
	2005	2015	2020	2025	2030
Population[1]	87,744	90,853	96,794	100,816	103,271
Per Capita (gallons per day finished water)	192	189	189	189	189
Potable Water Demands (daily average annual)	16.85	17.17	18.29	19.05	19.52
Water Source: Volume from Biscayne/Surficial	16.85	21.86[4]	22.30[5]	22.30	22.30
Volume from Floridian[2]	0	0	0.60	1.62	2.24
Volume from Other	0	0	0	0	0
Volume from Reclaimed[3]	0	0	0	0	0
Additional Potable Water Needed	0	0	0	0	0

* Total Seacoast Service Area, including Palm Beach Gardens.
1. Source: Palm Beach County 20-Year Water Supply Work Plan Update, 2015, Table 5.1.
2. Source: Seacoast Utility Authority, 2015. All potable volumes finished water. All water source volumes raw water.
3. Seacoast recycles 90% annual wastewater flow as irrigation water sold to customers in Table 7.
4. All water from Biscayne/Surficial aquifer in 2015; higher differential between finished and raw water (compared to 2010) because Seacoast converted to nanofiltration membrane treatment in May 2014.
5. Maximum daily allocation from Biscayne/Surficial aquifer allowed by SFWMD permit.

REGULATION COMPLIANCE

The proposed water distribution system will be designed to meet the requirements of the following permitting agencies:

- Seacoast Utility Authority
- Palm Beach County Water Utilities Department
- City of West Palm Beach
- Palm Beach County Health Department
- Florida Department of Environmental Protection

Applicant agrees to provide the necessary fire prevention infrastructure and improvements for the proposed development as required by the City of Palm Beach Gardens Fire Code (Code of Ordinance Subpart A – General Ordinances, Chapter 38 – Fire Prevention and Protection, Article III – City of Palm Beach Gardens Fire Code, Sections 38-36 thru 38-91).

Also, proposed development shall comply with the City of Palm Beach Gardens Water Supply Requirements (Code of Ordinance Subpart B – Land Development Regulations, Chapter 78 – Land Development, Article V – Supplementary District Regulations, Division 10 – Subdivisions, Subdivision VII – Potable Water Supply, 78-541 thru 78-543) more particularly described as follows:

Subdivision VII. - Potable Water Supply

Sec. 78-541. - General requirements.

(a) Potable water.

(1) Public water supply not available. When a public water supply main is not accessible to a subdivision, the responsible party shall take necessary action to extend the main or create a private entity for the purpose of providing a water supply system capable of providing for domestic water supply use and fire protection. Extension of the main and connection to the public water system shall be required consistent with standards of the Palm Beach County Health Department or Seacoast Utilities Authority, as may be applicable.

(2) Public water supply available. When a public water supply main is accessible, the applicant shall install adequate water supply facilities, including fire hydrants, subject to the specifications of Seacoast Utilities and the Palm Beach County Health Department.

(b) Extensions. Water supply main extensions shall be consistent with the extension policy of Seacoast Utilities Authority.

(c)Location of improvements. The location of all fire hydrants and all water supply improvements shall be shown on the utilities construction plans.

(d)Cost of installation. The cost of installing fire hydrants and water supply

improvements shall be borne by the responsible party. The estimated costs of installation shall be included in the surety to be furnished by the responsible party.

Sec. 78-542. - Individual wells.

In residential projects with a minimum lot size of one acre, excluding roads, drainage, and utility easements, and where a public water supply system is not available, individual wells may be used to provide an adequate supply of potable water supply to each lot. Individual wells shall be approved by the Palm Beach County Health Department or as otherwise required by state law. Approvals by the health department of individual wells shall be submitted to the city prior to plat approval. Individual wells shall not be permitted as a source of water supply in nonresidential subdivisions.

Sec. 78-543. - Fire protection water supply.

(a)Fire protection water supply. The water supply system of the subdivision shall be designed and constructed to satisfy both the domestic potable requirements and the fire protection requirements in effect at the time of subdivision plan or plat review.

(b)Residential fire hydrants.

(1)Connections. Hydrants located within single-family and duplex or two-family residential subdivisions shall be connected to water mains at least eight inches in diameter. Connection to dead-end stubs may be acceptable, providing the required fire flow can be achieved.

(2)Spacing. In no case shall residential hydrant spacing exceed 500 feet, measured along the roadway. Buildings intended for occupancy shall not be located more than 250 feet in distance from the nearest hydrant.

(c)Nonresidential and multifamily residential requirements.

(1)Connections. The hydrant shall connect to water mains of adequate size, as determined by the city engineer, to meet the design flow demand.

(2)Spacing. Hydrants located in commercial, multifamily, industrial, or other nonresidential areas shall be spaced no further than 300 feet apart as measured along the roadway.

A conceptual fire hydrant layout with the required level of detail will be provided during the time of site plan review.

LEVEL OF SERVICE ANALYSIS

Currently there are no facilities servicing the site and thus there is no existing domestic water level of service. The proposed development generates substantially more water

demand than the potential demand generated by the current land use. However, the increased capacity required is currently available as stated in the letter provided by the Seacoast Utility Authority (see attached Exhibit B) which complies with the City's adopted average annual daily potable water consumption level of service standard of 189 gallons per City resident per day.

The peak 24-hour consumption standard (258 gallons per City resident per day), minimum potable water treatment capacity level of service (258 gallons per City resident per day), minimum potable water storage capacity (34.4 gallons per City resident per day) and minimum water pressure (20 psi) standard levels of services are met by the existing Seacoast Utility Authority facilities. Therefore, **the proposed development meets the level of service requirements as adopted in the City's Comprehensive Plan.**

C. ***STORMWATER MANAGEMENT***

GOAL 4.C.1.: PROVIDE ADEQUATE CITY-WIDE DRAINAGE AND STORMWATER MANAGEMENT FOR ALL PROPERTY IN THE CITY.

Objective 4.C.1.1.: Maintain and update the adopted 2002 City of Palm Beach Gardens Stormwater Management Plan in coordination with South Florida Water Management District (SFWMD) and North Palm Beach County Improvement District (NPBCID).

Policy 4.C.1.1.3.: The level of service standard (LOS) for new development will be to have the finished floor above the flooding from a 100-year, 3-day storm with zero discharge, or as permitted by SFWMD, including conveyance and retention/detention designed for a ***3 day/25-year storm*** *for developments greater than or equal to ten (10) acres or for a 1 day/25-year storm for developments less than ten (10) acres in size. Additionally, the LOS for new development shall require that off-site discharges are limited to historic (predevelopment) discharges and retention/detention requirements shall be the first 1" of run-off or 2.5 inches x the percent of impervious area for the project, whichever is greater, if wet storage is utilized and 75% of wet detention, if dry storage is utilized. All of the above shall be in accordance with SFWMD Rules and Regulations, Basis of Review for Environmental Resource Permit (ERP) Applications. The LOS for redevelopment shall conform with the requirements for new development. The minimum LOS for existing development shall be a surface water management system that protects existing finished floor elevations from flooding during a 1-day/100-year storm."*

INTRODUCTION

The Avenir property is comprised of 4,763 +/- acres of agricultural land situated north of Northlake Boulevard, west of Palm Beach County General Aviation Airport, south of Beeline Highway (SR710) and east of the Mecca Farms property and the Acreage. The site, for the last 50 years, has had various agricultural uses including farming and silviculture. Currently the site is being used for cattle grazing and production. These various agricultural uses have required significant changes to the site's natural drainage patterns through the construction of ditches, culverts and water control structures.

The existing surface water management system for the site consists of drainage ditches interconnected with culverts with flashboard risers. Surface water runoff is conveyed to a primary collector ditch located along the east boundary of the site and flows north along the east boundary to the north property line then to the west along the north property line until it reaches the existing control structure adjacent to the C-18 Canal. The existing water control structure at the northwest corner is set at 18.3' NGVD. The result of the existing agricultural drainage system is the accelerated removal of rainfall and accumulated surface water from the site when compared to a natural system. The consequence from this accelerated drainage is altered hydroperiods for all of the natural systems on the site with a hydroperiod being defined generally as the time period where water is present at or very near the ground surface.

EXISTING FACILITIES

The property is currently being used for farming purposes and there are several drainage ditches which direct the surface water management runoff to the existing outfall structure located at the northwest corner of the property (60" flashboard riser discharging to the C-18 canal). Please refer to the attached Existing Drainage Facilities Plan (Exhibit "D") for the primary ditch and outfall location, along with the current overland runoff flow direction.

PROPOSED SURFACE WATER MANAGEMENT IMPROVEMENTS

The proposed surface water management system will consist of a series of cascading basins within the developed area which will discharge into two cascading basins within the preservation and restoration areas. Water quality treatment will be designed to detain a minimum volume of 1.5 inches of runoff, a volume of 3.75 times the percent of impervious area, or the most stringent criteria for nutrient management or removal as defined by the City of Palm Beach Gardens, The South Florida Water Manage District, or the Florida Department of Environmental Protection. The developed area's stormwater management system will also provide for attenuation of runoff from storm events including protection of interior roadways, buildings, and the adjacent areas and will be designed to recover their storage capacity within the appropriate regulatory timeframes. Water quantity storage will be provided for the following design rainfall events:

- 5-year 1-day (parking areas)
- 10-year 1-day (roads)
- 25-year 3-day (minimum perimeter elevation)
- 100-year 3-day (minimum finish floor elevation)

Additionally, the preservation and restoration area will be designed to increase the stage and duration of the site's natural hydroperiod to:

1. increase groundwater recharge both to the site and the regional aquifer
2. improve the water quality for the downstream receiving areas
3. provide a key missing link for wildlife corridors and regional trail systems
4. provide for improvement and long term protection for wildlife habit

Stormwater runoff will be treated within the developed areas prior to discharge to the conservation area and will ultimately discharge to the SFWMD C-18 canal. The control elevation of the conservation area will be raised to restore the natural hydroperiod.

SURFACE WATER MANAGEMENT CALCULATIONS

For the purposed of establishing compliance with the City's adopted comprehensive plan level of service please refer to the preliminary surface water management calculations prepared by Jonathan T. Ricketts, P.E.

FEDERAL EMERGENCY MANAGEMENT AGENCY - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

The subject site is located within "Zone B" according to FIRM Panel 50 of 245 (Community Panel No. 120192 0050 B). FEMA defines Zone B as Moderate flood hazard areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood. These areas usually the area between the limits of the 100-year and 500-year floods. "B" Zones are also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100- year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.

REGULATION COMPLIANCE

The proposed surface water management system will be designed to meet the stormwater management requirements of the South Florida Water Management District Basis of Review, the City of Palm Beach Gardens, the Army Corps of Engineers the Florida Department of Environmental Protection and any other applicable permitting agency with jurisdiction over the proposed work.

LEVEL OF SERVICE ANALYSIS

The site is vacant and thus there is no existing level of service for the stormwater management system. The proposed development stormwater management system will provide enough wet detention, dry retention/detention to meet the water quality and quantity requirements set forth by the City's adopted level of service listed below:

- *Finished floor above the flooding from a 100-year, 3-day storm with zero discharge, or as permitted by SFWMD.*
- *Conveyance and retention/detention designed for a 3 day/25-year storm for developments greater than or equal to ten (10) acres.*
- *Off-site discharges are limited to historic (pre-development) discharges and retention/detention requirements shall, at a minimum, provide the first inch and a half of runoff, 3.75 inches times the percentage of impervious area of the project, or the volume required for nutrient management with the most stringent criteria applying as defined by the City of Palm Beach Gardens, the South Florida Water Management District, or the Florida Department of Environmental Protection.*

All of the above shall be in accordance with SFWMD Rules and Regulations, Basis of Review for Environmental Resource Permit (ERP) Applications. Please refer to the attached surface water management calculations which demonstrate that **the proposed development meets the level of service requirements as adopted in the City's Comprehensive Plan.**

E. SOLID WASTE

GOAL 4.B.1.: PROVIDE ACCESS TO SOLID WASTE MANAGEMENT AND DIS-POSAL FACILITIES FOR THE CITY OF PALM BEACH GARDENS THROUGH THE PLANNING PERIOD OF THE YEAR 2012 AND BY EXTENSION TO YEAR 2017.

Objective 4.B.1.1.: The City will continue to acquire and compile the solid waste background data to quantify solid waste generation rates and types by land use and population. Data will be made available to the Solid Waste Authority.

Policy 4.B.1.1.1.: The minimum Level of Service for the City, as recommended by the Waste Management, Inc. and Palm Beach County Solid Waste Authority (PBCSWA) is as follows:

1. *Provide biweekly residential solid waste collection service.*
2. *Provide residential vegetative waste collection service.*
3. *Provide residential bulk waste collection service.*
4. *Provide residential recycling collection service.*
5. *Provide collection of non-residential solid waste.*
6. *Require subscription for collection service to residential and non-residential.*
7. *Provide regulations to enforce the utilization of tarps to cover trash loads.*

INTRODUCTION

Solid waste disposal and recycling services are being provided by The Solid Waste Authority of Palm Beach County ("SWA"). There are no anticipated hazardous waste materials to be generated within the Avenir project. According to SWA, has disposal capacity available to accommodate the proposed development.

EXISTING AND PROPOSED WASTE MANAGEMENT FACILITIES

SWA operates the North County Landfills with an estimated 19,185,183 cubic yards of landfill capacity remaining. In addition, the Authority has contracted for the construction of a second Waste-to-Energy facility projected to begin operations in 2015.

WASTE GENERATION CALCULATIONS

The projected average daily volume of solid waste to be generated by the subject site is as follows:

PROJECTED SOLID WASTE VOLUMES

Land Use Category	Unit	Generation Rate (lbs/unit/day)	Tons/Day	Cubic Yards/Day
Single Family Residential	3,735 Dwelling Units	10.90	20.36	257.86
Townhome Residential	250 Dwelling Units	10.90	1.36	17.26
Commercial (see note 3)	400,000 S.F.	0.2000	4.00	50.65
Medical Office	200,000 S.F.	0.0126	1.26	15.96
Professional Office	1,800,000 S.F.	0.0148	13.32	168.61
Hotel (see note 2)	300 Rooms (Approx. 80,000 S.F.)	3.00	0.45	5.70
Park	20,000 S.F. Recreational Facility (55 Ac. Parcel land dedication)	0.03	0.32	4.09
Police/Fire/City Annex (see note 5)	40,000 S.F. Facility (8 Ac. Parcel land dedication)	0.007	0.14	1.77
Golf Course	15,000 S.F. Recreational Facility (60 Ac. Parcel land dedication)	0.03	0.24	3.07
Public School (see note 4)	600 Students (K-6) (15 Ac. Parcel land dedication)	1.00	0.30	3.80
TOTAL =			**41.76**	**529.78**

Conversion factors:

Mixed Municipal Solid Waste: 1 cubic yard= 157.94 lbs per SWA study
1 ton = 2,000 lbs

Notes:

1. Generation rates provided by Marc C. Bruner from SWA of Palm Beach (see attached Exhibit E), except as noted.
2. Hotel generation rates were obtained from the average recommended by the State of California study attached (See Exhibit E).
3. Used shopping center rate.
4. School and university generation rates were obtained from the average recommended by the State of California study attached (see Exhibit E).
5. Police/Fire/City Annex generation rates were obtained from the average recommended by the State of California study attached (See Exhibit E).

IMPROVEMENTS/EXPANSIONS ALREADY PROGRAMMED OR NEEDED AS A RESULT OF THE PROPOSED AMENDMENT

The Solid Waste Authority of Palm Beach has contracted for the construction of a second Waste-to-Energy facility projected to begin operations in 2015 which will significally extend the useful life of the landfill.

LEVEL OF SERVICE ANALYSIS

Currently there are no facilities servicing the site and there is no generation of solid waste on a weekly basis, there is no current solid waste level of service. The current standard for waste generation for the City of Palm Beach Gardens is 7.13 lbs per day per capita. The waste generation rate used to analyze the level of service was 10.90 lbs per day per capita as per SWA estimates.

The proposed development generates substantially more solid waste than the potential waste generated by the current land use. However, the increased landfill capacity required is currently available as stated in the letter provided by the Solid Waste Authority of Palm Beach (see attached Exhibit "E") which complies with the City's adopted level of service standard. Therefore, **the proposed development meets the level of service requirements as adopted in the City's Comprehensive Plan.**

EXHIBIT "A"

INTERLOCAL AGREEMENT BETWEEN PALM BEACH COUNTY AND SEACOAST UTILITY AUTHORITY FOR THE PURCHASE AND SALE OF BULK POTABLE WATER AND WASTEWATER SERVICE

ATTN: MARK FALLON, PBC WATER UTILITIES DEPT
CONTRACT MGMT, 8100 FOREST HILL BLVD.
WEST PALM BEACH, FL 33413
CHARGE # 1023 RETURN VIA WILL CALL BOX 133

A-060322.1

CFN 20060244861
OR BK 20252 PG 0259
RECORDED 04/26/2006 12:19:32
Palm Beach County, Florida
Sharon R. Bock, CLERK & COMPTROLLER
Pgs 0259 - 269; (11pgs)

R2006 0687

INTERLOCAL AGREEMENT BETWEEN PALM BEACH COUNTY AND SEACOAST UTILITY AUTHORITY FOR THE PURCHASE AND SALE OF BULK POTABLE WATER AND WASTEWATER SERVICE

THIS AGREEMENT made and entered into this _____ day of APR 18 2006, 2006, by and between **PALM BEACH COUNTY**, a political subdivision of the State of Florida (hereinafter "County"), and the **SEACOAST UTILITY AUTHORITY**, a separate legal public entity created pursuant to the provisions of chapter 163, Florida Statutes (hereinafter "Authority").

WITNESSETH

WHEREAS, Section 163.01, Florida Statutes, known as the "Florida Interlocal Cooperation Act of 1969," authorizes local governments to make the most efficient use of their powers by enabling them to cooperate with other localities on a basis of mutual economic, population and other factors influencing the needs and development of local communities; and

WHEREAS, the Authority wishes to purchase bulk Potable Water and Wastewater Service from the County for the benefit of Authority customers; and

WHEREAS, the County wishes to sell to the Authority bulk Potable Water and Wastewater service pursuant to the terms and conditions of this Agreement; and

WHEREAS, to encourage and facilitate conservation of water resources and prevent duplication of Potable Water and Wastewater service delivery systems, the parties desire to enter into this Agreement.

NOW THEREFORE, for and in consideration of these premises, the mutual undertakings and agreements herein contained and assumed, County and Authority hereby covenant and agree as follows:

1. The foregoing statements are true and correct.

2. Term. Notwithstanding the Effective Date, the Initial Term of the Agreement shall commence on the Service Initiation Date and extend for a period of up to five (5) years. Should the Authority exercise the Long Term Option as discussed in Article 10 below, this Agreement shall extend for an additional term of twenty-five (25) years, for a total of up to thirty (30) years.

3. Effective Date. This Agreement shall become effective upon approval by both parties. The Effective Date of this Agreement shall be the date the Agreement is ratified by the County.

4. Definitions. The following definitions and references are given for the purpose of interpreting the terms as used in this Agreement and apply unless the context indicates a different meaning:

(a) "Authority's Potable Water System" – the system owned and/or operated by the Authority for the production and distribution of Potable Water within the Authority's Potable Water Service Area, said system being located on the Authority's side of the various Potable Water Points of Connection.

(b) "Authority's Wastewater System" – the system owned and/or operated by the Authority for the collection and pumping of Wastewater within the Authority's Wastewater Service Area, said system being located on the Authority's side of the various Wastewater Points of Connection.

(c) "Average Daily Flow" – for purposes related to Potable Water service, the average daily flow rate of Potable Water collectively measured through all Potable Water Points of Connection. The Average Daily Flow rate for Potable Water is calculated by dividing the total amount of Potable Water flowing through the Potable Water Points of Connection in any one calendar year by the number of days in that same calendar year. For purposes related to Wastewater Service, the average daily flow rate of Wastewater collectively measured through all Wastewater Points of Connection. The Average Daily Flow rate for Wastewater is calculated by dividing the total amount of Wastewater flowing through the Wastewater Points of Connection in any one calendar year by the number of days in that same calendar year.

(d) "Capacity Fee" – a one-time fee to be paid by the Authority to the County for permanent Potable Water and Wastewater system capacity should the Authority exercise the Long Term Option. The Potable Water Capacity Fee shall be based upon the Potable Water Average Daily Flow, expressed in gallons per day, that the Authority desires to reserve in the County's Potable Water System under the Long Term Option. The Wastewater Capacity Fee shall be based upon the Wastewater Average Daily Flow, expressed in gallons per day, that the Authority desires to reserve in the County's Wastewater System under the Long Term Option.

(e) "Commodity Fee" – a fee to be paid by the Authority to the County on a monthly basis during both the Initial Term and Long Term of this Agreement. The Water Commodity Fee is intended to recover the County's cost of producing and supplying Potable Water to the Authority at the various Potable Water Points of Connection, and is charged per one thousand (1,000) gallons of measured Potable Water delivered by County to the various Potable Water Points of Connection. The Sewer Commodity Fee is intended to address the County's cost of receiving, pumping, treating and disposing of Wastewater delivered to County at the various Wastewater Points of Connection, and is charged per one thousand (1,000) gallons of measured

Wastewater delivered by the Authority to the County to the various Wastewater Points of Connection.

(f) "County's Potable Water System" – the system owned and/or operated by the County for the production and distribution of Potable Water to customers of the County, said system being located on the County's side of the various Points of Connection and including all Potable Water meters and related appurtenances located at the various Potable Water Points of Connection.

(g) "County's Wastewater System" – the system owned and/or operated by the County for the collection and pumping of Wastewater within the County's Wastewater Service Area, said system being located on the County's side of the various Wastewater Points of Connection.

(h) "Initial Term" – a period of time commencing on the Service Initiation Date and extending for a period of up to five (5) years.

(i) "Long Term" – a period of time commencing upon completion of the Initial Term and extending for a period of twenty-five (25) years.

(j) "Long Term Option" – the permanent reservation of County Potable Water and/or Wastewater system capacity to be made by the Authority at its sole option at the end of the Initial Term.

(k) "Points of Connection" – locations where the County's Potable Water System is connected with the Authority's Potable Water System and where County's Wastewater System is connected with the Authority's Wastewater System, all as mutually agreed by the parties. The County's Potable Water System and the County's Wastewater System shall be defined to include the master Potable Water and Wastewater meters and related appurtenances located at each Point of Connection, with said master meters being utilized for the measurement and payment of Potable Water and Wastewater Service purchased by Authority.

(l) "Potable Water" – water for human consumption which meets all applicable Federal, state and County standards.

(m) "Price Index" is defined to be one-half of the Gross Domestic Product Implicit Price Deflator as published by the United States Department of Labor, Bureau of Labor Statistics Data, Water and Sewerage Maintenance ("Gross Domestic Product Implicit Price Deflator"), or three percent (3%), whichever is less as measured on an annual basis using the most recently-published data as of the date of application.

(n) "Wastewater" – Liquid and water-carried industrial, domestic, medical, food, superfluous solid, gaseous material, holding tank or other wastes from dwelling units, commercial establishments, and/or manufacturing facilities, whether treated or untreated, as defined in the County's UPAP.

(o) "Service Initiation Date" – for Potable Water service, the date the County begins providing Potable Water to Authority at the Potable Water Point(s) of Connection. For Wastewater service, the date the County begins providing Wastewater service to Authority at the Wastewater Point(s) of Connection.

(p) "UPAP" – the Uniform Policies and Procedures Manual of the Palm Beach County Water Utilities Department as may be amended from time to time.

5. Scope of Agreement County agrees to furnish, and Authority agrees to purchase, Potable Water at the Points of Connection in accordance with the terms and conditions of this Agreement. County also agrees to accept, and Authority agrees to purchase and convey, Wastewater to the Points of Connection in accordance with the terms and conditions of this Agreement.

6. System Pressure The water pressure of Potable Water delivered by the County to the Potable Water Points of Connection shall be a minimum of 50 psi at all times, with an expected water pressure of between 50 and 75 psi depending upon water demand conditions. Static pressure (zero flow from Authority) within the County's Wastewater System at the Wastewater Point of Connection shall not exceed 50 psi.

7. Potable Water Service The County shall provide the Authority with Potable Water at varying flow rates required by the Authority, not to exceed an Average Daily Flow of five million (5,000,000) gallons per day during the Initial Term of this Agreement. The initial Potable Water Commodity Fee shall be $1.45 per thousand gallons delivered to the Points of Connection. The Potable Water Commodity Fee shall be increased annually upon execution of the Long Term Option by the Authority and annually thereafter by the Price Index. Further, the Potable Water Commodity Fee shall be retained at the lowest fee charged to similarly-situated County customers receiving bulk Potable Water service for agreements dated on or after the date of this Agreement.

8. Wastewater Service Authority may deliver, and County shall accept varying Wastewater flow rates required by the Authority, not to exceed Average Daily Flow rate of five million (5,000,000) gallons per day, during the Initial Term of the Agreement. The initial Wastewater Commodity Fee shall be $1.22 per thousand gallons delivered to the Points of Connection. The Wastewater Commodity Fee shall be increased annually upon execution of the Long Term Option by the Authority and annually thereafter by the Price Index. Further, the Wastewater Commodity Fee shall be retained at the lowest fee charged to similarly-situated County customers receiving similar bulk Wastewater service for agreements dated on or after the date of this Agreement.

9. Annual Carrying Cost During the Initial Term of this Agreement and for up to three years in accordance with the Long Term Option as defined in 10(v) , the Authority shall pay to County an amount reflecting the carrying cost of County potable water and wastewater system capacity. At the initiation of the Initial Term and annually thereafter throughout the Initial Term, the Authority shall notify the County in writing as to the amount of Potable Water and

Wastewater capacity, expressed on an Average Daily Flow basis in ten thousand gallon per day increments, it is interested in reserving for the subsequent twelve (12) month period. With said notice, and annually thereafter, the Authority shall pay at the beginning of the twelve-month period an Annual Carrying Cost Fee of $0.11 per gallon for each gallon Potable Water capacity it has requested to reserve. The Authority shall also pay an Annual Carrying Cost Fee of $0.09 per gallon for each gallon of Wastewater capacity it has requested to reserve.

At the end of each 12-month period, the Authority shall pay an additional Potable Water Annual Carrying Cost Fee of $0.11 per gallon if actual Average Daily Flow measured over that 12-month period exceeded the potable water Average Daily Flow reserved. The Authority shall also pay an additional Wastewater Annual Carrying Cost Fee of $0.09 per gallon if actual Average Daily Flow measured over that 12-month period exceeded the wastewater Average Daily Flow reserved.

The Annual Carrying Cost Fee shall remain fixed during the Initial Term of this agreement, and, upon execution of the Long Term Option by the Authority, shall be increased annually thereafter by the Price Index. Further, the Annual Carrying Cost Fee shall be retained at the lowest fee charged to similarly-situated County customers receiving similar bulk Wastewater service for agreements dated on or after the date of this Agreement.

10. Long Term Option At its sole option, the Authority shall notify the County, in writing anytime prior to six months of the end of the five-year Initial Term, of the Authority's intention to exercise the Long Term Option. Such notice shall contain the following items: (i) the permanent reservation of Potable Water system capacity expressed in gallons of potable water on an Average Daily Flow basis; (ii) the permanent reservation of Wastewater system capacity expressed in gallons of wastewater on an Average Daily Flow basis; (iii) the date upon which permanent County Potable Water capacity is requested, not later than five years following the Service Initiation Date; (iv) the date upon which permanent County Wastewater capacity is requested, not later than five years following the Service Initiation Date, and (v) a timeline not to exceed three years in length as to when specific quantities of Potable Water capacity and Wastewater capacity, as defined by Average Daily Flow, will be permanently reserved by the Authority. The quantities of Potable Water and Wastewater service to be reserved by the Authority shall be in one hundred thousand gallon per day increments subject to the limitations below.

Under the Long Term Option, the Average Daily Potable Water Flow rate to be reserved by the Authority shall be up to five million (5,000,000) gallons per day and the Average Daily Wastewater Flow rate to be reserved by the Authority shall be up to five million (5,000,000) gallons per day. During the Long Term Option, measured Potable Water on any single day shall not exceed 1.33 times the Potable Water capacity reserved by the Authority. During the Long Term Option, measured Wastewater on any single day shall not exceed 1.33 times the Wastewater capacity reserved by the Authority. If the Authority exceeds 1.33 times the reserved Potable Water Capacity on any given day as determined by an examination of metering records at the Points of Connection, the Authority shall pay 150 percent of the then current potable water Commodity Fee for all such excess use. If the Authority exceeds 1.33 times the reserved Wastewater Capacity on any given day as determined by an examination of metering records at

the Points of Collection, the Authority shall pay 150 percent of the then current wastewater Commodity Fee for all such excess use. The County shall not be considered in default of Section 6 of this agreement regarding the maintenance of minimum system and static pressures on those days if the Authority exceeds 1.33 times the reserved Potable Water Capacity.

The Authority shall pay the County a bulk Potable Water Capacity Fee of $2.84 per gallon of Potable Water System capacity and a bulk Wastewater Capacity Fee of $2.33 per gallon of Wastewater System capacity. The Authority shall be required to pay all applicable Capacity Fees three months prior to commencement of the Long Term Option. However, if the Authority elects to purchase permanent capacity over a three year period in accordance with 10(v) defined above, it shall pay Capacity Fees at the beginning of each 12-month period in said schedule. The Authority shall also continue to pay Carrying Costs at the beginning of each 12-month period on any permanent capacity amounts defined in 10(i) and 10(ii) for which Capacity Fees have not yet been paid.

At any time during the three year period defined in 10(v) above, potable water and wastewater Capacity Fees may be increased by the County at its sole discretion in accordance with the general level of Potable Water and Wastewater connection fee increases affecting County retail customers, if any such increases have been implemented during the Initial Term or subsequent 10(v) period. Notwithstanding the foregoing, Capacity Fees shall be held fixed at the amounts defined above for that portion of permanently reserved Potable Water and Wastewater capacity represented by the maximum Potable Water and Wastewater capacity on which the Authority paid Annual Carrying Costs during the Initial Term.

All other terms of this Agreement shall be applicable to both the Initial Term and the Long Term Option, and shall remain in full force and effect throughout the entire term of this Agreement.

11. Additional Responsibilities of County The County shall provide for the design, construction, operation and maintenance of the County's Potable Water System and Wastewater System, up to and including the Points of Connection located on the west side of Beeline Highway, including the design and construction of any Potable Water and Wastewater meters and related appurtenances. County shall be responsible for the securing of any permits or other approvals necessary to provide Potable Water and Wastewater service to Authority at the various Points of Connection.

12. Additional Responsibilities of Authority The Authority shall comply with all applicable local, State and Federal laws and regulations for the use and sale of Potable Water as well as for the collection and pumping of Wastewater. Authority shall be responsible for the securing of any permits or other approvals necessary to provide Potable Water and Wastewater Service to any customers with the Authority's service area.

13. Water Quality The physical, chemical, and biological quality of the Potable Water delivered by County to Authority at the Points of Connection shall meet all Federal, State and local laws, regulations, and requirements for Potable Water, as may be amended from time to time. Authority shall be responsible for the water quality of the Potable Water once it enters the Authority's Potable Water System. Authority shall be required to perform all testing of the

Potable Water as is required by any and all Federal, State and local laws, regulations, and requirements for Potable Water, as may be amended from time to time.

14. Wastewater Pretreatment The Authority shall ensure that all Wastewater delivered to the County shall meet the County's pretreatment standards, as they may be amended from time to time, at the Points of Connection for Wastewater.

15. Service Areas The Authority and County are currently parties to an agreement, dated September 13, 2005 (County Resolution No. 2005-1769, as recorded in ORB 19366, page 1232 of the public records of Palm Beach County) establishing a service area boundary between the County and Authority for the provision of Potable Water, reclaimed water and wastewater Service (hereinafter "Service Area Agreement"). Said Service Area Agreement, as may be amended from time to time, is incorporated herein by reference, and is not affected in any way by this new Agreement.

16. Water Shortages In the event the South Florida Water Management District or other governmental unit with just cause and authority declares a water shortage, then County shall have the right to restrict service to the Authority by the same percentage, level and/or manner as the County restricts service to customers located within the County limits, and may adjust the Potable Water Commodity Fee in the same manner as rates may be adjusted for customers located within the County limits. This provision shall be applicable during both the Initial Term and Long Term option of this Agreement.

17. Payment of Bills The County will bill the Authority Commodity Fees on a monthly basis. The Authority agrees to pay for all Potable Water and Wastewater Service received from the County and make payments to the County within thirty (30) days from the date the bill is rendered by County. A past due notice will be mailed by County to the Authority after thirty (30) days. If payment has not been received after sixty (60) days from the date of the original bill, service may be disconnected and a one percent (1%) per month interest charge will be assessed on the outstanding balance.

18. County to Maintain Master Meters County agrees to have an annual inspection and report prepared regarding the condition and accuracy of the master Potable Water and Wastewater Service meters. A copy of the annual report on meter inspection shall be furnished to the Authority. The Authority shall have the right to make its own meter inspection, or to have an independent company inspect the metering equipment at any time; provided, however, no such inspection shall be made unless the Authority shall first give the County written notice of the date and time of its intent to have the inspection made, nor shall any such inspection be made prior to twenty-four (24) hours, excluding Saturdays, Sundays, and holidays, subsequent to the receipt of said notice by County. All costs and expenses of the Authority's interim inspection shall be borne by the Authority. If the meter is found not to be in good working order, the County shall reimburse the Authority the cost incurred as a result of the interim inspection. Normal maintenance of the Potable Water and Wastewater master meters shall be performed by County at County's sole cost and expense.

19. Time Period Limitation In Case of Master Meter Inaccuracy Both parties agree that, should a master meter be found to be inaccurate beyond American Water Works Association (AWWA) standards, the meter will be assumed to have been inaccurate since the time of the event failure or since the last meter inspection or for a period of three months, whichever time should be less, and that the following month's billing will be adjusted to show a credit or additional charge to the Authority for that period, based upon the method established in Article 20 herein.

20. Presumed Consumption and Required Payment in Case of Master Meter Inaccuracy Both parties agree, that if at any time a master meter shall be inaccurate with respect to the quantity of consumption by the Authority as provided in Section 19 above, the Authority will pay to the County a daily amount equal to the average consumption of the ninety (90) day period prior to the date the meter became inaccurate multiplied by the rate in effect.

21. Security The parties shall be jointly responsible for security of the combined Points of Connection, including provision of access locking features so that each party can have keyed access to the vault. The combined Points of Connection will be controlled by valves which can be operated by authorized representatives of either the County of the Authority. Only authorized employees of either County or Authority will operate the valves controlling the combined Points of Connection. The County and the Authority shall provide prior notice to each other prior to operating the valves at the Combined Points of Connection.

22. Termination

For Cause: The parties hereto expressly covenant and agree that in the event either party is in default of its obligations herein, the party not in default shall provide to the party in default ninety (90) days written notice to cure said default before exercising any of its rights as provided for in this Agreement. Failure to cure said default within ninety (90) days following notice may be grounds for termination of this Agreement. Termination of this Agreement by either party shall require thirty (30) days prior written notice to the other party prior to the termination date. The parties may mutually agree to extend the time for cure and/or termination.

Without Cause: The Authority may terminate this Agreement at the discretion of the Authority Board without a statement of cause to the County at any time during the term of this agreement with six (6) months written notice.

23. No Transfer of Powers Nothing contained in this Agreement shall be construed to constitute a transfer of powers in any way whatsoever. This Agreement is solely an Agreement to provide services as authorized in Florida Statutes, Chapter 163. The governing bodies for County and Authority shall each maintain all legislative authority with regard to their respective political subdivision. All of the privileges and immunities from liability; exemption from laws, ordinances, and rules; and pensions and relief, disability, workers compensation and other benefits which apply to the activity of officers, agents, or employees of any public agents or employees of any public agency when performing their respective functions within the territorial limits for their respective agencies shall apply to the same degree and extent to the performance

of such functions and duties of such officers, agents, or employees extra-territorially under the provisions of this Agreement.

24. Indemnification County and Authority acknowledge the waiver of sovereign immunity for liability in tort contained in Florida Statutes 768.28, the State of Florida's partial waiver of sovereign immunity, and acknowledge that such statute permits actions at law to recover damages in tort for money damages up to the limits set forth in such statute for death, personal injury or damage to property caused by the negligent or wrongful acts or omissions of an employee acting within the scope of the employee's office or employment. County and Authority agree to be responsible for all such claims and damages, to the extent and limits provided in Florida Statutes Section 768.28, arising from the actions of their respective employees. The parties acknowledge that the foregoing shall not constitute an agreement by either party to indemnify the other, nor a waiver of sovereign immunity, nor a waiver of any defense the parties may have under such statute, nor as consent to be sued by third parties.

25. Force Majeure In the event that the performance of this Agreement by either party to this Agreement is prevented or interrupted in consequence of any cause beyond the control of either party, including, but not limited to, Acts of God or of the public enemy, war, national emergency, allocation of or other governmental restrictions upon the use or availability of labor or materials, rationing, civil insurrection, riot, disorder or demonstration, terrorism, strike, embargo, flood, tidal wave, fire, explosion, bomb detonation, nuclear fallout, windstorm, hurricane, earthquake, or other casualty or disaster or catastrophe or water plan failures and water main breaks, neither party shall be liable for such non-performance.

26. Remedies This Agreement shall be governed by the laws of the State of Florida. Any and all legal action necessary to enforce the Agreement will be held in Palm Beach County. No remedy herein conferred is intended to be exclusive of any other remedy, and each and every such remedy shall be cumulative and shall be in addition to every other remedy given hereunder now or hereafter.

27. Successors and Assigns County and Authority each binds itself and its partners, successors, executors, administrators and assigns to the other party and to the partners, successors, executors, administrators and assigns of such other party, in respect to all covenants of this Agreement. Neither County nor Authority shall assign, sublet, convey or transfer its interest in this Agreement without prior written consent of the other.

28. Waiver The failure of either party to insist on the strict performance of any of the agreements, terms, covenants and conditions hereof shall not be deemed a waiver of any rights or remedies that said party may have to any subsequent breach, default, or non-performance, and said party's right to insist on strict performance of this Agreement shall not be affected by any previous waiver of course or dealing.

29. Severability If any term or provision of this Agreement, or the application thereof to any person or circumstances shall, to any extent, be held invalid or unenforceable by any court of competent jurisdiction, then the remainder of this Agreement, or the application of such terms or provision, to persons or circumstances other than those as to which it is held invalid or

unenforceable, shall not be affected, and every other term and provision of this Agreement shall be deemed valid and enforceable to the extent permitted by law.

30. Notice All notices provided for herein shall be in writing and transmitted by mail or by courier, and, if to Authority, shall be mailed or delivered to Authority at:

Seacoast Utility Authority

4200 Hood Road

Palm Beach Gardens, FL 33410

Attn: Executive Director

And if to County, shall be mailed or delivered to:

Palm Beach County Water Utilities

8100 Forest Hill Boulevard

P.O. Box 16097

West Palm Beach, FL 33416-6097

Attn: Department Director

31. Filing This Agreement shall be filed with the Clerk of the Circuit Court for Palm Beach County.

32. Amendment and Modification This Agreement may only be amended, modified, changed, supplemented, or discharged by an instrument in writing signed by the parties hereto.

33. Entirety of Agreement County and Authority agree that this Agreement and any Exhibits hereto set forth the entire agreement between the parties, and that there are not promises or understandings other than those stated herein. None of the provisions, terms and conditions contained in this Agreement may be added to, modified, superseded or otherwise altered, except by written instrument executed by the parties.

(THE REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK)

IN WITNESS WHEREOF, County and Authority have executed or have caused this Agreement, with the named Exhibits attached, to be duly executed in several counterparts, each of which counterpart shall be considered an original executed copy of this Agreement.

AS TO COUNTY:

R2006 0687
APR 18 2006

ATTEST:

Sharon R. Bock, Clerk and Comptroller

By: _____
Deputy Clerk

(SEAL)

PALM BEACH COUNTY, FLORIDA
BY ITS BOARD OF COUNTY COMMISSIONERS

By: _____
Tony Masilotti, Chairman

APPROVED AS TO FORM AND TO SUFFICIENCY

By: _____
County Attorney

APPROVED AS TO TERMS AND LEGAL CONDITIONS

By: _____
Department Director of Water Utilities

AS TO AUTHORITY:

ATTEST:

By: _____
Andrea Holmes, Deputy Authority Clerk

SEACOAST UTILITY AUTHORITY

By: _____
Donald Noel, President Pro-Tem

APPROVED AS TO FORM AND TO LEGAL SUFFICIENCY

By: _____
Authority Attorney

EXHIBIT "B"

SEACOAST UTILITY AUTHORITY
CAPACITY AVAILABILITY LETTER

Seacoast Utility Authority

Mailing Address:
P.O. Box 109602
Palm Beach Gardens,
FL 33410-9602

November 2, 2015

Mr. Carlos J. Ballbe, P.E.
Ballbe & Associates, Inc.
2737 N.E. 30th Place
Ft. Lauderdale, FL 33306

Re: AVENIR

Dear Mr. Ballbe:

This letter is in response to your September 9, 2015 request for connection fees, capacity reservation fees, and administrative fees based on the rates effective October 1, 2015. The calculations shown below are based on the proposed 3,735 SFU's, 250 Townhomes, 400,000 sf Commercial, 200,000 sf *Medical Office, 1,800,000 sf Professional Office, 300 Room Hotel, 5,000 sf Equestrian Facility, 20,000 sf Regional Park, 40,000 Police/Fire/City Annex, 15,000 sf *Golf Course, and *600 Student Public School. If fountains or irrigation are planned for this project, additional connection fees will be required.

***Medical Office** calculations are currently based on sf, once the actual number of doctors is determined this fee calculation will be updated to reflect said information.
***Golf Course** calculations are currently based on sf classified as a public golf course, if this is a private golf course calculations will be updated to reflect fees based per member.
***Public School** sf is currently not included in this calculation as it will be operated by Palm Beach County School Board. Should this school be considered private the calculations will be updated to reflect fees per student.

The referenced project lies within the water and sewer service area of Seacoast Utility Authority.

FEE SUMMARY

Connection Fees

	Water ERC	Sewer ERC
3,735 Single Family	3,735.000	3,735.000
250 MFU Townhome	178.500	227.500
400,000 sf Commercial	145.454	145.454
200,000 sf Medical Office	72.727	72.727
1,800,000 sf Professional Office	654.545	654.545
300 room Hotel	109.091	109.091
5,000 sf Equestrian Rec Facility	1.818	1.818
20,000 sf Park Rec Facility	7.273	7.273
40,000 sf Police/Fire/Annex	14.545	14.545
15,000 sf Golf Course Rec Facility	5.455	5.455
Total ERC's	4,924.408	4,973.408

4,924.408 ERC's (water) x $ 1,500.00 = $ 7,386,612.00
4,973.408 ERC's (sewer) x $ 1,200.00 = $ 5,968,089.60

Total Connection Fees = $ 13,354,701.60

50% of the connection fees in the amount of $ 6,677,350.50 is due at the time of signing the Developer Agreement. The remaining connection fees are due when the meter is requested.

Capacity Reservation

250 MFU ERC's x $ 408.00 (water & sewer) = $ 102,000.00
4,745.908 ERC's x $ 546.12 (water & sewer) = $ 2,591,835.20

Total Capacity Reservation Fees = $ 2,693,835.20

100% of the capacity reservation fees are due and payable at the time of signing the Developer Agreement.

Administration Fee:

The Administration Fee for this project is $ 534,188.04 (4% of Connection Fees) and is due at the time preliminary plans are submitted for review.

SERVICE CONNECTIONS

Potable Water

Seacoast can provide capacity from either or both of two connection points. **Subject to final land development plan approval and project sequencing, Seacoast anticipates that initial service shall be provided in the manner described as Alternative One below.**

Alternative One is through connection to a 24-inch water main owned by Palm Beach County Water Utilities "PBCWU" and located along the western property boundary (see enclosed exhibit). The enclosed interlocal agreement between Seacoast and PBCWU authorizes Seacoast to bulk purchase up to 5.0 million gallons per day ("MGD") from PBCWU for retail sale within this and other projects. Presently, Seacoast has committed only 0.12 MGD of this capacity, leaving 4.88 MGD uncommitted as of this date.

Alternative Two is direct connection to an existing 24-inch Seacoast water main located north of PGA Boulevard approximately 1 mile west of Florida's turnpike. In this approach, connection charges generated by this project would fund the westward off-site extension of this main along PGA Boulevard, crossing the Beeline Highway and CSX Railroad, and ultimately connecting to the project's water distribution piping network constructed at the developer's expense.

Sanitary Sewage

Seacoast can provide capacity from either or both of two connection points. **Subject to final land development plan approval and project sequencing, Seacoast anticipates that initial service shall be provided in the manner described as Alternative One below.**

Alternative One is through connection to a 20-inch sewage force main owned by Palm Beach County Water Utilities "PBCWU" and located along the western property boundary (see enclosed exhibit). The enclosed interlocal agreement between Seacoast and PBCWU authorizes Seacoast to bulk purchase up to 5.0 million gallons per day ("MGD") from PBCWU for retail sale within this and other projects. Presently, Seacoast has committed only 0.10 MGD of this capacity, leaving 4.90 MGD uncommitted as of this date.

Alternative Two is direct connection to an existing 24-inch Seacoast force main located north of PGA Boulevard approximately 1 mile west of Florida's turnpike. In this approach, connection charges generated by this project would fund the westward off-site extension of this main along PGA Boulevard, crossing the Beeline Highway and CSX Railroad, and ultimately connecting to the project's internal sewage collection and pumping facilities, installed at the developer's expense.

Once the development phasing plan is approved, Seacoast will determine the points of connection from which water and sanitary sewer services will be provided, specifically when and how each connection will be made. Perhaps most important, the following Capacity Utilization Summaries confirm that either of the potable water and sanitary sewer connection alternatives currently offers ample capacity for the project as herein described.

RECLAIMED WATER

While Seacoast presently lacks sufficient available and uncommitted reclaimed water resources to serve this project, wastewater – ultimately reclaimed water - generated by Avenir can be used beneficially within Seacoast's current reclaimed water service basin. Thus, if the project is ultimately connected to the Seacoast-owned sanitary sewage system, the resulting reclaimed water can be applied off-site, in a manner that best serves water resource and environmental needs.

CAPACITY AVAILABILITY

ALTERNATIVE 1 – CONNECTION TO PBCWU PIPELINES, BULK SERVICE AGREEMENT

	Capacity	Committed and In Use	This Project	Balance after this Project
Water	5.00	0.12	1.72	3.16
Sewer	5.00	0.10	1.24	3.66

ALTERNATIVE 2 – CONNECTION TO EXISTING SEACOAST PIPELINES

	Capacity	Committed and In Use	This Project	Balance after this Project
Water	21.09	17.05	1.72	2.31
Sewer	12.00	8.15	1.24	2.60

WATER SUPPLY WELLS

Seacoast does not presently intend to require the dedication of potable water supply well sites on this property.

Prior to initiating any engineering work, please contact John Callaghan at (561) 627-2900 extension 413 to set up a pre-engineering meeting to discuss the water and sewer requirements for this project.

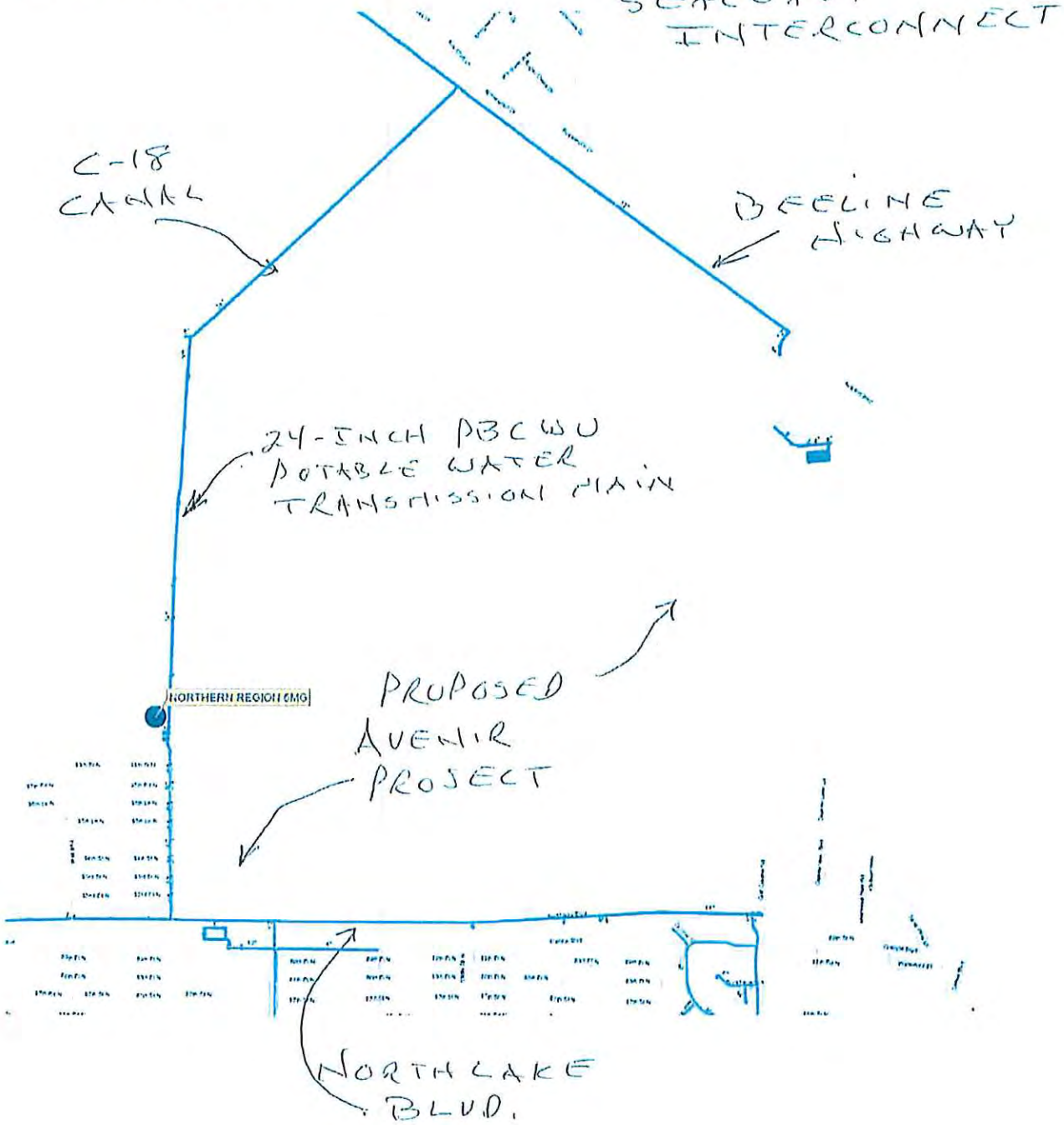
Sincerely,

SEACOAST UTILITY AUTHORITY

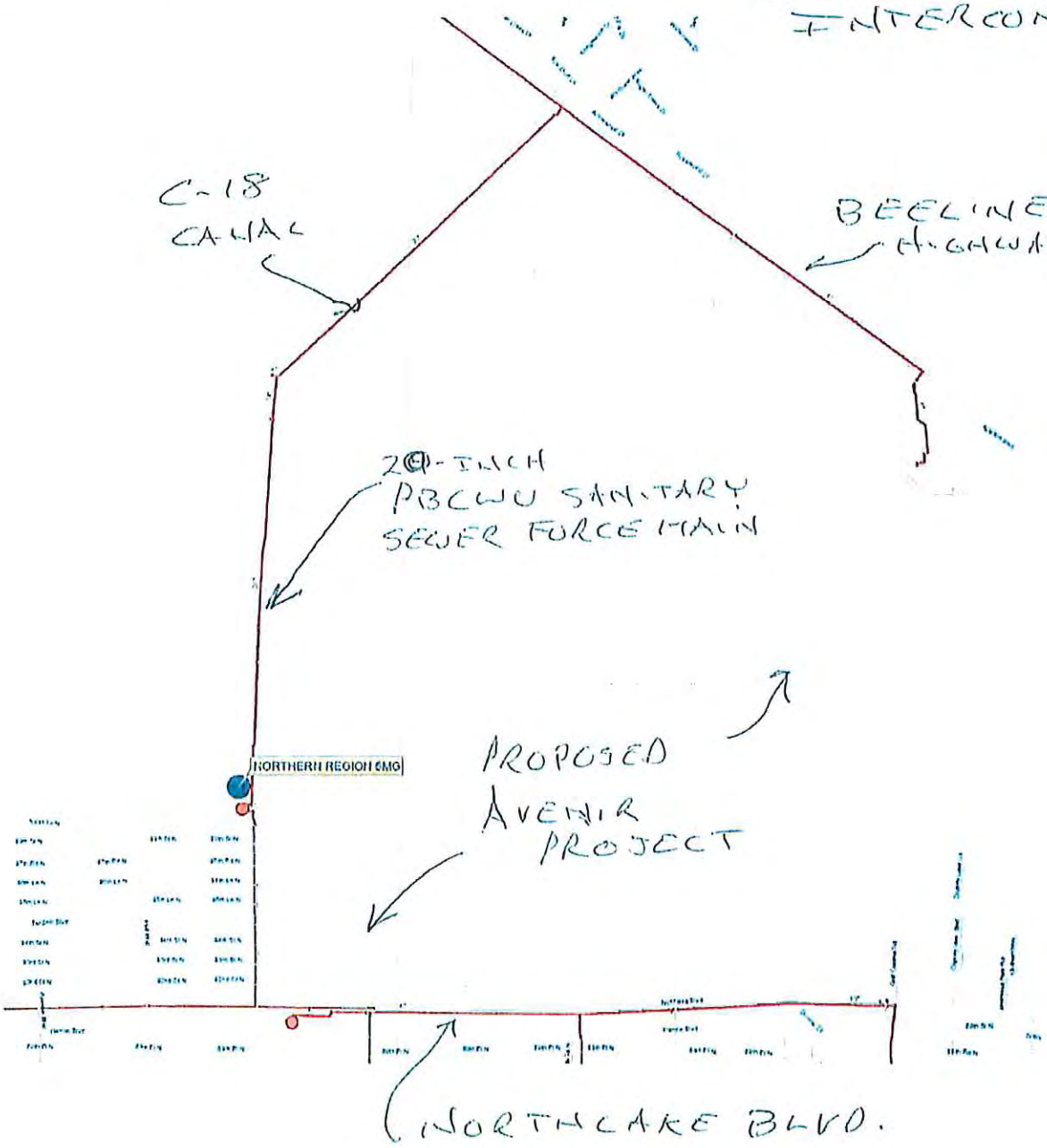
Rim Bishop
Executive Director

cc: J. Millette
J. Lance
J. Callaghan

PALM BEACH COUNTY WATER UTILITIES ("PBCWU") WATER MAIN, AVAILABLE FOR SEACOAST INTERCONNECT



PALM BEACH COUNTY WATER UTILITIES ("PBCWU")
SANITARY SEWER FORCE MAIN AVAILABLE FOR
SEACOAST
INTERCONNECT



24" FM
24" WM
24" WM
HUNGRYLAND SLOUGH
BEELINE HIGHWAY
24" FM
20" FM
30" WM
SWEET BAY
N. COUNTY AIRPORT
24" WM
20" FM
S.F.W.M.D. PARCEL
GRASSY WATER PRESERVE
24" WM
20" FM
PBG GOLF COURSE
12" WM
12" WM
NORTHLAKE BLVD.
GRAPEVIEW BLVD.
24" WM
140th AVENUE
20" FM
6" FM
COCONUT BLVD.
6" FM

PROPERTY BOUNDARY LIMITS

WATER MAIN

FORCE MAIN

NORTH

0 2000 4000

Feet

Engineer of Record:
Carlos J. Ballbe'

Reg. Eng. No. 41811
State of Florida

BALLBÉ & ASSOCIATES
Civil Engineering • Planning • Surveying

2737 Northeast 30th Place
Fort Lauderdale, Florida 33306
Phone: (954) 491-7811
Authorization No. EB-26343

EXISTING WATER AND SEWER FACILITIES PLAN

AVENIR

AVENIR HOLDINGS, LLC

AVENIR

EXHIBIT "C"

PALM BEACH GARDENS 10-YEAR WTER SUPPLY FACILITIES PLAN

February
2015

City of Palm Beach Gardens

10-Year Water Supply Facilities Work Plan

TABLE OF CONTENTS

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LIST OF ACRONYMS

DRC – Development Review Committee
EAR – Evaluation and Appraisal Report
SUA – Seacoast Utility Authority (Seacoast)
SFWMD – South Florida Water Management District
LEC – Lower East Coast
MGD – Million Gallons per Day
CUP – Consumptive Use Permit
TAZ – Traffic Analysis Zone
WTP – Water Treatment Plant
GPCD – Gallons Per Capita Per Day
BEBR – Bureau of Economic and Business Research

1.0 INTRODUCTION

The purpose of the City of Palm Beach Gardens (City) Water Supply Facilities Work Plan (Work Plan) is to identify and plan for the water supply sources and facilities needed to serve existing and new development within the local government's jurisdiction. Chapter 163, Part II, Section 163.3177(6)(c)3, *Florida Statutes* (F.S.), requires local governments to prepare and adopt Water Plans into their comprehensive plans within18 months after the South Florida Water Management District (SFWMD or District) approves a regional water supply plan or its update. The Lower East Coast Water Supply Plan Update was approved by the District's Governing Board on September 12, 2013; therefore, the deadline for local governments within the Lower East Coast (LEC) region to amend their comprehensive plans to update the Work Plan is March 12, 2015.

Residents of the City obtain their water from the Seacoast Utility Authority (Seacoast). The City coordinates with Seacoast through the Development Review Committee (DRC) process to ensure that sufficient capacity is available, and Seacoast ensures that supporting infrastructure, such as water lines, are adequately planned for and maintained.

The Work Plan references Seacoast's water projections and the initiatives identified in the LEC Water Supply Plan Update to ensure adequate water supply for the City. According to state guidelines, the Work Plan and the City's comprehensive plan must address the development of traditional and alternative water supplies, service delivery, bulk sales agreements, and conservation and reuse programs that are necessary to serve existing and new development for at least a 10-year planning period. The City's Work Plan has a planning time schedule consistent with the comprehensive plan and LEC Water Supply Plan Update.

The City's Work Plan is divided into six sections:

- Section 1 - Introduction
- Section 2 - Background Information
- Section 3 - Data and Analysis
- Section 4 - Capital Improvements
- Section 5 - Comprehensive Plan Goals, Objectives, and Policies
- Section 6 - Regional Issues Identified in Regional Water Supply Plan

1.1 Statutory History

The Florida Legislature has enacted bills in the 2002, 2004, 2005, and 2011 sessions to address the state's water supply needs. These bills, in particular Senate Bills 360 and 444 (2005 legislative session), significantly changed Chapters 163 and 373, F.S., by

strengthening the statutory links between the regional water supply plans prepared by the water management districts and the comprehensive plans prepared by local governments. In addition, these bills established the basis for improving coordination between the local land use planning and water supply planning.

1.2 Statutory Requirements

The following summary highlights the statutory requirements the City has considered when updating the Work Plan:

1. Coordinate appropriate aspects of its comprehensive plan with the District's Regional Water Supply Plan [163.3177(4)(a), F.S.].

2. Ensure the future land use plan is based on availability of adequate water supplies and public facilities and services [s.163.3177(6)(a), F.S.]. Data and analysis demonstrating that adequate water supplies and associated public facilities will be available to meet projected growth demands must accompany all proposed Future Land Use Map amendments submitted for review. The submitted package must also include an amendment to the Capital Improvements Element, if necessary, to demonstrate that adequate public facilities will be available to serve the proposed Future Land Use Map modification.

3. Ensure that adequate water supplies and facilities are available to serve new development no later than the issuance by the local government of a certificate of occupancy, or its functional equivalent and consult with the applicable water supplier to determine whether adequate water supplies will be available to serve the development by the anticipated issuance date of the certificate of occupancy [s.163.3180(2)(a), F.S.].

4. For local government subject to a regional water supply plan, revise the General Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Aquifer Recharge Element (the "Infrastructure Element") within 18 months after the District approves an update to the regional water supply plan to:

   a. Identify and incorporate the alternative water supply project(s) selected by the local government from projects identified in the updated District Regional Water Supply Plan or the alternative project(s) proposed by the local government under s. 373.709(8)(b), F.S. [s. 163.3177(6)(c), F.S.];

   b. Identify the traditional and alternative water supply projects, bulk sales agreements, and the conservation and reuse programs necessary to meet the water needs identified in the District Regional Water Supply Plan [s. 163.3177(6)(c)3, F.S.]; and

c. Update the Work Plan for a minimum 10-year planning period for constructing the public, private, and regional water supply facilities identified in the element as necessary to serve existing and new development [s.163.3177(6)(c)(3), F.S.].

5. Revise the Five-Year Schedule of Capital Improvements to include any water supply, reuse, and conservation projects and programs to be implemented during the five-year period [s. 163.3177(6)(a)(4), F.S.].

6. To the extent necessary to maintain internal consistency after making changes described in Paragraphs 1 through 5 above, revise the Conservation Element to assess projected water needs and sources for at least a 10-year planning period, considering the District Regional Water Supply Plan, as well as applicable consumptive use permit(s) [s.163.3177(6)(d), F.S.]. The plan must address the water supply sources necessary to meet and achieve the existing and projected water use demand for the established planning period, considering the applicable regional water supply plan [s.163.3167(9), F.S.].

7. To the extent necessary to maintain internal consistency after making changes described in Paragraphs 1 through 5 above, revise the Intergovernmental Coordination Element to ensure coordination of the comprehensive plan with the District Regional Water Supply Plan [s.163.3177(6)(h)1., F.S.].

8. An Evaluation and Appraisal Report (EAR) is not required; however, local governments are encouraged to comprehensively evaluate, and as necessary, update comprehensive plans to reflect changes in local conditions. The evaluation should address the extent to which the local government has implemented the need to update its Work Plan, including the development of alternative water supplies, and determine whether the identified alternative water supply projects, traditional water supply projects, bulk sales agreements, and conservation and reuse programs are meeting local water use demands [s.163.3191(3), F.S.].

2.0 BACKGROUND INFORMATION

2.1 Overview

On March 20, 1959, John D. MacArthur, multimillionaire insurance magnate and landowner, announced plans to develop approximately 4,200 acres and provide homes for 55,000 people in a new community bounded by Plat 4 (Garden Woods) to the north, Northlake Boulevard (Lake Park West Road) to the south, Prosperity Farms Road to the east, and the Florida Turnpike (Sunshine State Parkway) to the west in the north end of Palm Beach County, Florida. Subsequently, a City Charter was approved by the State of Florida on June 20, 1959, and the land was developed under his supervision until his death in 1978.

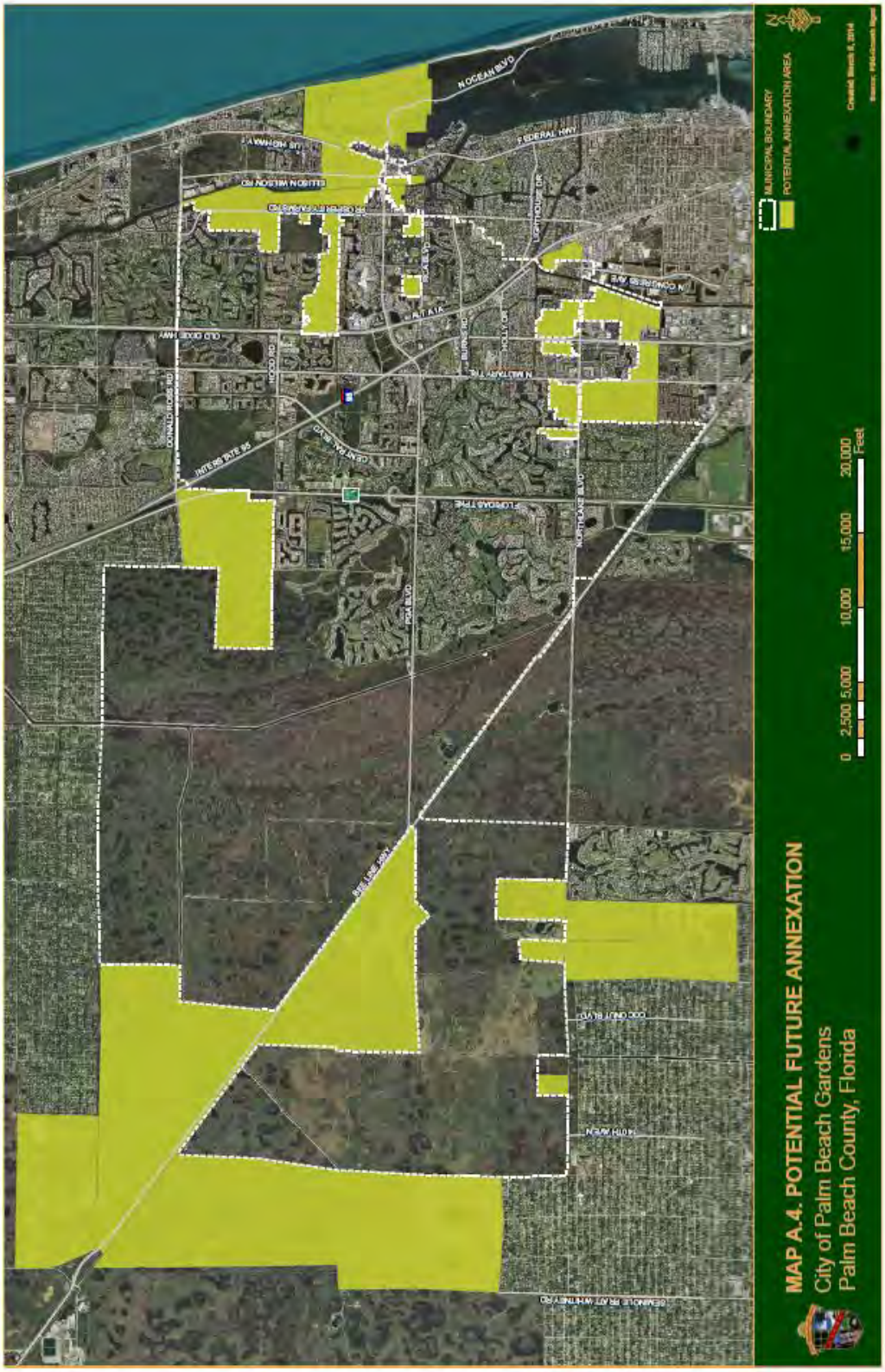
Mr. MacArthur's original name for the city was Palm Beach City. Permission to use that name, however, was denied; so MacArthur, in keeping with his "garden city" plan, decided to name the city Palm Beach Gardens. Mr. MacArthur wanted this new city to be a place to raise a family and earn a living – in essence, to realize the American dream. With this in mind, he set to work designing a garden city from miles of dairy cattle grazing and vacant land.

The City has grown steadily during its fifty-five years in existence. Between 1990 and 2000, the population grew from 22,990 to an estimated 35,058, an increase of approximately three percent annually. In 1999, the John D. and Catherine T. MacArthur Foundation sold approximately 14,000 acres of land in the area, including approximately 5,000 acres within the City. The City Council, entrusted with the responsibility of ensuring quality development, reached an agreement with the purchasers to manage the anticipated new growth. With the sudden land sale by the MacArthur Foundation, the City experienced an increased rate of growth in population from an estimated 35,058 in 2000 to an estimated 49,387 in 2007. Since that time, the City has blossomed to an estimated population of 50,067 in 2014 (Source: BEBR, 2014). Map 1, on Page 7, illustrates the current City boundaries and potential future annexation areas.

2.2 Relevant Regional Issues

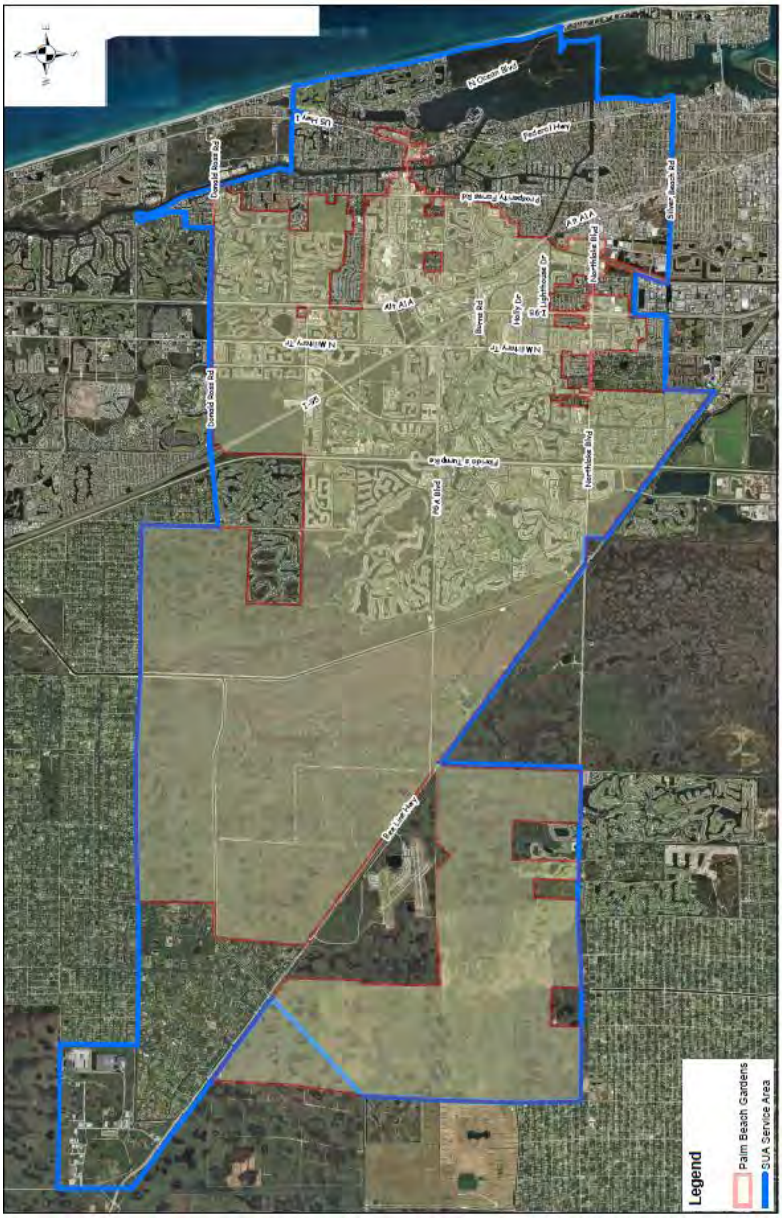
The regional issues and objectives identified for 2030 in the SFWMD Planning Region provide an overall framework for the planning process addressed by the Work Plan:

- Water supply – identify sufficient water resource and water supply development options to meet projected 2030 water demands during a 1-in-10 year drought environment.
- Water conservation and alternative source development – increase levels of conservation, the efficiency of water use, and the development of alternative water resources to meet projected demand.
- Natural systems – protect and enhance the environment, including the Everglades and other federal, state, and locally identified natural resource areas.
- Linkages with local governments – provide information to support local government comprehensive plans.
- Compatibility and linkage with other efforts – achieve compatibility and integration with the following:
  - Comprehensive Everglades Restoration Plan (CERP) and other environmental restoration projects
  - Modifications to operating schedules for the regional system, including Lake Okeechobee
  - Water use permitting processes, minimum flow and level criteria, and water reservations
  - Other regional and local water resource planning efforts (Source: SFWMD Planning Document, Lower East Coast Water Supply Plan Update, 2013).



Map 1. City Boundaries and Potential Future Annexation Areas

In addition to other regional and local water resource planning efforts, the SFWMD plays a pivotal role in resource protection through criteria used for consumptive use permitting. As pressure increased on the Everglades ecosystem resource, the Governing Board of the SFWMD initiated rulemaking to limit increased allocations dependent on the Everglades system. As a result, the Regional Water Availability Rule was adopted by the Governing Board on February 15, 2007, as part of the SFWMD Consumptive Use Permit (CUP) program. This reduced reliance on the regional system for future water supply needs, mandates the development of alternative water supplies and increased conservation and reuse in the Seacoast Utility Service Area (Map 2).



Map 2. Seacoast Utility Authority Service Area

3.0 DATA AND ANALYSIS

3.1 Overview

The City of Palm Beach Gardens does not own or operate its own potable water supply system. Rather, potable water facilities and services are provided by the Seacoast Utility Authority (Seacoast). Seacoast provides potable water to the City of Palm Beach Gardens, as well as unincorporated areas of Palm Beach County and the municipalities of Juno Beach, Lake Park, and North Palm Beach.

All five entities that receive water and services are members of the Seacoast Governing Board. All responsibilities for the withdrawal, treatment, and distribution of potable water to the residents and businesses of Palm Beach Gardens are assumed by Seacoast, including the direct billing of customers. Seacoast requires developers to upgrade the capacity of existing systems, and/or build new systems to meet their needs through the coordinated DRC process. In most cases, upon completion, Seacoast assumes ownership, operation, and maintenance responsibilities of all related systems.

Photo 1. Seacoast Water Tower - Hood Road Facility

Photo 2. Northwest View from Hood Road Elevated Storage Tank

3.2 Existing Conditions

On May 21, 2014, Seacoast placed a new 30.5 MGD membrane treatment facility in service. This will allow Seacoast to decommission and demolish its two lime-softening water treatment facilities on Richard Road (7.5 MGD capacity) and Hood Road (23.0 MGD) later in 2015. The photographs below illustrate the improvements undertaken by Seacoast to implement the LEC Water Supply Plan Update and to address applicable regional issues within the Seacoast Utility Service Area.

2009

Photos 3 & 4. Aerial Views of Richard Road and Hood Road Water Plants, 2009

2015

Photos 5 & 6. Aerial Views of Richard Road and Hood Road Water Plants, 2015

Photo 7. Existing Hood Road Lime-Softening Unit

3.3 Water Source

In 2013, Seacoast withdrew an average of 19.08 MGD of total raw water from the Surficial Aquifer System (SAS) for all customers, including Palm Beach Gardens. Current Seacoast plans will result in the use of both the Surficial and Floridan Aquifer Systems in the future.

Projections of raw water supply and finished water demand from Seacoast's 2012 SFWMD water use permit are presented in Table 1. Projections of finished water demand by expected supply component are presented in Table 2. Both tables include the proposed Scripps Florida Phase II/Briger DRI future water demand.

Table 1

Total Seacoast Current and Projected Water Supply and Demand*

Year	Raw Water Withdrawal (MGD)	Finished Water Demand (MGD)
2010	18.21	17.65
2015**	21.88	17.50
2020	23.33	18.62
2025	24.77	19.69
2030	26.30	20.69

* Demand under average conditions.
** Converted to membrane treatment May 21, 2014; resulted in increased raw water demand.
Source: Seacoast Utility Authority (12/14).

Table 2

Total Seacoast Current and Projected Water Supply by Source (MGD)

Year	Biscayne/Surficial Aquifer	Floridan Aquifer	Total
2010	18.21	0.00	18.21
2015	21.88	0.00	21.88
2020	22.30	1.03	23.33
2025	22.30	2.47	24.77
2030	22.30	3.53	25.83

Source: Seacoast Utility Authority (12/14).

The current 20-year duration Seacoast Public Water Supply consumptive use permit (CUP-50-00365-W) was renewed by the SFWMD in September 2012. This permit authorizes an average-day surficial aquifer allocation of 22.3 MGD, a Floridan aquifer allocation of 8.9 MGD, and expires in 2032.

Raw water is presently drawn from four surficial aquifer wellfields (Hood Road, North Palm Beach, Burma Road, Palm Beach Gardens) and three Floridan aquifer wells located on Seacoast's 40-acre Hood Road administration/water plant site, pursuant to the current CUP. Each of the wellfields has permitted average and maximum daily withdrawal rates established by CUP conditions.

Each wellfield also has protection zones mapped by the Palm Beach County Department of Environmental Resources Management and are protected by the Palm Beach County Wellfield Protection Ordinance. Zones of protection are developed and zone requirements enforced by the Palm Beach County Department of Environmental Resources Management.

The CUP further states that the potential for induced movement of contaminants from known sources of pollution to occur as a result of the withdrawal of the recommended allocation is considered minimal.

Photo 8. Surficial Aquifer Well

3.4 Population Information

As previously stated, between 1990 and 2000, the City's population grew steadily from 22,990 to an estimated 35,058. Between 2000 and 2007, there was a greater annual increase in population due to the sale of 5,000 acres of land by the MacArthur Foundation within the City boundaries and subsequent new development. The recent decline in development activity affected population growth in the City only slightly, and the City enjoys a robust reputation as a desirable place to live and work. Future population projections obtained from the Palm Beach County Planning Division indicate significant growth potential within the planning horizon as the City continues to attract new upscale development and residents within its corporate limits.

Water demand projections supplied by Seacoast include the proposed Scripps Florida Phase II/Briger DRI projects. Projections are based on the Palm Beach County 20-Year Water Supply Work Plan data prepared by the Palm Beach County Planning Division using traffic analysis zone (TAZ) data. Table 3 presents population projections for the City within the Seacoast Service Area.

Table 3

Population Projections

Year	Resident Population Projections		Palm Beach Gardens Share of Service Area
	Seacoast Service Area[1]	Palm Beach Gardens[2]	
2010	87,744	48,440[3]	55.2%
2015	90,853	50,221	55.3%
2020	96,764	55,276	57.1%
2025	100,816	58,354	57.9%
2030	103,271	59,722	57.8%

1. Source: Palm Beach County 20-Year Water Supply Work Plan Update, 2015. Table 5-1.
2. Source: Palm Beach County Planning Division, Population Allocation Model, 2015, unless otherwise noted. Retrieved from: http://www.co.palm-beach.fl.us/pzb/Planning/population/populationproj.htm
3. Source: BEBR, 2014 / U.S. Census.

For planning purposes, Seacoast's service area may be divided into two areas: those east of the east leg of the C-18 Canal and those areas west of the C-18 Canal. The east leg of the C-18 Canal runs north-south from the intersection of the Beeline Highway and Northlake Boulevard from the south, along the western boundaries of Mirasol (within Palm Beach Gardens) and Old Marsh (within unincorporated Palm Beach County) developments through the Loxahatchee Slough.

Most of the service area east of the C-18 Canal has been developed with the exception of the Briger parcel, which has a mixed-use future land-use category with a Bioscience Research Protection Overlay. The Scripps Florida Phase II/Briger DRI is a proposed mixed-use master plan community located on approximately 683 acres south of Donald Ross Road, north of Hood Road, east and west of Interstate 95, and east of the Florida Turnpike. The proposed development program includes 1,600,000 square feet of biotech research and development (Scripps Florida Phase II); 2,400,000 square feet of related biotech/biomedical, pharmaceutical, and ancillary office space and a hotel; 2,700 dwelling units; and 500,000 square feet of retail space.

The Scripps Florida Phase II/Briger DRI has a 30-year build-out timeframe. The phasing schedule and the projected potable water flow are shown in Tables 4 and 5. The Seacoast demand and water supply projections (Tables 1 and 2) consider the Briger DRI long-term water demand.

Included in the area east of the C-18 Canal are some residential units that are not presently served by Seacoast Utility Authority. There are 62 single family units located on North Mary Circle, South Mary Circle, and Dania Drive with private wells. Installation of water mains to serve these homes are not anticipated by the City within this planning horizon. There are 31 units located on Sunset Drive, 88 units located on 40th Trail North, and 6 units located on Brena Lane, where installation of water mains are currently underway. All of these units have been included within the population projections and projected finish water demands shown in Table 6.

Approximately 4,978 acres remain undeveloped in the western area of the City, of which approximately 3,384 acres has a Rural Residential RR-10 land-use designation (one dwelling unit per ten acres) and approximately 1,404 acres has a Rural Residential RR-20 designation (one dwelling unit per twenty acres). Based on this current data, the maximum density on the undeveloped acreage in the western area would be 338 units on the RR10 and 70 units on the RR20 land use, respectively. Seacoast's demand and water supply projections (Tables 1 and 2) consider the potential water demands for the western area at these land-use designations.

Future development west of the C-18 Canal includes potential development of the Vavrus property along the south side of the Beeline Highway, approximately 2.0 miles north of Northlake Boulevard. An application for a planned development has been submitted to the City on the property. The project, however, is in the planning stages, and the Work Plan presents projections considering the Future Land Use category and the total acreage of the remaining undeveloped areas at their current land-use designations. In the event additional future development is allowed in the western area of the City, it will be subject to the concurrency, LOS, and permitting requirements in the Work Plan and required by the City's comprehensive plan.

Table 4

Scripps Florida Phase II / Briger DRI															
Proposed Phasing Plan															
January 2015															
		Phase 2009-2013		Phase 2014-2018		Phase 2019-2023		Phase 2024-2028		Phase 2029-2033		Phase 2034-2039		Total	
Land Use	Gross Acres	Intensity	Density	Intensity	Density	Intensity	Density	Intensity	Density	Intensity	Density	Intensity	Density	Intensity	Density
Biotech R&D (Scripps	70	150,000		250,000		250,000		250,000		250,000		450,000		1,600,000	0
Biotech R&D and Ancillary Uses	100														
Biotech R&D		150,000		150,000		150,000		150,000		150,000		250,000		1,000,000	0
Office		100,000		200,000		200,000		200,000		200,000		300,000		1,200,000	0
Hotel		200,000	300											200,000	300
Residential	452		800		700		700		500					0	2,700
Retail Land Use	56	500,000												500,000	0
Utilities	5													0	0
Total	683	1,100,000	1,100	600,000	700	600,000	700	600,000	500	600,000	0	1,000,000	0	4,500,000	2,700

Table 5

Projected Potable Water Flow Calculations

Potable Water:							
Use	Gross Acreage	Units	x	Flow Rate	=	Total Flow	
Scripps - Biotech	70	1,600,000	S.F.	0.30	gpd/S.F. =	480000	gpd
Briger -Biotech/Ancillary:	100	2,400,000	S.F.				
Office		1,200,000	S.F.	0.15	gpd/S.F. =	180000	gpd
Biotech		1,000,000	S.F.	0.30	gpd/S.F. =	300000	gpd
Hotel		200,000	S.F.	0.15	gpd/S.F. =	30000	gpd
Apartment Site	30	700	Unit	250.00	gpd/Unit =	175000	gpd
FPL Site	3	3,000	S.F.	0.05	gpd/S.F. =	150	gpd
Commercial/Retail	50	500,000	S.F.	0.15	gpd/S.F. =	75000	gpd
Residential Multi-Family	150	1,400	Unit	250.00	gpd/Unit =	350000	gpd
Residential Single Family	100	600	Unit	300.00	gpd/Unit =	180000	gpd
Total Average Daily Flow					=	1770150	gpd
					=	1229.27	gpm
Peak Daily Flow (x 2.50)					=	4425375	gpd
					=	3073.18	gpm

3.5 Public Water Supply Demand Projections and Level of Service Standard

Palm Beach Gardens uses Seacoast's average day generation rate of 189 gallons per capita per day (gpcd) for planning purposes. Seacoast also uses this average day generation rate for planning purposes, which is consistent with the current system-wide usage (i.e., CUP 50-00365-W). Seacoast does not employ a non-residential generation rate; rather, all consumption for planning purposes is expressed on a per capita basis. For the purpose of the Work Plan, the Seacoast generation rate of 189 gpcd is used to project the City's water demands.

Projections of finished water demand for the City are presented in Table 6. Seasonal adjustments were not considered in the 2012 SFWMD Water Use Permit projections and are not included in the table. Current (2015) finished potable water demand is estimated at 9.49 MGD (i.e., resident population of 50,221 residents x 189 gallons per capita per day), representing approximately 55.3% of the total within the Seacoast service area.

It is projected that the City's potable water demand for 2030, using population projections obtained from the Palm Beach County Planning Division (i.e., resident population of 59,722 residents per Table 6) will attain a level of 11.29 MGD by 2030, or approximately 57.8% of the total demand within the Seacoast Service Area. The City will continue coordinating with Seacoast through the DRC process to estimate and project potable water use and needs throughout the entire service area.

Table 6

Palm Beach Gardens Projected Finished Water Demand

Year	Palm Beach Gardens Population Projections	Potable Water Demand (MGD)[3]
	Residents[1]	
2010	48,440[2]	9.16
2015	50,221	9.49
2020	55,276	10.45
2025	58,354	11.03
2030	59,722	11.29

1. Source: Palm Beach County Planning Division, Population Allocation Model, 2015, unless otherwise noted. Retrieved from: http://www.co.palm-beach.fl.us/pzb/Planning/population/populationproj.htm
2. Source: BEBR, 2014 / U.S. Census.
3. Residents x 189 gpcd.

3.6 Conservation and Reuse

Seacoast has included an extensive conservation program as part of its CUP, including the following components:

- Permanent Irrigation Ordinance - Palm Beach County adopted a Water and Irrigation Conservation Ordinance on January 19, 1993. This ordinance, which limits lawn irrigation to the hours of 5 p.m. to 9 a.m., is in effect countywide unless municipalities adopt an irrigation ordinance of their own.

- Xeriscape Ordinance – Section 7.3.1 of the Palm Beach County Unified Land Development Code requires that all new landscape plans promote water conservation by achieving a minimum score on a water conservation point scale.

- Ultra-Low Volume Plumbing Fixtures - All five participating governments within Seacoast have adopted the Standard Plumbing Code, 1994 Edition, as amended, which provides for maximum flow of volumes for various plumbing fixtures in all new construction.

- Water Conservation Rate Structure - on June 1, 1994, Seacoast implanted a rate structure that incorporated inclining block commodity rates. Seacoast has indicated that the rate structure has been successful in encouraging water conservation.

- Leak Detection - Seacoast field personnel area trained to identify leaks using leak detection equipment and techniques. In addition, all accounts are metered, and Seacoast has an active meter testing and change-out program that test all large meters annually for accuracy, and replaces smaller meters on either a “fixed service life” or “maximum mileage” basis.

- Rain Sensor Devices - Currently, all five member governments within Seacoast have code requirements for the installation of rain sensor overrides for new lawn irrigation systems.

- Water Conservation Education Program - Seacoast has an extensive public conservation education program and provides conservation-related pamphlets in its customer lobby.

- Reclaimed Water - Seacoast has been providing wastewater effluent for irrigation purposes since 1978. At present, Seacoast’s entire average daily wastewater flow is committed to active on-line reclaimed water consumers. An inventory of contracts for reclaimed water in the Seacoast service area is presented in Table 7.

Table 7

SEACOAST UTILITY AUTHORITY
RECLAIMED WATER COMMITMENTS
July 24, 2014

SITE	ALLOCATION (MGD)	(GPM)
ACTIVE SITES AS OF 12/18/13		
CLASS A GUARANTEED COMMITMENTS		
Country Club	0.300	208
Eastpointe Golf and Racquet	0.300	208
Eastpointe Homeowners (Briar Lake)	0.100	69
Frenchmans Creek	0.500	347
Mirasol	1.750	1,215
Mariners Cove	0.100	69
Oak Harbour	0.080	56
Old Port Cove	0.200	139
Frenchmans Reserve	0.800	556
The Isles	0.300	208
PGA Boulevard Streetscape	0.040	28
MacArthur (Regional) Center	0.700	486
Old Palm Golf Club (thru same meter as MacArthur allocation below, total 1.8 MGD)	0.800	556
Royale Harbour Condominium	0.040	28
North Palm Beach Country Club	0.300	208
Mirasol Walk	0.055	38
Governors Pointe	0.050	35
Paloma	0.300	208
Waterway Terrace Condominium	0.031	22
Gemini Condominium	0.034	24
Seasons 52 Restaurant	0.055	38
FPL Administrative Complex	0.055	38
FPL Monet Substation	0.004	3
Southampton	0.039	27
Subtotal, Class A Agreements	**6.933**	**4,815**
MACARTHUR SITES		
Abacoa (through ENCON interconnect)	1.000	694
BallenIsles East	0.750	521
BallenIsles West	0.750	521
The Bears Club (through ENCON interconnect)	0.500	347
Old Palm	1.000	694
Subtotal, MacArthur Sites	**4.000**	**2,778**
TOTAL, ACTIVE CLASS A GUARANTEED COMMITMENTS	**10.933**	**7,592**
CLASS A COMMITMENTS, CONTRACTED BUT NOT ON LINE		
Juno Bay Colony	0.080	56
Central Park	0.020	14
Bent Tree	0.060	42
Cimarron Cove	0.050	35

CONTINUED ON NEXT PAGE

TOTAL CLASS A COMMITMENTS, CONTRACTED BUT NOT ON LINE	**0.160**	**146**
ACTIVE CLASS B NON-GUARANTEED CONTRACTS		
Seamark Condominium	0.020	14
Subtotal, Active Class B Agreements	**0.020**	**14**
GRAND TOTAL, SEACOAST RECLAIMED WATER CONTRACTS	**11.113**	**7,752**

Seacoast's PGA Regional Water Reclamation Facility is located in Mirasol within the City limits. The facility has a 12.0 MGD capacity and has a current flow of 8.0 MGD. 100% of the daily flow is recycled to 33 large volume uses. The use of rain sensor devices is imposed through the City's DRC process. Additionally, reclaimed water use is strongly encouraged and is also often imposed as a condition of development approval. The City will continue its efforts to promote conservation and the use of reclaimed water as an alternative water supply.

Photo 9. PGA Regional Reclamation Facility

4.0 CAPITAL IMPROVEMENTS

4.1 Service Area Initiatives

In September 2006, Seacoast entered into a Service Area Agreement (R2005-1769) with Palm Beach County defining the service area boundary between the two providers. Delineation of the service area boundary was intended to eliminate or minimize duplication of facilities, and to provide for the orderly growth, expansion, and extension of respective water, wastewater, and reclaimed water utility systems. The Agreement benefited existing and future Seacoast customers by ensuring the most efficient delivery of public utility services.

The Seacoast Consumptive Use Permit issued by the SFWMD in September 2012 will ensure adequate water supply throughout the service area through 2032. Further, by having implemented the improvements identified in the Lower East Coast Water Supply Plan, 2005-2006 Update, Seacoast has ensured adequate water supply for its service area through 2030, provided that there are no unforeseen impacts on existing and planned supplies.

In addition, the Seacoast system is interconnected with the Town of Jupiter and City of Riviera Beach water utility systems in the event of an emergency shortage. Interconnections are detailed in Table 8 and shown in Map 3. Further, in June 2006, a Utility Bulk Service Agreement (R2006-0687) was executed with Palm Beach County to provide Seacoast with up to 5 MGD of bulk potable water and bulk wastewater service during an initial term of five years. Seacoast has the option to extend the Bulk Agreement for a period of 25 years at the same capacity level.

Table 8

Seacoast Interconnections

Entity	Size (inches)	Capacity (gpm)	Location
Jupiter	16	4,000	SR 811 and Donald Ross Road
Jupiter	10	2,500	US 1 and Ocean Drive
Jupiter	12	3,500	Jog Road and Donald Ross Road
Riviera Beach	12	3,500	Military Trail and Leo Lane

Source: Seacoast Utility Authority, 2014.

INTERCONNECTIONS

Map 3. Seacoast Utility Authority Interconnections

4.2 Work Plan Projects

The Lower East Coast (LEC) 2005-2006 water supply plan recommendeds two major capital improvement projects for the Seacoast water supply system:

- The Hood Road Water Treatment Plant (WTP) project for a 4.00 MGD Floridan reverse osmosis (RO) water treatment plant.

- Conversion of the 30.0 MGD lime-softening treatment capacity at the Hood Road WTP project to 26.0 MGD of nanofiltration treatment capacity. Losses in efficiency from the conversion to nanofiltration would be met by the expanded Floridan wells in the first project.

Both recommendations were placed in service by Seacoast in May 2014 and are fully operational. The LEC Water Supply Plan Update, 2013, recommends the following improvement project for the Seacoast water supply system, which also has been completed (see Table 10).

Reclaimed water development projects.

County	Utility/Entity	Project Count	Project	Completion Date	Total Capital Costs ($M)		Cumulative Distribution Capacity[b] (MGD)		Cumulative Treatment Capacity (MGD)	
					Distribution Project	Treatment Project	2020	2030	2020	2030
Palm Beach	Boca Raton, City of	1.	Recycling of Membrane Concentrate for Reuse Water	2013	$2.00	-	4.25	4.25	-	-
	Boynton Beach, City of	2.	Reclaimed Water Transmission Phase 2 (US 1 Corridor & Cypress Creek)	2014	$2.00	-	1.00	1.00	-	-
		3.	Leisureville Golf Course	2014	$2.00	-	0.65	0.65	-	-
		4.	Seacrest Boulevard Water Line	2013	$0.26	-	0.10	0.10	-	-
	Delray Beach Water & Sewer Department, City of	5.	Reclaimed Water (Area 12A Phase 1 – Barrier Island South, Atlantic Avenue to Casuarina Road, and Gleason Street trunk line)	2013	$1.70	-	0.25	0.25	-	-
		6.	Reclaimed Water (Area 12A Phase 2 and Area 12B Barrier Island South)	2014	$1.20	-	0.25	0.25	-	-
	Palm Beach County Water Utilities Department	7.	Morikami Reclaimed Pump Station	2013	$0.05	-	2.00	2.00	-	-
	Seacoast Utility Authority	8.	Nanofiltration Concentrate Blending for Reuse Water	2013	-	$4.50	-	-	3.00	3.00
	Wellington Public Utilities Department	9.	Phased Reclaimed System Expansions	2011-2030	$0.01	-	1.30	2.90	-	-

Source: Table F-4, LEC Update, 2013.

4.3 Capital Improvements Schedule

Current and projected water supply and recommended projects for consideration by Seacoast are summarized in Table 9. Since these projects are part of the Seacoast capital improvement plan, they are not included in the City's Five-Year Schedule of Improvements. Table 10 is a summary of recommended project improvements undertaken by Seacoast, which have also been completed.

Table 9

CURRENT AND PROJECTED WATER SUPPLY IN MGD*					
Item	Actual	Projected			
	2010	2015	2020	2025	2030
Population[1]	87,744	90,853	96,764	100,816	103,271
Per Capita (gallons per day finished water)	192	189	189	189	189
Potable Water Demands (daily average annual)	16.85	17.17	18.29	19.05	19.52
Water Source: Volume from Biscayne/Surficial	16.85	21.86[4]	22.30[5]	22.30	22.30
Volume from Floridan[2]	0.00	0.00	0.60	1.62	2.24
Volume from Other	0.00	0.00	0.00	0.00	0.00
Volume from Reclaimed[3]	0.00	0.00	0.00	0.00	0.00
Additional Potable Water Needed	0.00	0.00	0.00	0.00	0.00

* Total Seacoast Service Area, including Palm Beach Gardens.
1. Source: Palm Beach County 20-Year Water Supply Work Plan Update, 2015, Table 5.1.
2. Source: Seacoast Utility Authority, 2015. All potable volumes finished water. All water source volumes raw water.
3. Seacoast recycles 90% annual wastewater flow as irrigation water sold to customers in Table 7.
4. All water from Biscayne/Surficial aquifer in 2015; higher differential between finished and raw water (compared to 2010) because Seacoast converted to nanofiltration membrane treatment in May 2014.
5. Maximum daily allocation from Biscayne/Surficial aquifer allowed by SFWMD permit.

Table 10

PROJECT SUMMARY							
Project Description	Alt. Source	Total Capital Costs	Total Design Capacity (MGD)				
			2010	2015	2020	2025	2030
Hood Road WTP RO System – Four Floridan Wells and Two RO Reject Wells[1]	Brackish	$59,000,000	1.60	3.90	5.80	7.30	7.30
Seacoast 4.0 MGD Reclaimed Water Treatment Expansion – 2006 Funded Project[2]	Reclaim	$10,250,600	4.00	4.00	4.00	4.00	4.00

1. Project placed in service in 2014.
2. Project completed in 2006.
Source: Lower East Coast Water Supply Plan, 2005-2006 Update / Seacoast Utility Authority, 2015.

In addition to the LEC recommended capital improvements, a December 2005 engineering evaluation found the existing Hood Road and Richard Road WTPs nearing the end of their useful lives. Lime softening was found to be inefficient in meeting today's drinking water standards, requiring expensive and increasingly difficult to purchase chemicals. Additionally, lime softening cannot successfully treat brackish Floridan aquifer water. Membrane technology (nanofiltration/reverse osmosis) was found to be a more efficient alternative for the renewal and replacement of aging infrastructure. It also allows for the use of brackish Floridan aquifer water, if needed, to meet future water demands with a cleaner recyclable by-product.

In March 2006, the Seacoast Governing Board approved the proposed system improvement of constructing one 30.5 MGD nanofiltration/reverse osmosis plant at the Hood Road WTP and the demolition of the existing lime softening plants at both Richard Road and Hood Road WTPs. This work was completed by Seacoast in 2014.

In addition to the nanofiltration conversion, additional water supply, water storage, and transmission improvements were recommended. Water supply improvements include the addition of three Floridan Aquifer wells at 1500 feet; a raw water main connecting Richard Road, Lilac Street, and Hood Road facilities; and raw water booster pumping facilities at the Hood Road wellfield, Lilac Street, and Richard Road Water Plant sites.

Water storage and transmission improvements include four 2 million gallon ground storage tanks at the Hood Road WTP, one 2 million gallon ground storage tank at the Lilac Street WTP, a finished water main connecting Richard Road and Hood Road facilities, and the addition of miscellaneous pumping and control systems at Richard Road and Lilac Street facilities with an overall project cost of $88 Million. Most project elements are nearing completion or were placed in service by Seacoast in 2014.

Photo 10. Example of Membrane Treatment Facility

5.0 COMPREHENSIVE PLAN GOALS, OBJECTIVES, AND POLICIES

All of the comprehensive plan amendments related to the Work Plan Update are presented below in strikeout and underline.

5.1. Future Land Use

Policy 1.2.1.11.: The City shall coordinate ~~with Seacoast Utility Authority~~ the review of all land use change applications with Seacoast Utility Authority to ensure the availability of adequate water supplies.

Policy 1.2.1.12.: The City shall update the 10-Year Water Supply Facilities Work Plan at the time ~~of the Evaluation and Appraisal Report~~required by Chapter 163, Part II, Section 163.3177(6)(c)3, *Florida Statutes* (F.S.), as may be amended.

5.2. Infrastructure Element

Policy 4.D.1.1.1.: The City shall adopt an average annual daily potable water consumption level of service standard of ~~191~~ 189 gallons per ~~City Resident~~ capita per day (gpcd). This shall serve as the level of service standard for the urban area. The rural area shall utilize water wells, unless an alternative service provision is approved by the City Council consistent with Policy 9.1.4.2.(a)~~ (d)~~.

Policy 4.D.1.1.8.: The City shall coordinate with Seacoast Utility Authority and Palm Beach County in the preparation of their 10-Year Water Supply Facilities Work Plans, consistent with the directives of the Lower East Coast Water Supply Plan Update.

Policy 4.D.1.1.9.: At the time ~~of each required Evaluation and Appraisal Report~~required by the applicable statute, the City shall incorporate necessary 10-Year Water Supply Facilities Work Plan directives enacted by its water supplier and the regional water supply plan.

Policy 4.D.1.1.10.: The 10-Year Water Supply Facilities Work Plan Update is hereby adopted by reference in the City's Comprehensive Plan and implemented by Seacoast Utility Authority~~,~~ as the local water provider.

~~Policy 4.D.2.2.3.: The City shall adopt a 10-Year Water Supply Facilities Work Plan and related amendments within 18 months of the District's adoption of the Lower East Coast Water Supply Plan Update.~~

5.3. Conservation Element

Policy 6.1.1.9.: The City shall actively participate in the formulation and implementation of water supply conservation programs developed by Seacoast Utility Authority considering the most recently adopted SFWMD's Lower East Coast Regional Water Supply Plan.

Policy 6.1.1.10.: The City shall coordinate with Seacoast Utility Authority to implement potable water conservation programs established as part of its current 10-Year Water Supply Facilities Work Plan and Consumptive Use Permit.

Policy 6.1.1.11.: The City shall continue to cooperate with Seacoast Utility Authority in the development and implementation of water reuse programs, to the extent that they may apply to Palm Beach Gardens.

5.4. Intergovernmental Element

Policy 8.1.4.7.: The City shall update the 10-Year Water Supply Facilities Work Plan prepared by the City of Palm Beach Gardens, dated February 2015, and confirm the availability of water for existing development, new development, and redevelopment at the time ~~of the required Evaluation and Report~~required by the applicable statute; this should be consistent with the SFWMD's Lower East Coast Regional Water Supply Plan, and the 10-Year Water Supply Facility Plans of Seacoast Utility Authority and Palm Beach County.

~~Policy 8.1.4.8.: The City shall adopt a 10-Year Water Supply Facilities Work Plan and related amendments within 18 months after the South Florida Water Management District updates the Lower East Coast Water Supply Plan Update.~~

5.5. Capital Improvements Element

Policy 9.1.4.2.(a): The City hereby adopts the following Level of Service (LOS) standards and will use them in reviewing the impacts of new development upon facility provision. For public school facilities, the applicant for a Development Order or Development Permit which includes any residential component shall provide a determination of capacity by the School District of Palm Beach County that the proposed development will meet the public school facilities Levels of Service. A determination by the School District is not required for existing single family legal lots of record, in accordance with the Public School Facilities Policy 11.1.1.8. A Traffic Circulation concurrency determination shall not be required for existing single family legal lots of record. The Dual Level of Service standards shall be applied in the respective urban and rural areas, consistent with the Urban Growth Boundary philosophy established in the Future Land Use Element.

LEVEL OF SERVICE STANDARDS		
TRAFFIC CIRCULATION	**URBAN AREA**	**RURAL AREA**
Facility Type	**LOS for Peak Period in Peak Season**	
Neighborhood Collector	D	D
City Collector	D	D
County Minor Arterial	D	D
State Minor Arterial	E	E
State Principal Arterial	D	D
FIHS Roads	D	--
Beeline Highway	D	C
Excepted Links per Table 2A		

SEWAGE SERVICE	SANITARY SEWER 107 gallons per day per capita	SEPTIC TANKS Per DEP and Public Health Department Regulations
SOLID WASTE Generation per capita Collection	7.13 lbs per day Twice per week	7.13 lbs per day Once per week
DRAINAGE	3 day, 25 year event	3 day, 25 year event
WATER SERVICE	POTABLE WATER ~~191~~189 gallons per day per capita	WATER WELLS Per DEP and Public Health Department Regulations
RECREATION AND OPEN SPACE	5 acres of improved neighborhood and community park & other recreation and open space facilities per 1,000 residents	Park and recreation facilities will be located to serve the entire city population, and in most cases will be the urban area
PUBLIC SAFETY FIRE/EMS	6 minute 30 second response time to all calls on a district basis	Require well-based sprinklers for all structures; fire service with tanker trucks; 8 minute average response time
POLICE	1,000 service calls per officer per year; community policing philosophy	Zone patrol based on crime control strategies
PUBLIC SCHOOLS	110% utilization rate or up to 120%, per Policies 11.1.1.1.and 11.1.1.4. of the PSF Element	

6.0 REGIONAL ISSUES IDENTIFIED IN REGIONAL WATER SUPPLY PLANS

6.1 Lower East Coast Water Supply Plan

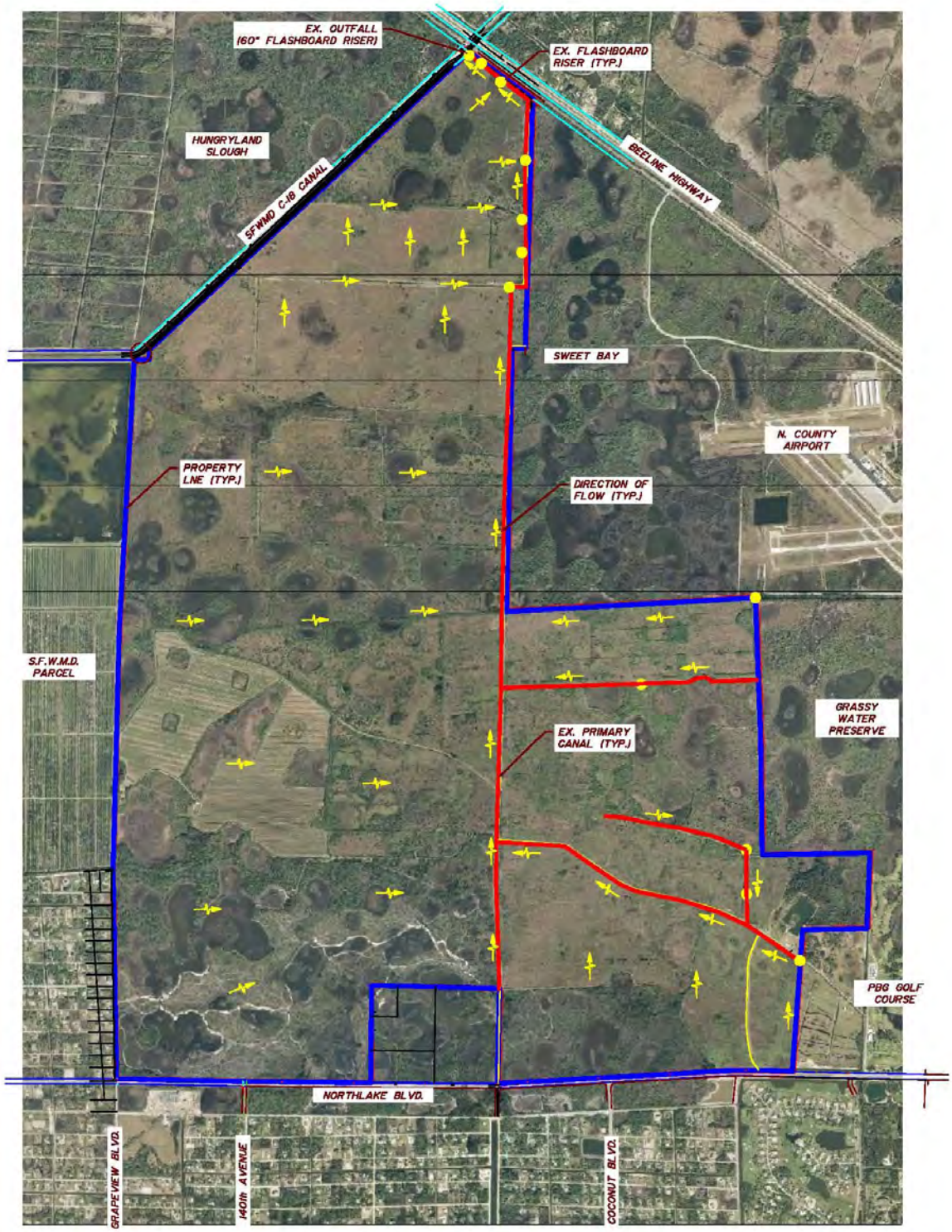
A summary of the issues identified in the SFWMD Regional Water Supply Plan can be found below. Briefly, the issues are:

1. Increased withdrawals from both the Surficial Aquifer System and surface water from Lake Okeechobee are limited.
2. Conservation continues to be relied upon to reduce per capita use and a means to potentially delay or perhaps avoid adding capacity.
3. Use of reclaimed water continues to be an important alternative source in the region and helps to meet requirements of the 2008 Leah G. Schad Ocean Outfall Program.

More detailed information on each regional issue can be found in Chapter 5, Evaluation of Water Source Options, Lower East Coast Water Supply Plan Update, 2013, which can be accessed at: http://www.sfwmd.gov/portal/page/portal/xweb%20-%20release%203%20water%20supply/lower%20east%20coast%20plan#wsp_docs. These issues, to the extent possible, are addressed in the Work Plan and supportive documents, such as the City's Comprehensive Plan and Land Development Regulations.

EXHIBIT "D"

EXISTING DRAINAGE FACILITIES PLAN



Engineer of Record:
Carlos J. Ballbé

Reg. Eng. No. 41811
State of Florida

BALLBÉ & ASSOCIATES
Civil Engineering • Planning • Surveying

2737 Northeast 30th Place
Fort Lauderdale, Florida 33306
Phone: (954) 491-7811
Authorization No. EB-26343

EXISTING DRAINAGE FACILITIES PLAN

AVENIR

AVENIR HOLDINGS, LLC

AVENIR

EXHIBIT "E"

SOLID WASTE AUTHORITY OF PALM BEACH
CAPACITY AVAILABILITY LETTER AND WASTE GENERATION CALCULATIONS

SWA
SOLID WASTE AUTHORITY
YOUR PARTNER FOR
SOLID WASTE SOLUTIONS

September 10, 2015

Ballbe & Associates
2737 Northeast 30th Place
Fort Lauderdale, FL 33306

Subject: AVENIR – Availability of Solid Waste Disposal Capacity

Greetings:

The Solid Waste Authority is the provider of solid waste disposal and recycling services for the AVENIR project. The Solid Waste Authority of Palm Beach County hereby provides certification that the Authority has disposal capacity available to accommodate the AVENIR project. This letter also constitutes notification of sufficient capacity for concurrency management and comprehensive planning purposes. Capacity is available for both the coming year, and the five and ten year planning periods specified in 9J-5.005(4).

As of September 30, 2014, the Authority's North County Landfills had an estimated 28,361,761 cubic yards of landfill capacity remaining. In addition, the Authority has completed the construction of a second Waste-to-Energy facility, and began operation of the facility in 2015. This will significantly extend the useful life of the landfill.

Based upon the existing Palm Beach County population, the most recently available population growth rates published by the University of Florida Bureau of Economic and Business and Research (BEBR), medium projection, and projected rates of solid waste - generation, waste reduction and recycling, the Solid Waste Authority forecasts that capacity will be available at the existing landfill through approximately the year 2048.

The Authority continues to pursue options to increase the life of its existing facilities and to provide for all of the County's current and future disposal and recycling needs. As part of its responsibility, the Authority will provide an annual statement of disposal capacity, using the most current BEBR projections available. Please provide copies of this letter to your plan review and concurrency management staff. If you have any questions or I can be of further assistance, please do not hesitate to contact me.

Very truly yours,

Marc C. Bruner, Ph.D.
Chief Administrative Officer

7501 North Jog Road, West Palm Beach, Florida 33412 (561) 640-4000 FAX (561) 640-3400

BALLBÉ
& ASSOCIATES
Civil Engineering • Planning • Surveying

September 9, 2015

Mr. Marc C. Bruner, Ph.D.
Chief Administrative Officer
SOLID WASTE AUTHORITY
7501 North Jog Road
West Palm Beach, Florida 33412

Re: **AVENIR - AVAILABILITY OF SOLID WASTE DISPOSAL CAPACITY**
Project Number **201212**

Dear Mr. Bruner:

Please be advised that last year we submitted an application to the City of Palm Beach Gardens to change the Land Use and Zoning for the above referenced property. The Solid Waste Authority provided us with a capacity/availability letter for the originally proposed land use density (see attached copy of letter date September 15, 2014). The owner has since then revised the proposed land use breakdown as follows:

	PREVIOUS SUBMITTAL	**CURRENT SUBMITTAL**
Land Use	**Units**	**Units**
Single Family Residential	4,410 Dwelling Units	3,735 Dwelling Units
Townhome Residential	350 Dwelling Units	250 Dwelling Units
Commercial	600,000 S.F.	400,000 S.F.
Medical Office	200,000 S.F.	200,000 S.F.
Professional Office	800,000 SF	1,800,000 SF
University	2,500 Students (Approx. 500,000 S.F.)	None
Hotel	300 Rooms (Approx. 80,000 S.F.)	300 Rooms (Approx. 80,000 S.F.)
Equestrian Facility	5,000 S.F. Recreational Facility (20 Ac. Parcel land dedication)	5,000 S.F. Recreational Facility (20 Ac. Parcel land dedication)
Regional Park	20,000 S.F. Recreational Facility (55 Ac. Parcel land dedication)	20,000 S.F. Recreational Facility (55 Ac. Parcel land dedication)
Police/Fire/City Annex	40,000 S.F. Facility (8 Ac. Parcel land dedication)	40,000 S.F. Facility (8 Ac. Parcel land dedication)
Golf Course	15,000 S.F. Recreational Facility (60 Ac. Parcel land dedication)	15,000 S.F. Recreational Facility (60 Ac. Parcel land dedication)
Public School	600 Students (K-6) (15 Ac. Parcel land dedication)	600 Students (K-6) (15 Ac. Parcel land dedication)

Pursuant to the City of Palm Beach Gardens requirements, we would like to request a revised letter stating that the Solid Waste Authority will be the service provider of solid waste disposal and that you will be able to meet the needs while continuing to meet the current level of service standards.

If you have any questions or require any additional information, please do not hesitate to call our office.

Sincerely,

BALLBÉ & ASSOCIATES, INC.

Carlos J. Ballbé, P.E., LEED® A.P.

PROJECTED SOLID WASTE VOLUMES

Land Use Category	Unit		Generation Rate (lbs/unit/day)	Tons/Day	Cubic Yards/Day
Single Family Residential	3,735	Dwelling units	10.90	20.36	257.86
Townhome Residential	250	Dwelling units	10.90	1.36	17.26
Commercial/Retail (see note 3)	400,000	S.F.	0.0200	4.00	50.65
Medical Office	200,000	S.F.	0.0126	1.26	15.96
Professional Office	1,800,000	S.F.	0.0148	13.32	168.61
Hotel (see note 2)	300	Rooms	3.00	0.45	5.70
Equestrian Trail Head	5,000	S.F. (20 ac. parcel dedication)	0.03	0.08	1.02
Regional Park	20,000	S.F. (55 ac. parcel dedication)	0.03	0.32	4.09
Police/Fire/City Annex (see note 5)	40,000	S.F. (8 ac. parcel dedication)	0.007	0.14	1.77
Golf	15,000	S.F. (60 ac. parcel dedication)	0.03	0.24	3.07
Schools (see note 4)	600	Students (K-6)	1.00	0.30	3.80
			TOTAL =	**41.84**	**529.80**

Conversion factors:

Mixed Municipal Solid Waste:	1 cubic yard=	157.94	lbs per SWA study
	1 ton=	2,000	lbs

Notes:

1. Generation rates provided by Marc C. Bruner from SWA of Palm Beach (see attached), except as noted.
2. Hotel generation rates were obtained from the average recommended by the State of California study attached.
3. Used shopping center rate.
4. School and university generation rates were obtained from the average recommended by the State of California study attached.
5. Police/Fire/City Annex generation rates were obtained from the average recommended by the State of California study attached.

SWA
SOLID WASTE AUTHORITY
YOUR PARTNER FOR
SOLID WASTE SOLUTIONS

January 10, 1995

MEMORANDUM

TO: File

FROM: Marc C. Bruner MB
Director of Planning & Environmental Programs

SUBJECT: Waste Generation Rates Resolution 92-28

The following solid waste generation rates are utilized as the basis for the assessment rates. They are also to be used as the basis for calculating waste generation rates for concurrency reservations.

The list of categories for commercial generation is not exhaustive. If the need arises for interpretation concerning the generation rate of a certain use, I will be available to provide assistance.

ANNUAL RESIDENTIAL GENERATION RATES

Residential Type	Rate (Tons per unit per year)
Single Family Unit	1.99
Villa and Townhouse (no common wall)	1.99
Appartment (unattached)	1.99
Multi-family Building with four or less units	0.8
Multi-family Building with five and greater units	0.52
Mobile Home	1.14

ANNUAL COMMERCIAL GENERATION RATES

Commercial Type	Rate (Pounds per square foot per year)
LOW WASTE GENERATORS	
Parking Structure	0.3
Mini Warehouse	1.2
Church	1.6
Museum	1.6
Manufacturing Heavy (Composting/Chipping)	1.8

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Palm Beach: (407) 697-2700 • South and West County: (407) 930-2727 • Fax: (407) 683-4067

Commercial Type	Rate (Pounds per square foot per year)
MEDIUM WASTE GENERATORS	
Mortuary	2.5
Hospital	2.5
Arenas	3.3
Educational/Religious/Day Care	3.5
Banks	3.7
Bowling Alley/Indoor Entertainment	4.1
Medical Offices	4.6
Light/Technical Manufacturing	4.7
Hotel/Motel	4.7
General Wholesale	5.2
University	5.4
Office Building	5.4
Nursing/Convalescent Home	5.9
Store Discount	6.0
Super-regional Shopping Center	6.8
Warehouse/Greenhouse	7.0
Shopping Center	7.3
Dormitory	8.0
Auditorium	8.1
Branch Bank	8.9
Vehicle Sales and Service/Car Wash	9.2
Service/Maintenance Shop	9.3
Store Retail	10.2
Store Department	10.6
School	10.7
Theaters	11.5
Clubhouse/Recreation Building	11.8
Garage	12.2
HIGH WASTE GENERATORS	
Supermarket	13.9
Barn/Kennel	14.4
Nightclub/Bar	15.1
Aircraft Hangar	17.2
Cold Storage/Packaging	20.8
Fast Food Restaurant	20.8
Restaurant	24.9
Service Station	29.5
Neighborhood Convenience	36.7
Transport Terminal	38.6

It should be noted that the above commercial categories must be modified if any of the low or medium generator categories contain restaurants, bars, service stations or convenience operations.

MCB/ds

cc: Don Lockhart
Charles Maccarrone
Earl Hahn
Angela Usher

Waste Characterization

Service Sector: Estimated Solid Waste Generation and Disposal Rates

NOTE: More recent estimates for waste disposal, diversion, and generation rates are available for a limited number of business groups. These can be found in Table 2 of CalRecycle's *2006 Waste Disposal and Diversion Findings for Selected Industry Groups*.

The data on this page is not official CalRecycle data; please read our disclaimer and background information.

Also see listings for Commercial / Industrial / Institutional / Residential establishments.

Waste Generation Source	Gen. Rate	Units of Measure	Source Date	Source	Notes
Golf course	0.5	lb/golfer/day	Apr. 1992	Stevenson Ranch Draft Enviromental Impact Report (EIR) (Phase IV) , LA County	EIR cites source as Ultrasystems
Hotel	2	lb/room/day	Apr. 1992	Stevenson Ranch Draft EIR (Phase IV) , LA County	EIR cites source as Ultrasystems
Hotel/motel	4	lb/room/day	Dec. 1991	Draft EIR for North Hills Development (Santa Clarita)	EIR cites City of LA Bureau of Solid Waste, 1989, as source; assumes 750 SF/room
Hotel/motel	2	lb/room/day	May 1997	Guide to Solid Waste and Recycling Plans for Development Projects (Santa Barbara County Public Works Department)	Cites SWANA Tech. Bull. 85-6; Recovery Sciences, 1987; and Matrix Mgmt Group, "Best Management Practices Analysis for Solid Waste"
Motel	3.6	lb/unit/day	Apr. 1993	Draft EIR for South Gate Commercial Corridors Redevelopment Project	Cites City of LA Dept. of City Planning document "EIR Manual for Private Projects" as source
Other services*	3.12	lb/100 sq ft /day	May 1997	Guide to Solid Waste and Recycling Plans for Development Projects (Santa Barbara County Public Works Department)	Cites SWANA Tech. Bull. 85-6; Recovery Sciences, 1987; and Matrix Mgmt Group, "Best Management Practices Analysis for Solid Waste
Restaurant	1	lb/seat/day	Apr. 1992	Stevenson Ranch DEIR (Phase IV), LA County	EIR cites source as Ultrasystems; assumes 50% of restaurant is seating and 16 SF/seat
Restaurant	0.005	lb/sq ft/day	Dec. 1991	Draft EIR for North Hills Development (Santa Clarita)	EIR cites City of LA Bureau of Solid Waste, 1989, as source
Restaurant (fast food)	17	lb/employee /day	May 1997	Guide to Solid Waste and Recycling Plans for Development Projects (Santa Barbara County Public Works Department)	Cites SWANA Tech. Bull. 85-6; Recovery Sciences, 1987; and Matrix Mgmt Group, "Best Management Practices Analysis for Solid Waste"

* Includes museums, art galleries, theaters, recreational services, health clubs, repair services.

Waste Characterization

Public Sector and Institutions: Estimated Solid Waste Generation Rates

The data on this page is not official CalRecycle data; please read our disclaimer and background information.

Also see listings for Commercial / Industrial / Residential / Service establishments.

Waste Generation Source	Gen. Rate	Units of Measure	Source Date	Source	Notes
Education	3.55	lb/emp/day	Jul. 1993	Final Report: 1992 Washington State Waste Characterization Study, Volume 3: Generator Survey Approach (Washington State Department of Ecology)	
Educational facilities	0.5	lb/student/day	Apr. 1992	Stevenson Ranch Draft Environmental Impact Report (EIR) (Phase IV), LA County	EIR cites source as Ultrasystems
Educational institutions	0.12	tons/emp/year	1990	Environmental Thresholds and Guidelines Manual (Santa Barbara County Department of Resource Management)	Cites Matrix Management Group, et al. "Best Management Practices Analysis for Solid Waste", 1988.
Government	0.59	tons/emp/year	1990	Environmental Thresholds and Guidelines Manual (Santa Barbara County)	Cites Matrix Management Group, et al. "Best Management Practices Analysis for Solid Waste", 1988.
Hospital	16	lb/bed/day	May 1997	Guide to Solid Waste and Recycling Plans for Development Projects (Santa Barbara County Public Works Department)	Cites SWANA Tech. Bull. 85-6; Recovery Sciences, 1987; and Matrix Mgmt Group, "Best Management Practices Analysis for Solid Waste"
Nursing/ retirement home	5	lb/person/day	May 1997	Guide to Solid Waste and Recycling Plans for Development Projects (Santa Barbara County Public Works Department)	Cites SWANA Tech. Bull. 85-6; Recovery Sciences, 1987; and Matrix Mgmt Group, "Best Management Practices Analysis for Solid Waste"
Public/ institutional	0.007	lb/sq ft /day	n/a	Draft EIR for the Central Commercial Redevelopment Project (Monterey Park Redevelopment Agency)	EIR cites Athens Disposal Co. and GRC Redevel. Consultants, 1992 as source
School	0.007	lb/sq ft/day	Dec. 1991	Draft EIR for North Hills Development (Santa Clarita)	EIR cites City of LA Bureau of Solid Waste, 1989, as source; assumes 22.5 sq.ft./student
School	0.6	lb/person/day	May 1997	Guide to Solid Waste and Recycling Plans for Development Projects (Santa Barbara County Public Works Department)	Cites SWANA Tech. Bull. 85-6; Recovery Sciences, 1987; and Matrix Mgmt Group, "Best Management Practices Analysis for Solid Waste"

Schools	1	lb/student/day	Jan. 1996	Draft Program EIR for Rye Canyon Business Park, Santa Clarita	EIR cites SWANA Tech. Bull. 85-6; Recovery Sciences, 1987; and Santa Clarita SRRE, 1990

CalRecycle does not officially endorse any of the waste generation rates in the preceeding table, and cannot validate their accuracy. However, they may be useful in providing a general level of information for planning purposes.

The table contains information extracted from various sources, which are cited. Please note that several of the documents listed were developed by city or county planning or environmental departments. Your city or county planning or environmental agency may be a source of information for a local project.

PRELIMINARY SURFACE WATER MANAGEMENT REPORT

AVENIR

Palm Beach Gardens, Florida

September 2015

Prepared by:

Jonathan T. Ricketts, Inc
Consulting Engineers • Construction Managers

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9-11-2015
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RELEASED: 4/17/2015
UPDATED: 9/11/2015

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NARRATIVE

1. PURPOSE

The purpose of this report is to provide preliminary technical information necessary to support the following petitions submitted to the City of Palm Beach Gardens for the Avenir project:

- Land Development Regulation Text Amendment (LDRA)
- Planned Community Development and Rezoning (PPCD)
- Comprehensive Plan Text Amendment (CPTA)
- Comprehensive Plan Map Amendment (CPMA)

A description of the assumptions and methodologies, and copies of the figures and exhibits are provided within this report. A preliminary flood routing model was prepared as part of the preliminary engineering analysis for the proposed project. The procedure and methodology outlined in the Environmental Resource Permit (ERP) Applicant's Handbook Volume II published by the South Florida Water Management District (SFWMD) as part of the Statewide ERP program and the City of Palm Beach Gardens Land Development Regulations have been followed in the preliminary design of the proposed surface water management system and the preparation of this report.

2. PROJECT LOCATION & DESCRIPTION

The Avenir project, formally known as the Vavrus Ranch, encompasses ±4,762.9 acres of existing agriculture lands in northern Palm Beach County, Florida. The property has been used for the last 50 years for agricultural use. Currently, the property is in use as a cattle farm, but previously the property also provided for row crop production.

The project is located within the following sections in Palm Beach County:

- Sections 28, 32, 33 / Township 41S / Range 41E
- Sections 4, 5, 8-10, 14-17 / Township 42S / Range 41E

The site is bounded on the north by the Beeline Highway and on the south by Northlake Boulevard. The historic site entrance road is located approximately 4.6 miles west of the intersection of the Beeline Highway (State Road 710) and Northlake Boulevard (State Road 850). The Mecca farms site, currently owned by the SFWMD, and a low-density residential area known as the Acreage boarder the property to the West. The latitude/longitude (DMS) for a point on the interior of the site is N026º 49' 42.00" / W080º 14' 52.00".

3. DATUM

The information submitted in this report is in NGVD 1929 datum. Due to the size of this project many of the adjacent historic permits were evaluated in the analysis, therefore the historic datum was maintained for consistency with these historic records.

4. EXISTING FACILITIES

The Avenir property has historically been used for agricultural purposes, including farming of various crops as well as cattle production. Existing drainage elements to support these agricultural activities include a series of interconnected farm ditches and two (2) main drainage canals; one (1) that runs north-south through the site and one (1) running east-west connecting to the site's eastern boundary. Farm ditches were built to control the water level and provide for irrigation to support farming of the land and typically tied-in to the main drainage canals with corrugated metal culverts. The existing north-south drainage canal begins on the southern portion of the project traveling north and then follows the east property line adjacent to the Sweetbay Natural Area. The east-west canal currently has a direct connection to the Avenir project's canal system and is located at the eastern boundary of the site on the south side of the Northern Palm Beach County Airport property. Legal Positive Outfall exists with the permitted connection to the C-18 Canal. (See Exhibit 1 – Existing Drainage Facilities Plan)

In 1974, Northern Palm Beach County Water Control District (now Northern Palm Beach County Improvement District) was issued Surface Water Management Permit No. 50-00037-S by the Central & Southern Florida Flood Control District (now SFWMD) for this property and the adjacent properties to the east (See Exhibit 2 – Unit No. 8 Preliminary Water Management Plan) however, this system existed and was designed in the 1950's by Lamar Johnson, an employee of Palm Beach County. The acreage permitted under this approval was 9,600 acres and the plan included various canals to be constructed along the section lines. Canals CPB-12AS, CPB-12AN and CPB-12C run in a north-south direction across the site and Canal CPB-12 runs east-west. These canals have served the project since their construction and continue to provide for discharge of stormwater runoff both to the north and east. SFWMD Technical Publication 88-11 is a flood management study of the C-18 basin and documents the division of flow on the project site, and an allowable discharge equivalent to 1-inch per day.

The north-south drainage canals (CPB-12AS, AN, & C) are connected to the SFWMD C-18 canal at the north end of the property via a project culvert (PC-18B) originally installed in 1956. The culvert consists of a single 42" round corrugated metal pipe, 42' in length with an invert elevation of 15.0', and a 48" round flashboard riser. Historically, the boards have been maintained at elevation 18.3' and the top of riser elevation is 20.8'. The control elevation of the C-18 canal in the area of the project site is 17.64' set via a fixed sheet pile weir located immediately east of the Beeline Highway. The east-west drainage canal (CPB-12) currently has an open connection to the site's farm ditch system and flows to the east along the south property line of the Airport with ultimate discharge to the CSX canal located just west of the railroad and Beeline Highway. The control elevation in the CSX canal is 18.0' as referenced in SFWMD Permit No. 50-02617-S issued to the Palm Beach County Division of Airports. The approximate dimensions of the farm ditch onsite at this point of connection are as follows: 26' width at top of bank, 4.5' in depth to an approximate bottom elevation of 15.5' with ±3:1 (H:V) side slopes.

There are several parcels of land connected to or isolated by the project site. The first is a 97± acre parcel located at the south east corner of the site with frontage along Northlake Boulevard known as the Balsamo property. The Balsamo property has historically been used for row crop production. The second area also fronts Northlake Boulevard and is bounded on the west, north, and east sides by the Avenir property. This area consists of five (5) separate parcels totaling

125± acres. This area will be referred to as the Northlake Central Outparcel and is primarily vacant land with the exception of a communications tower site on the smallest of the parcels in the northwest corner. Further discussion of offsite areas will be conducted under Section 7, Delineation of Basins.

5. Proposed Facilities

The current land use and zoning on the property is residential rural (RR10 & RR20). This zoning would allow for the development of approximately 400 individual home sites, roads and drainage facilities spread throughout the property. The drainage facilities which would be developed under the current land use would spread development over the entire property with single family residences and the accompanying roadways and road drainage systems. Under this vested use, no increase in environmental benefits would occur as the water tables would be left at their lowered elevation throughout the site. Little, if any, restoration of the existing wetlands would occur and the long term maintenance for the protection of the wetlands from melaleuca and other exotic species would likely not occur and or not be performed by the individual owners on a regular basis.

The Avenir project proposes to aggregate development on the southern portion of the site and reserve the northern portion of the site to restoration and preservation. The public benefits to the Avenir plan are many. The Avenir plan proposes to preserve and restore over 2,000 acres of existing lands that are currently ditched and used for agriculture. These 2,000 acres are not just a set aside from development, but an actual restoration plan that provides benefits to the remainder of the site, the environmental areas immediately adjacent to the site, the regional water supply, and can serve as a multiplier for restoration plans for both the state and federal government.

The Avenir project lies on the western slope of the Loxahatchee Slough. This slough was a component of the historic Everglades providing for flow from the Everglades through the Loxahatchee River. The Avenir team, recognizing this historic function has chosen to restore those key elements that existed within their boundaries; the wetlands and flow ways which were part of the historic flow patterns for the region.

A detailed lidar study was performed where over 139,000,000 ground point elevations were recorded. The purpose of these intense measurements was to obtain data on the microtopography of the site which recognizes the small variations in the ground elevation which define the limits of the wetlands. This microtopography also reveals the historic conditions of the site that clearly indicate the locations of historic flow. The results of the study show a series of wetlands that would have an interconnected flow under historic conditions as shown in a hypsometric tint. A hypsometric tint is a colored plot which shows each 6-inch range of elevation as a different color (See Exhibit 3 – Hypsometric Tint).

Within the restoration and preservation area, the Avenir project proposes to restore the water table back to its historic condition which will increase the volume of water storage on the ground surface, provide for increased aquifer recharge, increase the water quality of the runoff that is produced from the site, and allow for the restoration of approximately 7,000 feet of flow way. None of these benefits will occur if the site is left in its current condition or the site is developed at the existing density. These restoration efforts will include: removal of exotic plants from the

wetland and upland areas, removal of the agricultural ditches and culverts that keep the water table in a lowered state, and the addition of native plants suitable to the restored hydroperiod. This restoration work will deliver the benefits described above.

In order to achieve this restoration work, the Avenir project proposes aggregated development on the southern portion of the site with approximately 2,300 acres planned for residential and mixed-use centers open to the public with the remaining land area dedicated as a conservation overlay. The individual development parcels are listed as follows:

- Parcel A Residential
- Parcel B Neighborhood Commercial
- Parcel C Employment Center/Economic Development
- Parcel D Employment Center
- Parcel E Regional Park
- Parcel F Public School
- Parcel G Equestrian Facility
- Parcel H Golf Course

Within Parcel A, the Avenir project proposes to retain and preserve the higher quality wetlands in the southwest quadrant of the site.

6. Hydrologic and Hydraulic Design

Pre-development and post-development analyses of the project area were computed to evaluate changes in peak stages and discharges. The analysis utilized the Santa Barbara Urban Hydrograph Routing Model. Hydrologic parameters such as percent of impervious area, soil storage, SCS curve number, and time of concentration (t_c) were determined for each basin. Flood routings were performed using a multi-basin routing software. The results of the conceptual modeling are summarized in Table 2.

7. Delineation of Basins

For the proposed development modeling, the project was divided into four main sub-basins listed as follows:

- East Developed Basin (Basin Dev.-E)
- Northwest Developed Basin (Basin Dev.-NW)
- Southwest Developed Basin (Basin Dev.-SW)
- East Conservation Basin (Basin Consv.-E)
- West Conservation Basin (Basin Consv.-W)

Additionally, there are two offsite areas which flow into the Avenir project. These areas were considered in both the pre-development and post-development analysis and are listed below:

- Northlake Central Outparcel (Basin Offsite1)
- Balsamo property (Basin Offsite2)

(See Exhibit 4 – Preliminary Basin Delineation Map)

The proposed north-south roadway serves as a basin divide between the east and west conservation basins. The existing site grades are generally higher at the west property line and gradually decrease as you travel eastward. The existing properties adjacent to the site will not be impacted as the site plans to maintain the historic water control elevations adjacent to all of the parcels where historic drainage routes flow onto the Avenir site. In order to protect the existing drainage rights of the offsite property owners, a pump station will be used as part of the final water management system.

8. FLOODPLAIN REVIEW/VERIFICATION

The entire project lies within Zone B on the FEMA Flood Insurance Rate Map (Community-Panel Number 120192 0050 B, Palm Beach County, Florida) which are areas between limits of the 100-year flood and 500-year flood.

9. RAINFALL

Refer to figures C-3, C-4, C-8, and C-9 on the following pages for the rainfall maps. Below is a table which provides a summary of the rainfall data at the project location.

Table 1: Rainfall Data:

FREQUENCY (years)	DURATION (days)	RAINFALL (inches)	PURPOSE
5	1	6.5	Min. Parking Lot Elevation*
10	1	7.5	Min. Road Crown Elevation*
25	3	13.0	Allowable Discharge*
100	3	16.0	Min. Finished Floor Elevation*

** As referenced in Palm Beach Gardens Level of Service requirements and SFWMD criteria.*

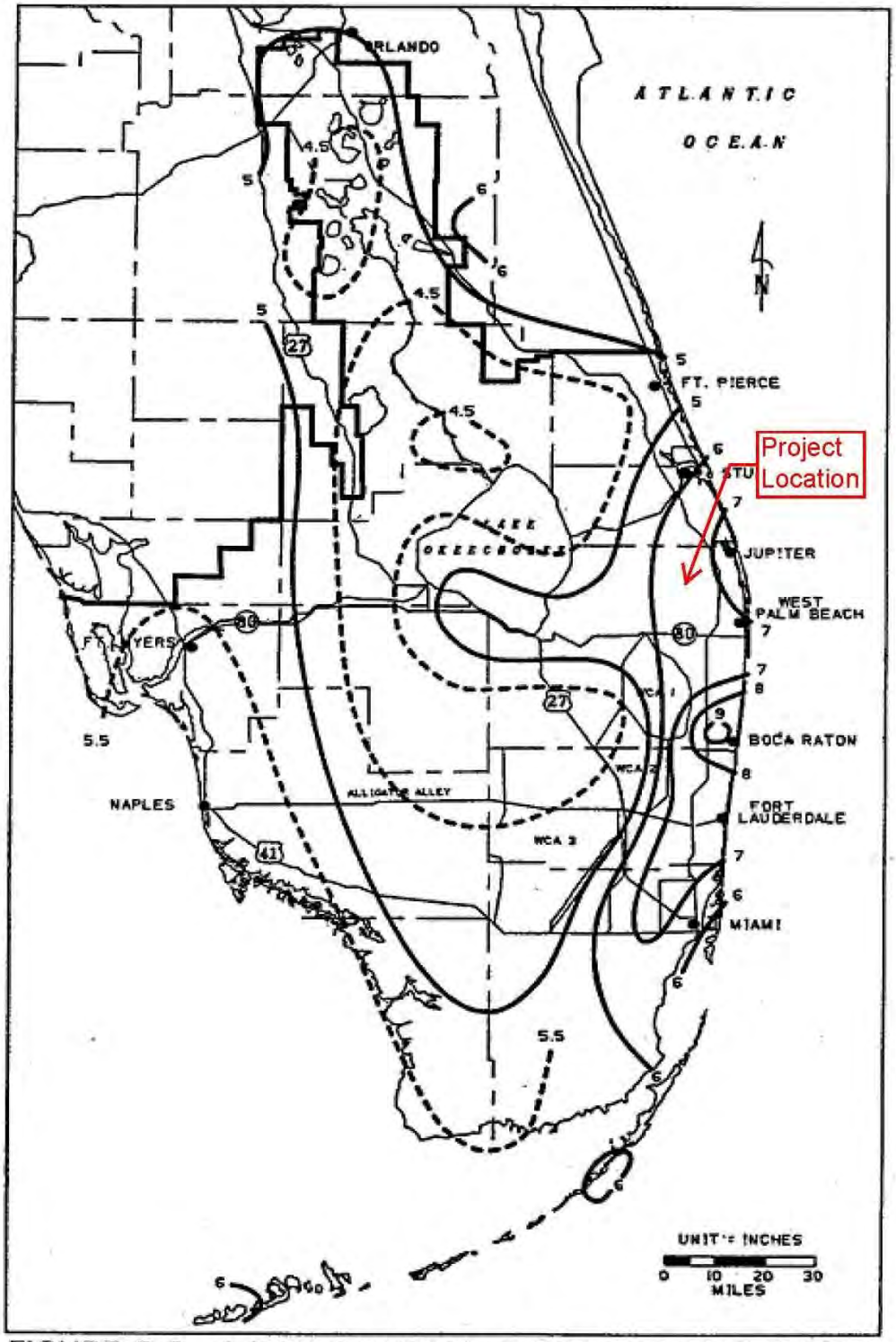


FIGURE C-3. 1-DAY RAINFALL: 5-YEAR RETURN PERIOD

Source: SFWMD Environmental Resource Permit Applicant's Handbook Volume II

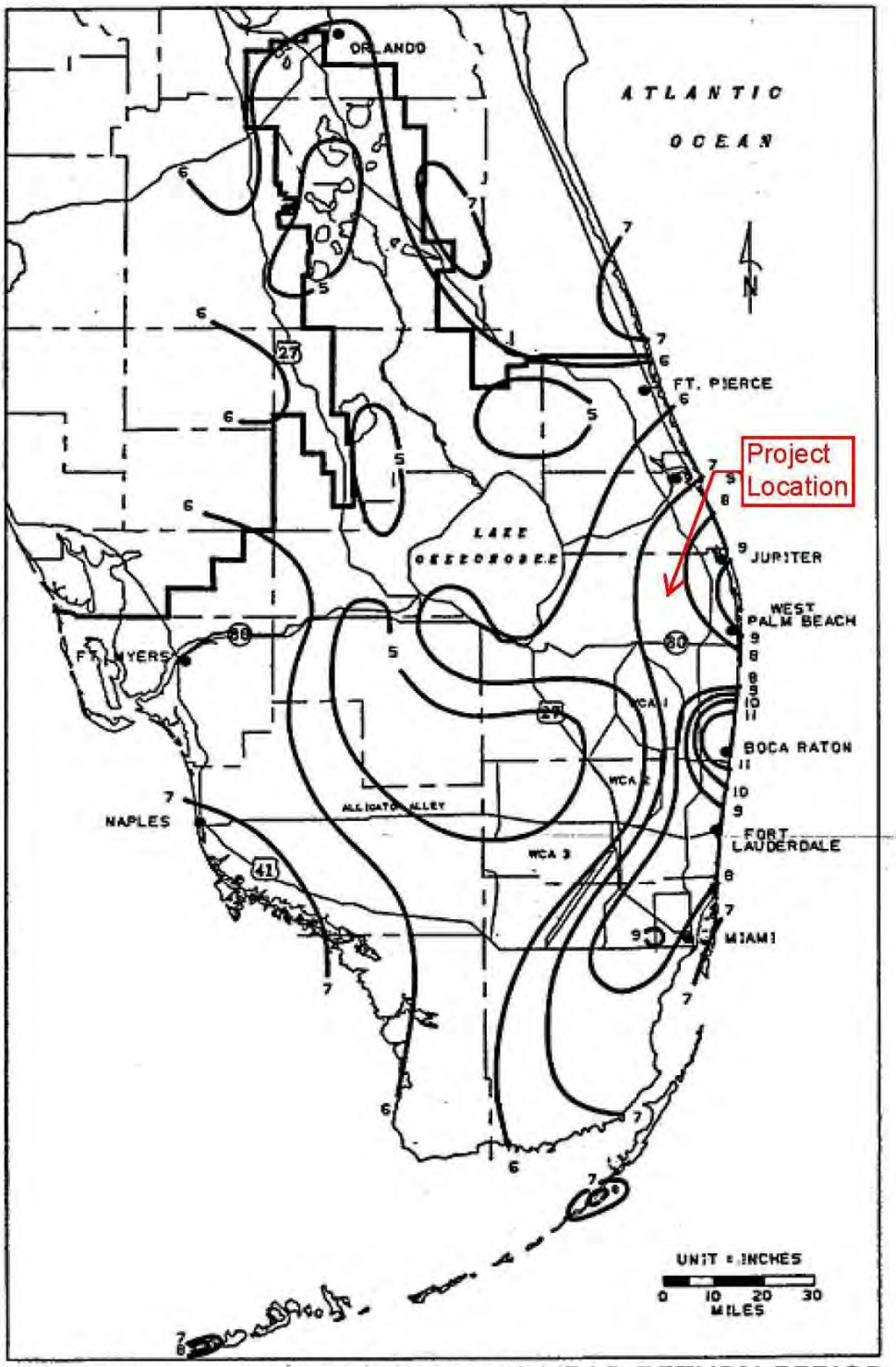


FIGURE C-4. 1-DAY RAINFALL: 10-YEAR RETURN PERIOD

Source: SFWMD Environmental Resource Permit Applicant's Handbook Volume II

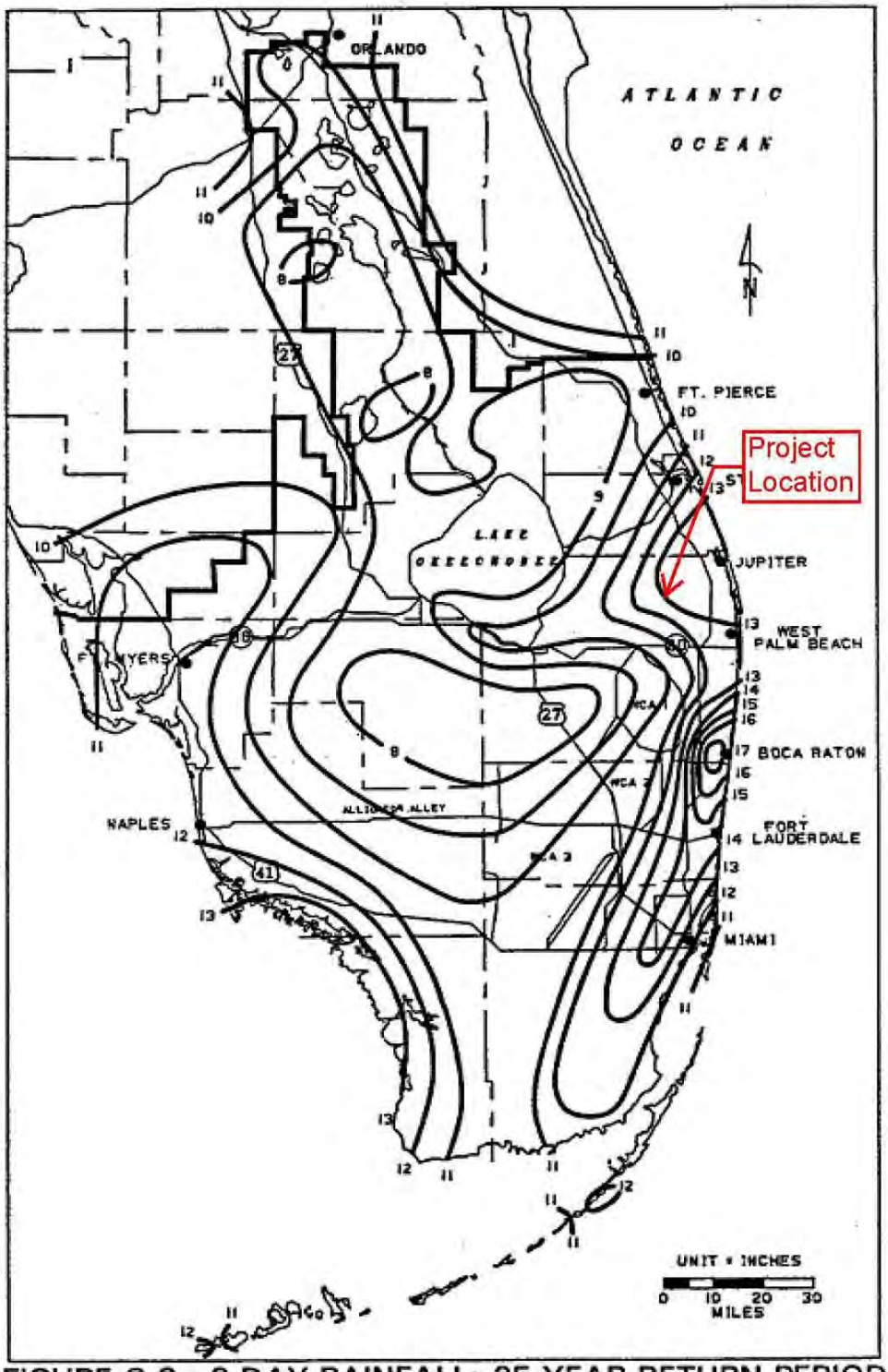


FIGURE C-8. 3-DAY RAINFALL: 25-YEAR RETURN PERIOD

Source: SFWMD Environmental Resource Permit Applicant's Handbook Volume II

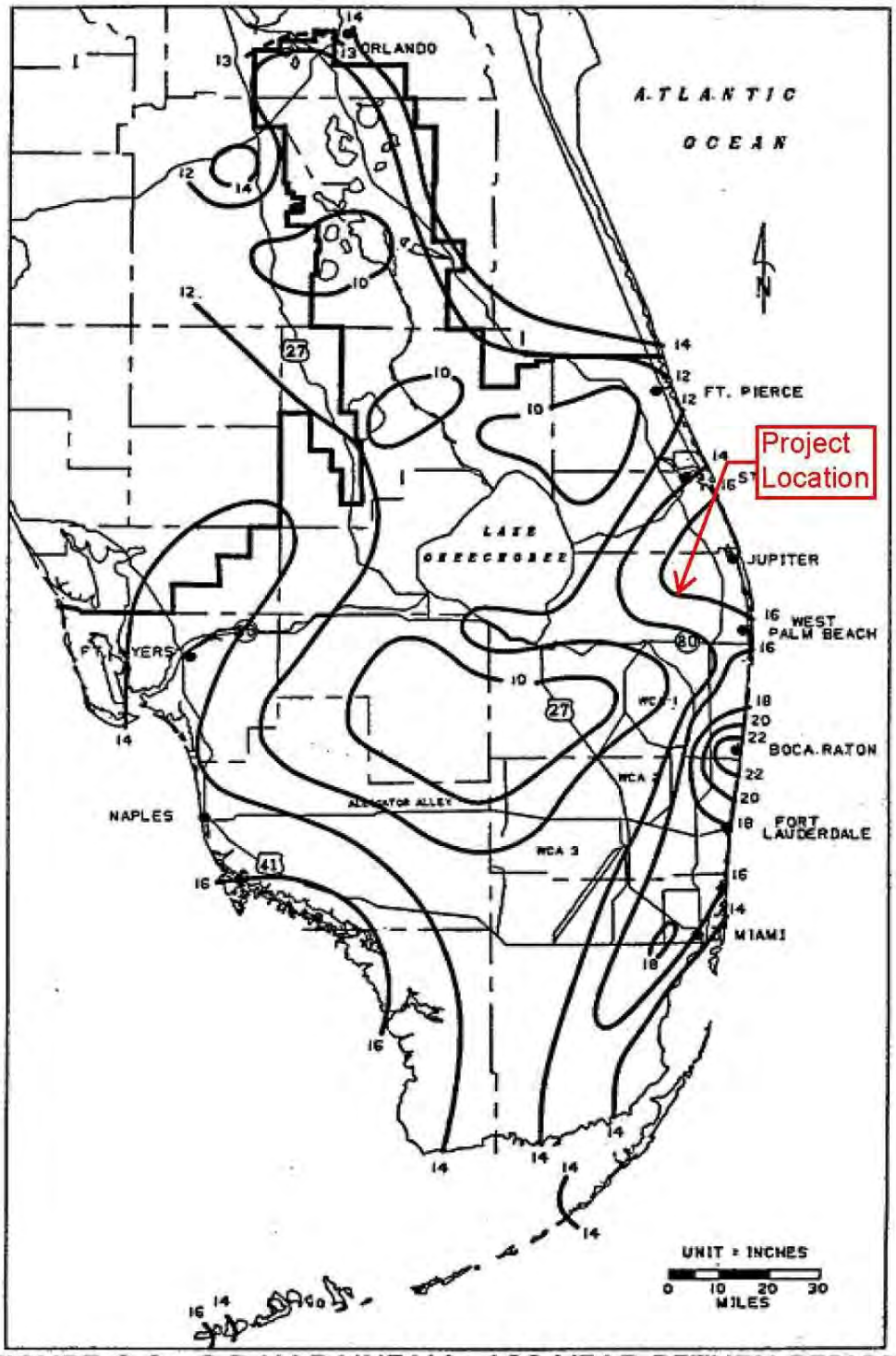


FIGURE C-9. 3-DAY RAINFALL: 100-YEAR RETURN PERIOD

Source: SFWMD Environmental Resource Permit Applicant's Handbook Volume II

10. TAILWATER AT RECEIVING SYSTEM

As described, the site has two separate historic discharge locations, with two different elevations for the tailwater condition. Discharge to the north is to the C-18 canal. The tailwater in the western leg of the C-18 canal varies for the different design storms from about 18.5' for the 10-year 1-day to near 19.0' for the 100-year 3-day. The CPB-12 canal discharges to the CSX canal to the east and is maintained at an elevation of 18.0'. The combined total discharge is limited at 1-inch per day.

11. WATER QUALITY TREATMENT

The total combined area of all basins within the project is 4,763± acres. The two offsite areas which drain to the project have a combined area of 222± acres. The preliminary surface water management calculations have set the total lake area required for stormwater attenuation and water quality treatment at 15% within the development area for this early phase in the project.

Water quality treatment will be calculated as 150-percent of the standard criteria required by SFWMD to meet the anti-degradation criteria for the receiving water body (C-18 Canal), which is a Class I water per Chapter 62-302; Florida Statutes (F.S.). Water quality treatment is anticipated to be achieved through a combination of wet and dry detention, and designed in accordance with the requirements of the SFWMD and Palm Beach Gardens Land Development Regulations. Littoral areas will be provided in the water quality treatment system and designed to meet the criteria of both regulatory agencies.

12. SUMMARY OF RESULTS – ALLOWABLE DISCHARGE

The maximum allowable discharge rate will be less than or equal to 200 cubic feet per second for the 25-year 3-day design storm. This rate is the allowable discharge provided for the C-18 canal in the TP88-11 flood management study for the C-18 drainage basin and is equivalent to 1-inch per day.

Preliminary flood routing results for the 25-year 3-day storm event are shown in Table 2.

Table 2: Preliminary Flood Routing Results – 25-year 3-day Peak Stages & Discharges

Pre-Development			*Post-Development*		
Basin ID / Outfall	*Peak Discharge cfs*	*Peak Stage ft NGVD*	*Basin ID / Outfall*	*Peak Discharge cfs*	*Peak Stage ft NGVD*
Avenir-Pre	-	21.1	Dev.-E	-	21.6
-	-	-	Dev.-NW	-	22.0
-	-	-	Dev.-SW	-	21.9
-	-	-	Consv.-E	-	20.6
-	-	-	Consv.-W	-	21.6
Str. 1 (C-18)	63.3	-	Str. 1 (C-18)	92.84	-
Str. 4 (CPB-12)	124.0	-	Str. 4 (CPB-12)	91.91	-
Total Discharge	**187.3**			**184.8**	

After comparing the 25-year 3-day peak discharges of these post-development basins to the pre-development peak discharges, we see that the overall post-development discharge is lower than the overall pre-development peak discharge.

Additional preliminary flood routings were performed to calculate the minimum elevations for the parking lots, roads, and finished floor elevations. The results of these routings are shown in Table 3.

Table 3: Preliminary Flood Routing Results – Peak Stages

Post-Development			
	5-year 1-day	10-year 1-day	100-year 3-day
Basin ID	*Peak Stage ft NGVD*	*Peak Stage ft NGVD*	*Peak Stage ft NGVD*
Dev.-E	20.5	20.8	21.9
Dev.-NW	20.9	21.2	22.4
Dev.-SW	20.8	21.1	22.3
Consv.-E	19.7	19.9	20.9
Consv.-W	20.6	20.8	22.0

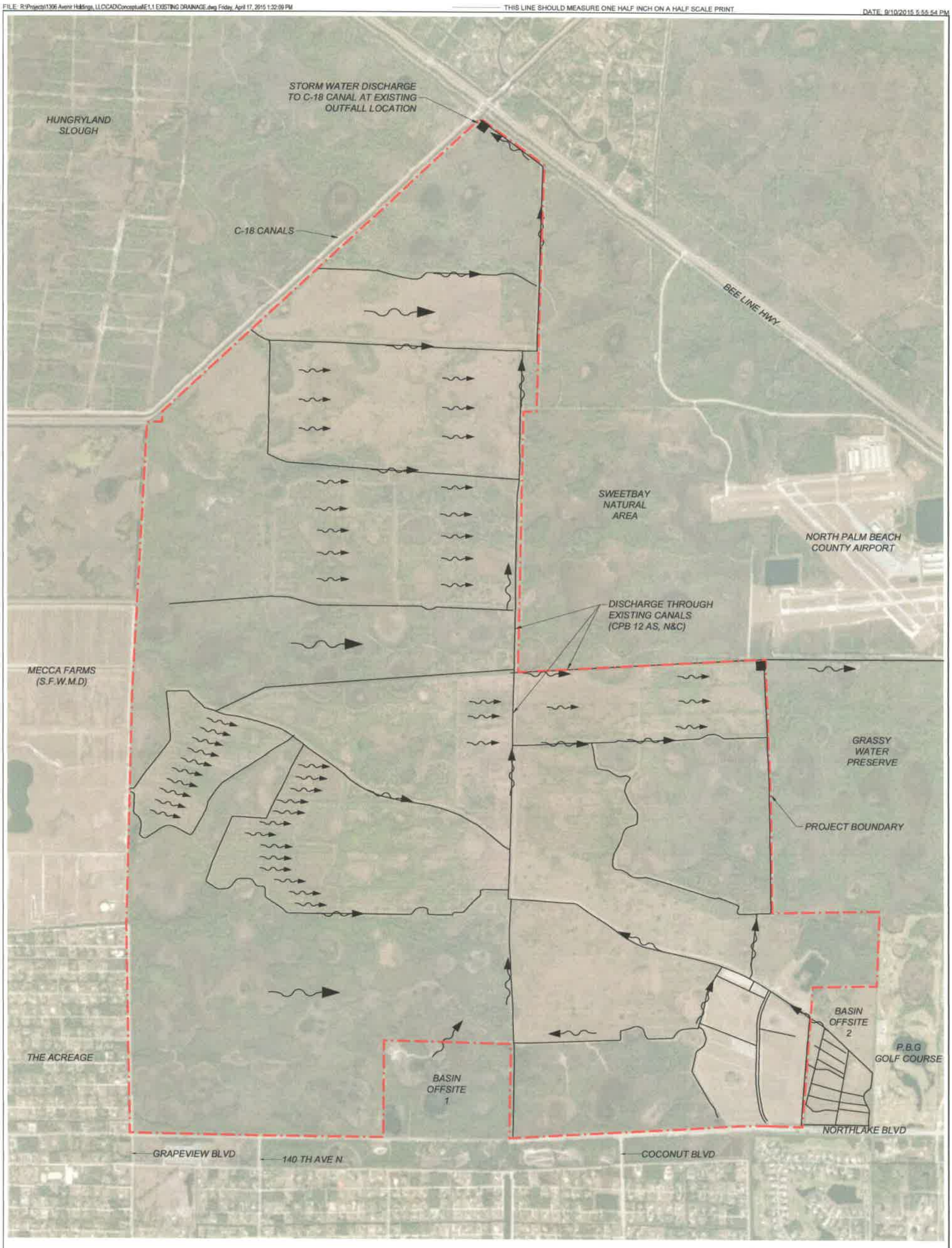
Please note, the stages and discharges reported above represent preliminary modeling of a multi-basin system with discharge to the C-18 canal and the CPB-12 canal. The stages and discharges provided for each design storms herein are intended to provide the City with conceptual design values necessary to evaluate the submitted petitions listed in Section 1, Purpose.

13. Phasing of Construction

It is anticipated that the main components of the eastern drainage system will be constructed with the initial development of the eastern part of Parcels A, B – H, and F. Subsequent phases will construct the necessary lakes and dry detention areas necessary to serve the proposed areas to be constructed. An initial phasing plan is shown in Exhibit 5, Preliminary Drainage Phasing Plan.

EXHIBIT 1

EXISTING DRAINAGE FACILITIES PLAN



LEGEND

EXISTING DRAINAGE FLOW ARROW

EXISTING DITCHES

EXISTING DISCHARGE STRUCTURE

0 1000' 2000' 3000'

SCALE IN FEET

AVENIR

Avenir

CITY OF PALM BEACH GARDENS — PALM BEACH COUNTY, FLORIDA

EXISTING DRAINAGE FACILITIES PLAN

JTR Jonathan T. Ricketts, Inc.
Consulting Engineers • Construction Managers
3450 Northlake Boulevard - Suite 200
Palm Beach Gardens, Florida 33403
Phone: (561) 630-6700
Toll - Free: (877) 630-6777
Fax: (561) 625-2770
FL Certificate of Authorization: 6173
NC Certificate of Authorization: C-2761

JONATHAN T. RICKETTS LICENSE NO. 38799 STATE OF FLORIDA PROFESSIONAL ENGINEER

SEAL
9/11/15
FL P.E. No. 38799
JONATHAN T. RICKETTS

EXHIBIT 2

UNIT NO. 8 PRELIMINARY WATER MANAGEMENT PLAN

PRELIMINARY WATER MANAGEMENT PLAN

UNIT NO. 8 FOR
NORTHERN PALM BEACH COUNTY WATER CONTROL DISTRICT
PALM BEACH COUNTY , FLORIDA

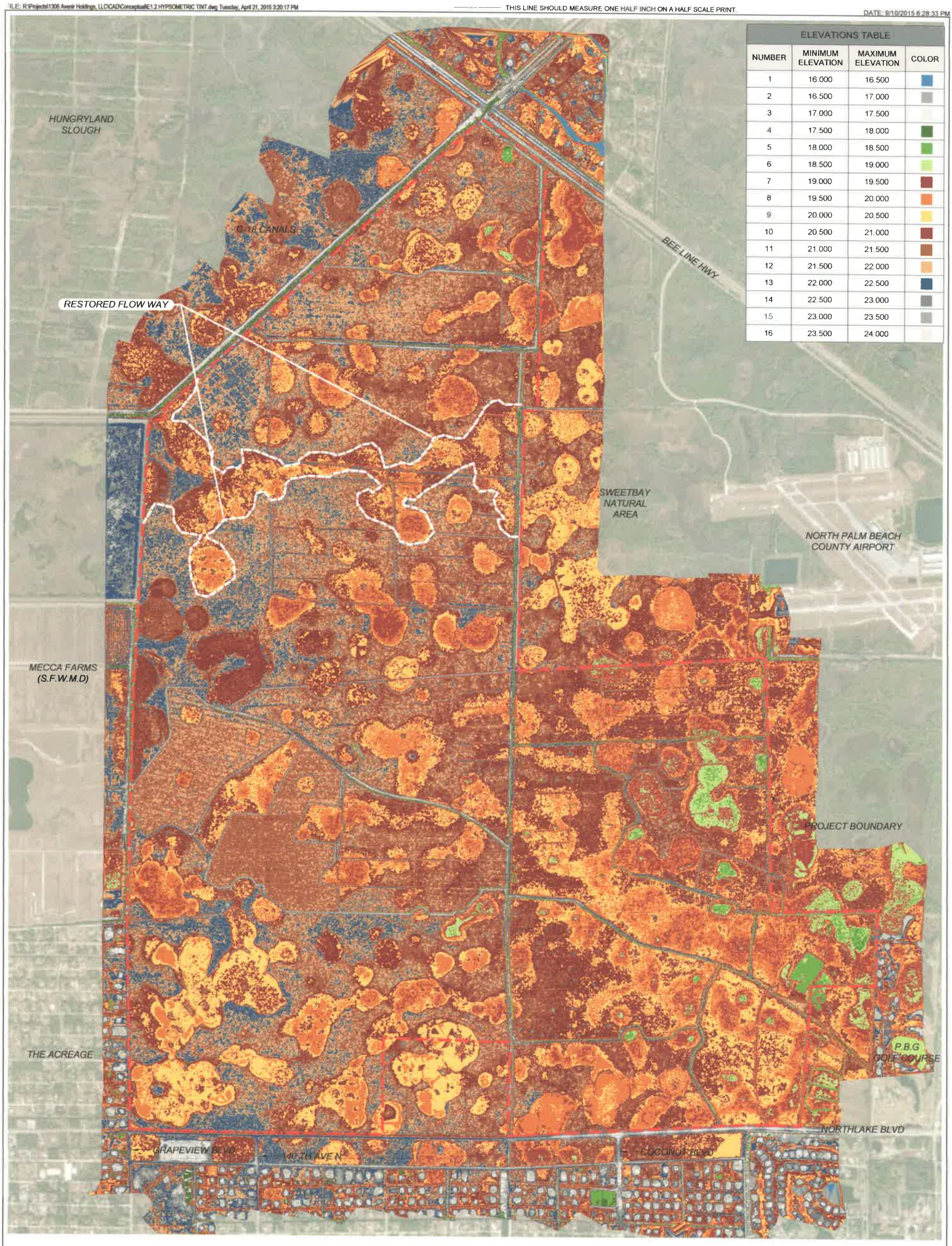
NOTE : PROPERTY OWNERS IN THIS UNIT WILL BE ALLOWED TO DISCHARGE 2.6 CFS OF STORM WATER PER SQ. MILE PER 24 HOURS FROM THEIR PROPERTY INTO THE CANAL NETWORK OF UNIT NO. 8

REMOVE EXISTING CONTROL CULVERTS AND INSTALL AN AMIL D 500 CONSTANT UPSTREAM WATER LEVEL GATE

SCALE 1" = 1000'
15 JUNE 74 RGC
PLATE NO. 1

EXHIBIT 3

HYPSOMETRIC TINT



ELEVATIONS TABLE			
NUMBER	MINIMUM ELEVATION	MAXIMUM ELEVATION	COLOR
1	16.000	16.500	
2	16.500	17.000	
3	17.000	17.500	
4	17.500	18.000	
5	18.000	18.500	
6	18.500	19.000	
7	19.000	19.500	
8	19.500	20.000	
9	20.000	20.500	
10	20.500	21.000	
11	21.000	21.500	
12	21.500	22.000	
13	22.000	22.500	
14	22.500	23.000	
15	23.000	23.500	
16	23.500	24.000	

LEGEND

PROJECT BOUNDARY

0 1000' 2000' 3000'

SCALE IN FEET

THIS HYPSOMETRIC TINT IS A COLORIZED DEPICTION OF THE 0.5' CONTOUR INTERVALS, IS BASED ON THE SURVEY DATA COLLECTED BY TUCK MAPPING SOLUTIONS, INC. (LB 8061) ON NOVEMBER 20, 2013, WITH SURVEY COMPLETED IN TUCK'S OFFICE ON DECEMBER 20, 2013 AND PROVIDED TO US UNDER ROBERT TUCK'S, L.S. 6523, SIGNED AND SEALED DRAWING DATED APRIL 16, 2015. GROUND CONTROL WAS PROVIDED BY ASSOCIATED LAND SURVEYING, INC., STEPHEN SHIRLEY, L.S. 3918.

AVENIR

Avenir

CITY OF PALM BEACH GARDENS — PALM BEACH COUNTY, FLORIDA

HYPSOMETRIC TINT

JTR Jonathan T. Ricketts, Inc.
3450 Northlake Boulevard - Suite 200
Palm Beach Gardens, Florida 33403
Phone: (561) 630-6700
Toll - Free: (877) 630-6777
Fax: (561) 625-2770
FL Certificate of Authorization: 6173
NC Certificate of Authorization: C-2761

SEAL
9/11/15
FL P.E. No. 38799
JONATHAN T. RICKETTS

EXHIBIT 4

PRELIMINARY BASIN DELINEATION MAP

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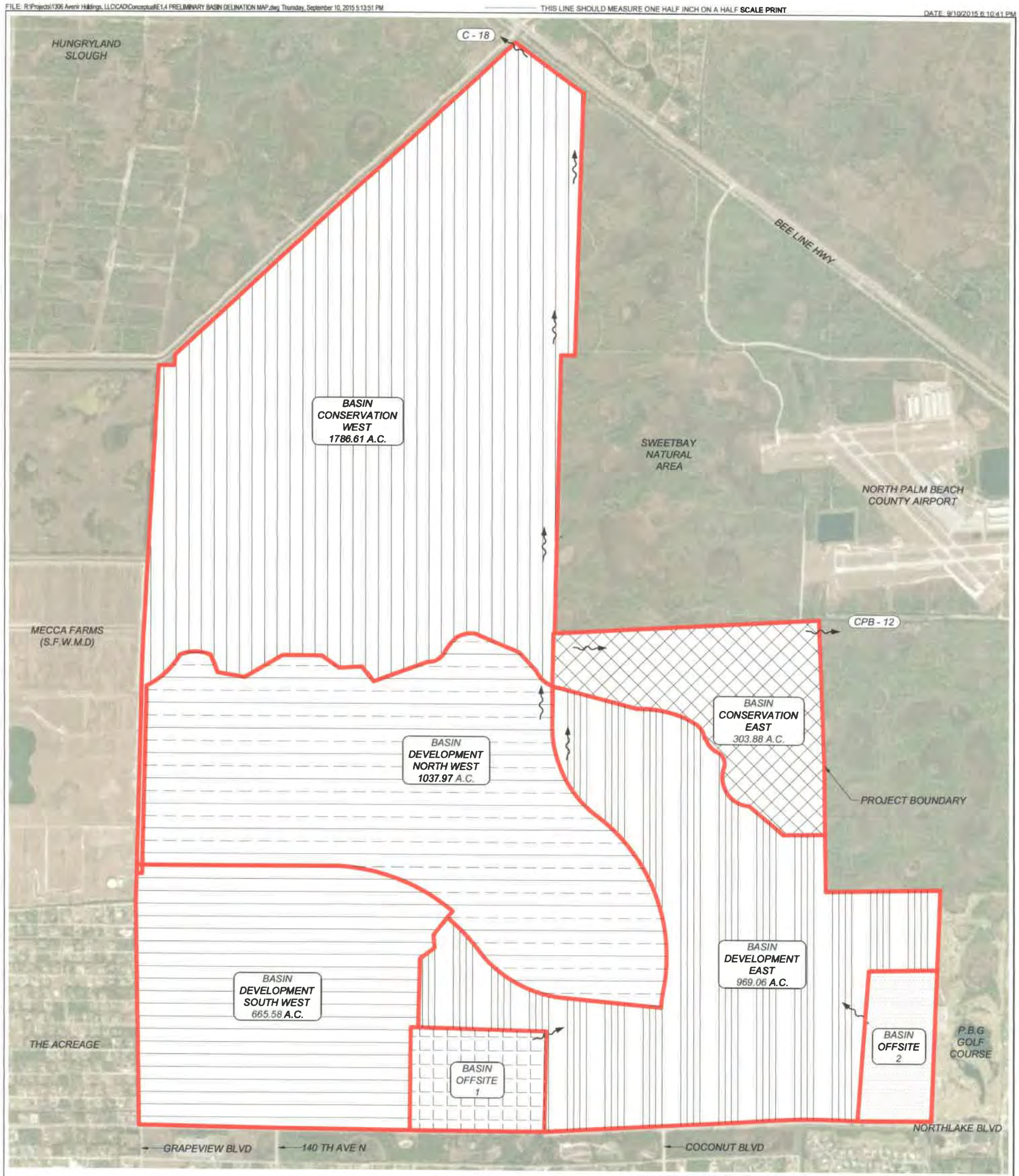

LEGEND

- BASIN DELINEATION
- FLOW DIRECTION
- MAJOR OUTFALL

PRELIMINARY BASIN DATA TABLES

ONSITE AREAS:

BASIN NAME	AREA (ACRES)	PRELIMINARY C.E. [1]
BASIN DEV - EAST	969.06	18.0
BASIN DEV - NORTH WEST	1037.97	18.3
BASIN DEV - SOUTH WEST	665.38	18.3
BASIN CONSV - EAST	303.88	18.0
BASIN CONSV - WEST	1786.61	19.0
SUBTOTAL =	4762.90	ACRES

OFFSITE AREAS:

BASIN NAME	AREA (ACRES)	PRELIMINARY C.E. [1]
BASIN OFFSITE 1 [2]	124.60	18.0
BASIN OFFSITE 2 [3]	97.36	18.0
SUBTOTAL =	221.96	ACRES
TOTAL =	**4984.86**	**ACRES**

FOOTNOTES:

1 PRELIMINARY CONTROL ELEVATION (C.E) IN FEET (NGVD)
2 NORTHLAKE CENTRAL OUTPARCEL (FORMER SPEAR PROPERTY AREA)
3 BALSAMO PROPERTY

0 1000' 2000' 3000'

SCALE IN FEET

AVENIR

Avenir

CITY OF PALM BEACH GARDENS — PALM BEACH COUNTY, FLORIDA

PRELIMINARY BASIN DELINATION MAP

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Palm Beach Gardens, Florida 33403
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Toll - Free: (877) 630-6777
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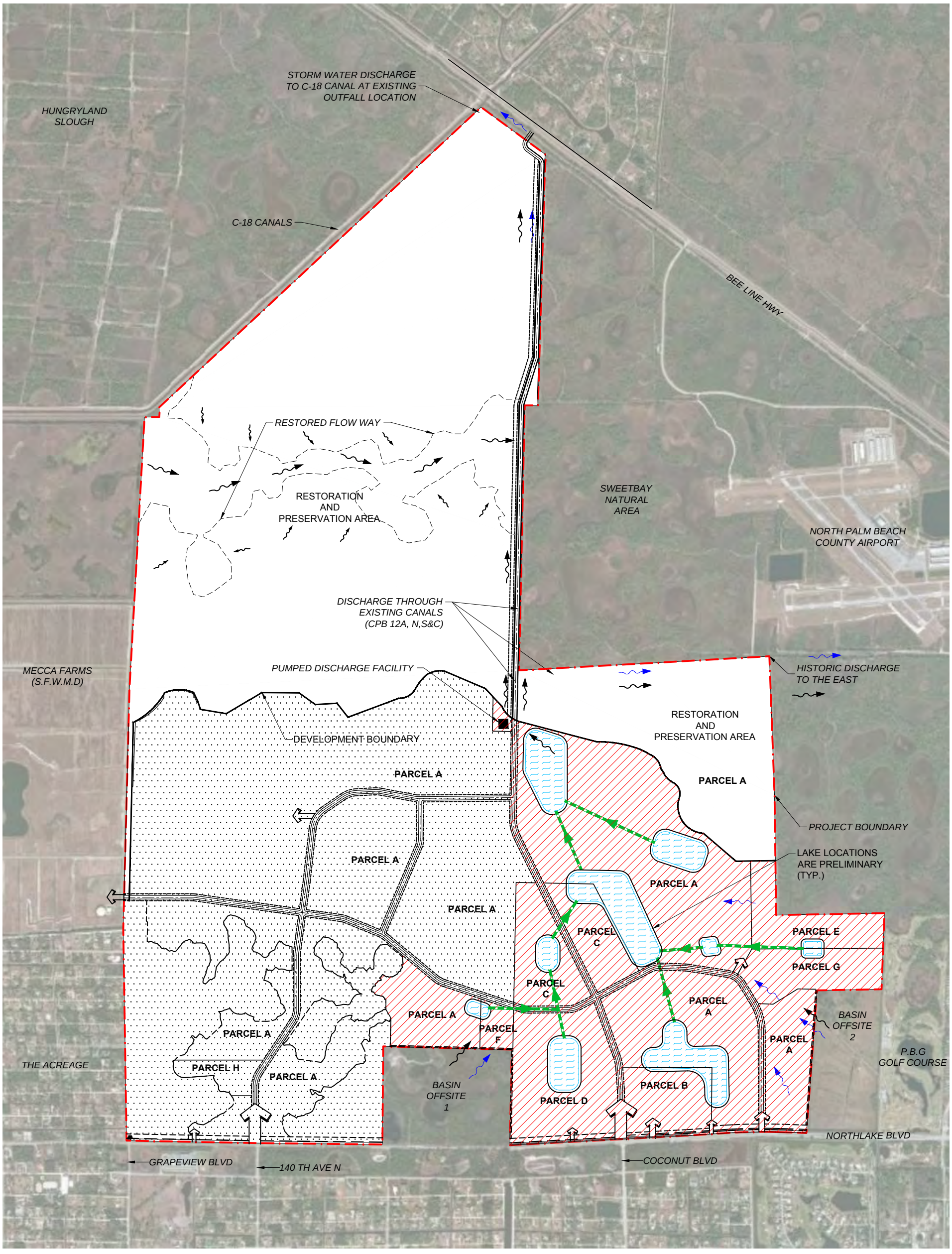
FL Certificate of Authorization: 8413
NC Certificate of Authorization: C-2761

SEAL
9/11/15
FL P.E. No. 38799
JONATHAN T. RICKETTS

EXHIBIT 5

PRELIMINARY DRAINAGE PHASING PLAN



NOTES

1. LIMITS OF PHASE 1 ARE CONCEPTUAL. INTERNAL LAKES, DISCHARGE AND OUTFALL FACILITIES NECESSARY FOR PHASE 1 WILL BE COMMENSURATE WITH THE ACTUAL PHASE 1 CONSTRUCTION.
2. LAKE LOCATION AND SIZES ARE CONCEPTUAL.

0 1000' 2000' 3000'
SCALE IN FEET

LEGEND

- PROJECT BOUNDARY
- DEVELOPMENT BOUNDARY
- PHASE 1
- FUTURE PHASE
- LAKE - (LAKE LOCATIONS SHOWN ARE PRELIMINARY)
- HISTORIC FLOW S
- DRAINAGE FLOWS
- LAKE CONNECTION
- PROPOSED ROADS
- DISCHARGE FACILITY

AVENIR
PALM BEACH GARDENS

Avenir

CITY OF PALM BEACH GARDENS — PALM BEACH COUNTY, FLORIDA

PRELIMINARY DRAINAGE PHASING PLAN

JTR Jonathan T. Ricketts, Inc.
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Palm Beach Gardens, Florida 33403
Phone: (561) 630-6700
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FL Certificate of Authorization: 6173
NC Certificate of Authorization: C-2761

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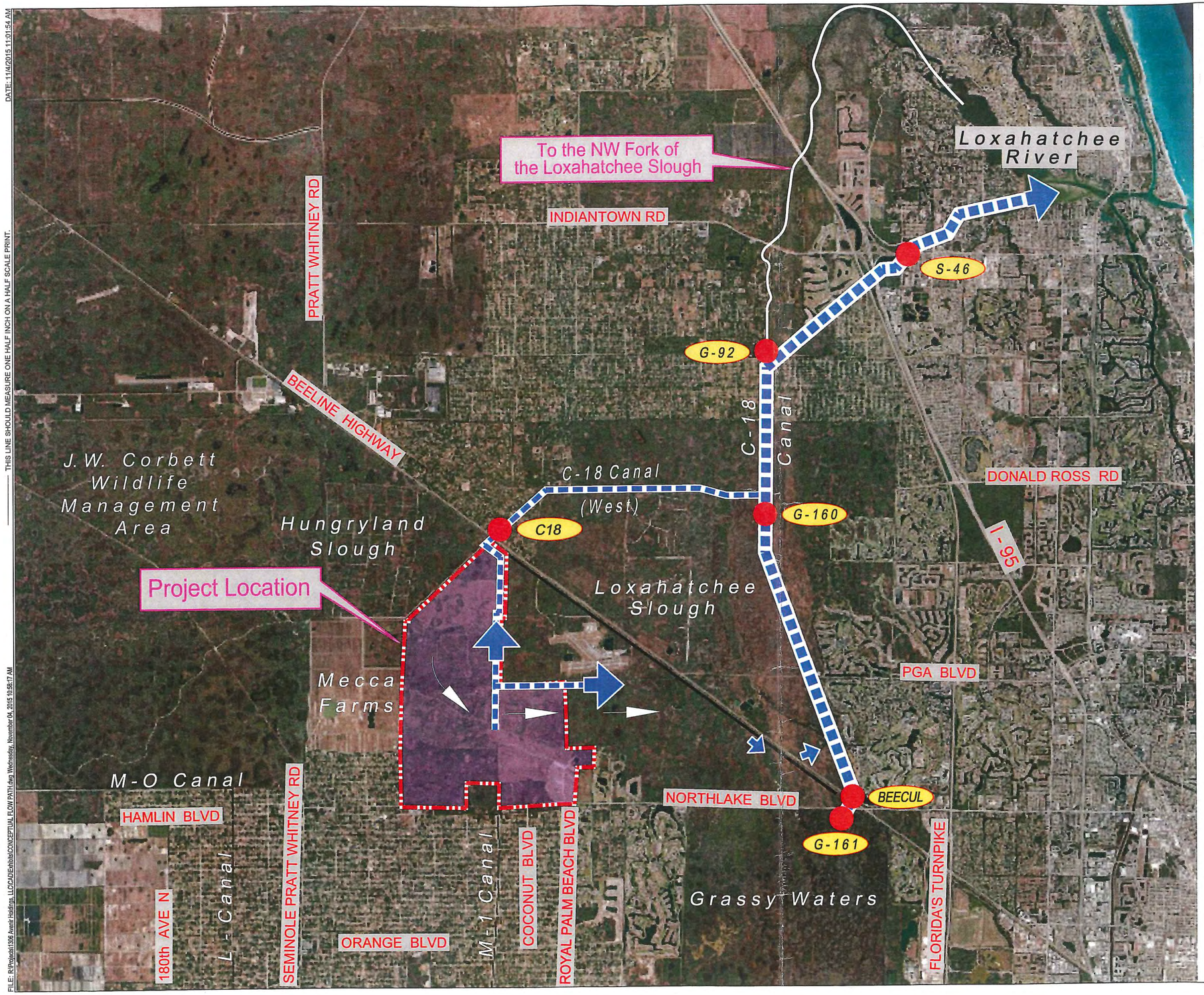
9/11/15
FL P.E. No. 38799
JONATHAN T. RICKETTS



LEGEND

- G-161 CONTROL STRUCTURE
- PRESENT FLOW
- RESTORED HISTORIC FLOWS

0 4000 8000 12000
SCALE IN FEET

EXHIBIT 3

A PROPOSED DEVELOPMENT AND ENVIRONMENTAL RESTORATION PROJECT
Avenir
CITY OF PALM BEACH GARDENS
LAT 26° 50' 29" N
LON 80° 15' 24" W
PALM BEACH COUNTY, FLORIDA

PRESENT AND RESTORED FLOWS

PROJ. NO.: 1306
DRAWN BY: RC
DATE: 2/14/14
SHEET: 3

Jonathan T. Ricketts, Inc.
Consulting Engineers / Construction Managers
9450 Northlake Boulevard - Suite 102
Palm Beach Gardens, Florida 33403
Phone: (561) 630-6700
Toll - Free: (877) 830-6777
Fax: (561) 625-2770
FL Certificate of Authorization: 6173
NC Certificate of Authorization: C-2761

SEAL
FL P.E. No. 38799
JONATHAN T. RICKETTS

DATE: 11/4/2015 11:01:54 AM
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A Phase I Archaeological Survey of the Vavrus South Parcel, Palm Beach County, Florida

by

Victor Longo, B.A.
.

conducted under the direction of
Robert S. Carr, M.S.
Archaeological and Historical Conservancy, Inc.
4800 SW 64th Avenue, Suite 107
Davie, FL 33314
(954) 792-9776
archlgcl@bellsouth.net

for

E.W. Consultants, Inc.

AHC Technical Report #618
July, 2005
2005.91

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List of Figures

Consultant Summary

In June, 2005, the Archaeological and Historical Conservancy Inc. (AHC) conducted an archaeological phase I survey for E.W. Consultants, Inc. of the Vavrus South parcel located north of Northlake Boulevard and approximately 3.5 miles west of the intersection of State Road 710 and Northlake Boulevard in central Palm Beach County. The +/-2,700-acre parcel was surveyed to locate sites of archaeological and/or historical significance.

This assessment was conducted to fulfill historic resource requirements as part of a DRI application #040817-16 (DHR No. 2004-9509) in response to Florida's Chapter 267. This assessment was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966 (Public Law 89-665), as amended in 1992, and 36 C.F.R., Part 800: Protection of Historic Properties. The work and the report conform to the specifications set forth in Chapter IA-46, Florida Administrative Code.

The parcel encompasses all of Sections 9, 10, and 15, and parts of Sections 8, 14, 16, and 17 in Township 42S, Range 41E. Historically most of the parcel area was mixed pine flatwoods and interspersed ponds. The parcel has been partially cleared and impacted with several drainage canals. As a result, the natural vegetative community has been severely altered resulting in a expanding community of exotic vegetation. Prior land use includes vegetable farming and cattle ranching. There are no structures on the subject parcel.

This phase I survey encompassed an archival review, a pedestrian and vehicular survey, and subsurface testing of the parcel. A site search with the Florida Division of Historic Resources determined that no recorded archaeological sites occur in Sections 8, 9, 10, 14, 15, 16, and 17 of Township 42S, Range 41E. A review of aerial photographs and USGS maps of the subject parcel, coupled with the windshield and pedestrian survey identified five features that suggested the location of possible archaeological sites. Twenty shovel tests were dug at the five targets. No archaeological materials were recovered.

No archaeological or historical sites were documented on the parcel, and it is the consultant's opinion, based on available date, that no sites regarded as being potentially eligible for listing on the National Register of Historic Places occur on the parcel.

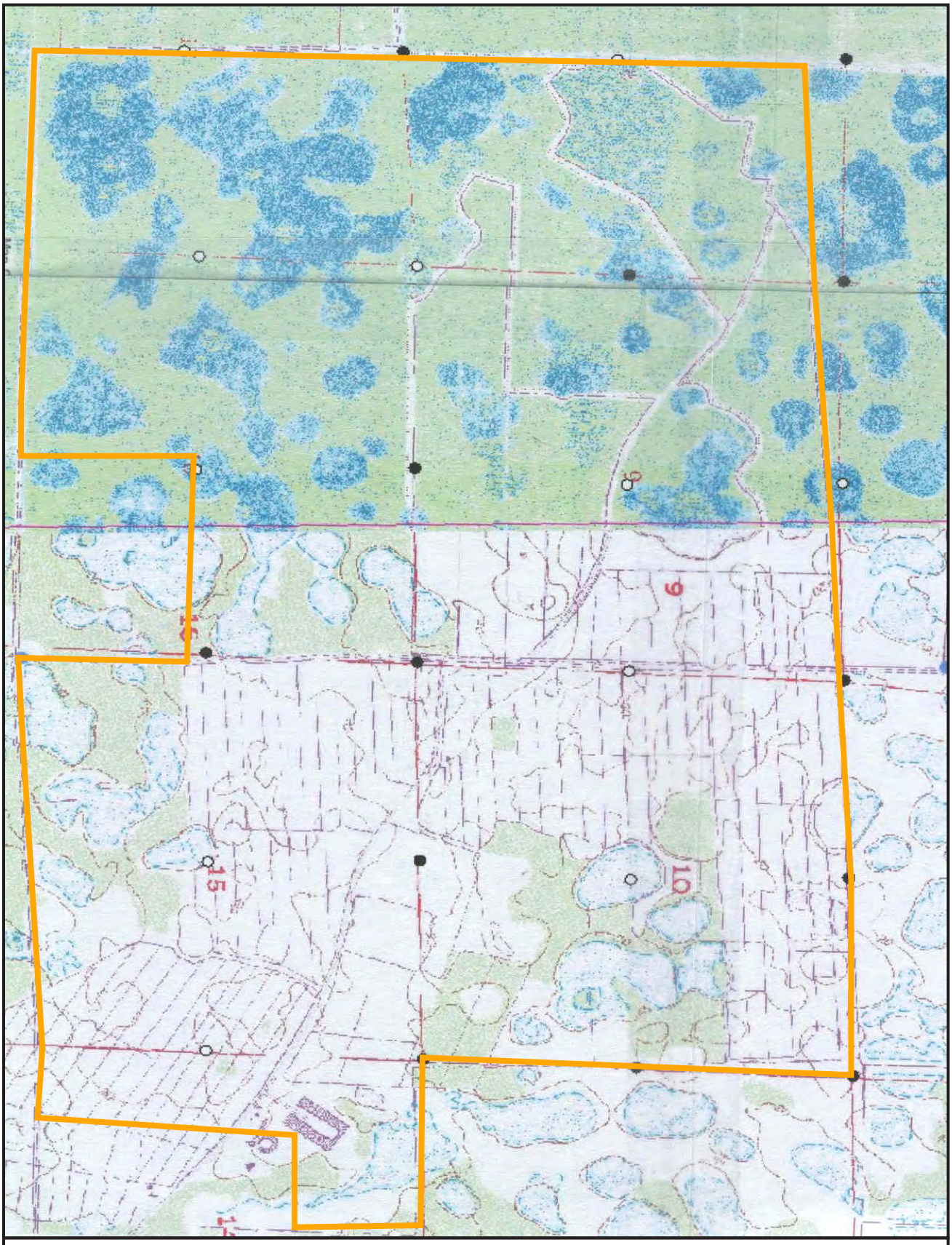

Figure 1. Map of the Vavrus South parcel area

Twp. 42S, Rng. 41E, Sections 8, 9, 10, 14, 15, 16, 17

Source: USGS Delta Quadrangle (1945, rev. 1983)
USGS West of Delta Quadrangle (1971, rev. 1984)

0 1/4 1/2 mile

N

Project Setting

The parcel encompasses all of Sections 9, 10, and 15, and parts of Sections 8, 14, 16, and 17 in Township 42S, Range 41E. Historically most of the parcel area was mixed pine flatwoods interspersed with ponds. The parcel has been partially cleared and impacted by several drainage canals. As a result, the natural vegetative community has been severely altered resulting in an expanding community of exotic vegetation. Prior land use includes vegetable farming and cattle ranching. There are no structures present on the subject parcel. The parcel location is central Palm Beach County, Florida (Figure 1). The +/- 2,700-acre project area is a twelve-sided polygon with sides more or less oriented to the cardinal points. The subject parcel is bordered by Northlake Boulevard to the south, residential development and cleared citrus fields to the west, the Vavrus North parcel to the north, and agricultural fields and Palm Beach Gardens Municipal Golf Course to the east. The relevant USGS maps are Delta and West of Delta, Fla.

The parcel has been disturbed by previous clearing activities and the dredging of several drainage canals. Cleared, fallow fields characterize the northwestern corner of the tract. Much of the parcel was farmed or cleared an estimated 40-60 years ago. The parcel lies in what was historically part of the northeastern corner of the Everglades Trough, an immense drainage feature extending from Lake Okeechobee south to the Shark River/Florida Bay area in Southern Florida.

The geology of the general area is characterized by sand mantles of varying depths covering limestone marls and caprocks. Much of the surfacial sands are present due to wind activity and Pleistocene terracing and are usually fine-grained poorly-drained hydric types with differing percentages of organic peat content. Below these are tan to golden hardpan sands with differing degrees of consolidation and with the varying presence of iron oxide nodules formed through soil processes. Unconsolidated, marly, and chalky limestone caprock layers are found intermittently throughout the area, and can be surfacially exposed.

The vegetation of the area is relict marginal wetland systems and pine/saw palmetto flatwood vegetative communities. Nearly all of the above-mentioned plant communities have at least some small percentage of established invasive exotics, most notably melaleauca, and brazillian pepper.

Limited slash pine flatwoods communities are usually situated on higher ground. Historically, these communities, which contain a dense, often head-high understory of saw palmetto, were subject to and maintained by periodic forest fires. Fires started either naturally by lightning strikes or by prehistoric Indians or by early settlers to aid hunting or cattle grazing. Among the plants typically found in the slash pine/saw palmetto flatland/prairie environments are: slash pine, saw palmetto, gallberry, shiny lyonia, rusty lyonia, staggerbush, dahoon holly, ground oak, wire grass, broom sedges, shiny blueberry, xyris, and a variety of annual and perennial herbs and wildflowers blooming seasonally.

The geology of the central Palm Beach County area is characterized by solutioned

limestone caprock lying exposed or overlain to various depths by sands or shelly marls. Most of the surfacial sands are as “hydric, level, poorly drained” (Watts and Stankey 1980) and are fine-grained wind and water-born deposits from the late Pleistocene/early Holocene. Among the soils present in the area surrounding and including the subject parcel are: Wabasso fine sand; Pineda fine sand; Arents, nearly level; Pepper sand, and Nettles sand. Gray and tan sands found extensively in the district usually overlie relict marine deposits of shelly marl and marly limestone caprock that are part of Pleistocene formations. At greater depths and more to the north are often found formations of a calcified “sandstone” or shelly conglomerate, which is part of the Anastasia Formation. Marine marls contain lenses and deposits of clay intermixed with varying percentages of sand. These clays may have been a source for ceramic manufacture by the Formative period Native Americans. Mantling the Pleistocene sands are windblown deposits of gray sands of varying depths.

Other areas contain tan and gray sand surfacial zones overlying a dense brown sand spodic horizon (often referred to as “hardpan”). This formation is a zone of organic leaching accumulation. Occasionally, harder “nuggets” or nodules of an iron oxide precipitate will be found in this zone, which is sometimes a basal archaeological zone.

The central Palm Beach County area has been subjected for many years by low-impact/low density ranching and farming activities. “Improved” areas are interspersed with undeveloped woodlands. The area has in the last twenty years seen increased growth in the form of planned residential communities that have advanced at a steady rate of growth from the coast toward the interior of Palm Beach County.

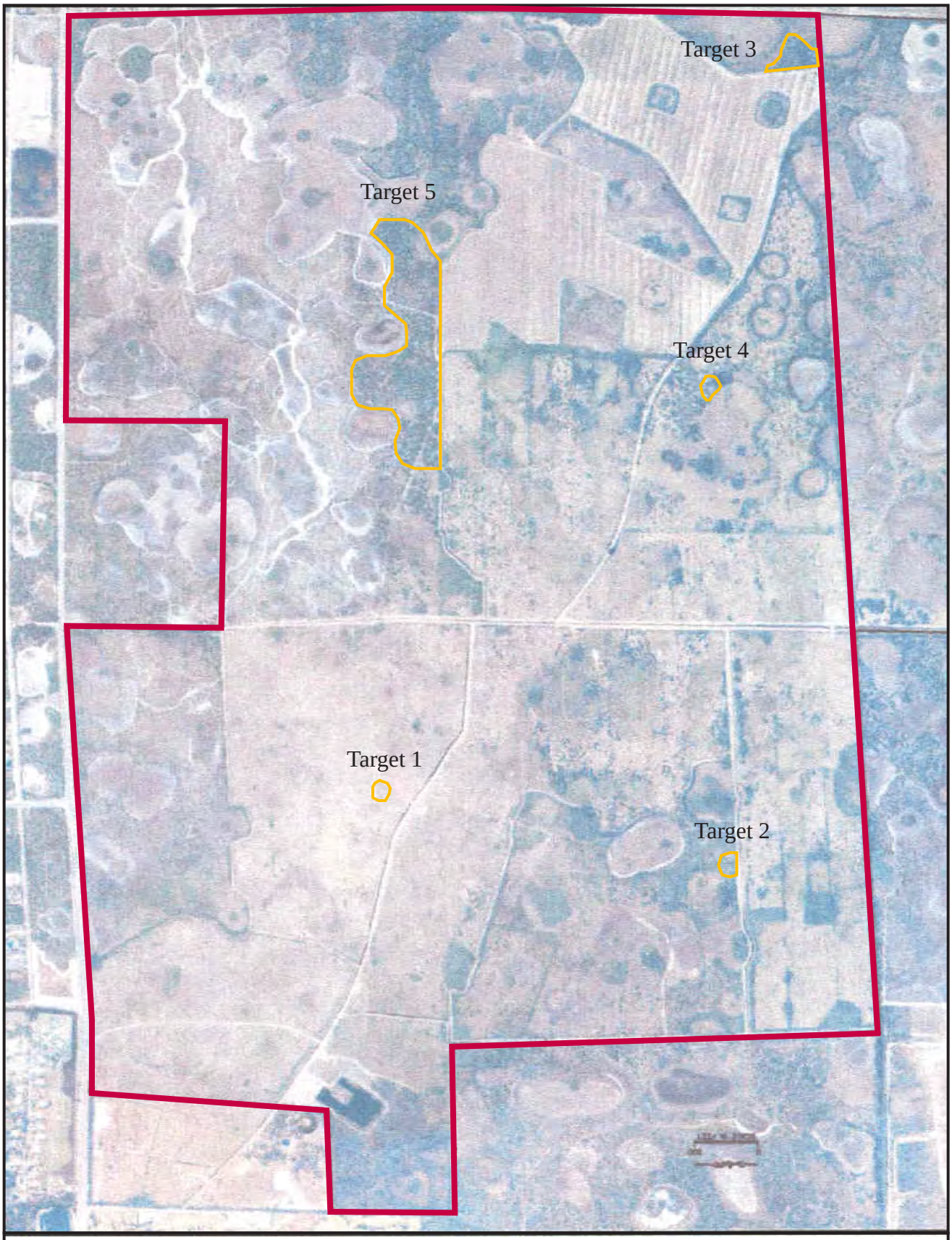

Figure 2. Aerial photograph of the Vavrus South parcel showing archaeological targets.

0 800 ft. 1600ft.

N

Figure 3. View of Target #5, facing southeast.

Figure 4. View of interior of Target #2, facing S/SE.

Figure 5. View of Target #3, facing northeast.

Previous Research

Due to a lack of systematic research, the archaeology of the area east of Lake Okeechobee, including Palm Beach and Martin Counties, is not well understood. John M. Goggin was the first to recognize this area as being somewhat unique and defined it as being the East Coast Region of the Okeechobee archaeological subarea (Goggin n.d.). In his description of the region, Goggin noted that no "local" ceramic forms could be found here. Undoubtedly, this is partly a reference to a lack of unique incised types. In addition, Goggin also lists a number of traits for the region that are usually considered to be more common in northern Florida, such as a large quantity of St. Johns Plain and St. Johns Check-Stamped.

Little archaeological work was conducted in the region until the 1970s. In the early 1970s, John Furey, a graduate student at Florida Atlantic University, conducted an investigation of several sites in the Boca Raton area. Collectively these sites are known as the Spanish River Complex (Furey, 1972). Although the complex was supposed to fall just within the southern border of Goggin's East Coast Region of the Okeechobee subarea, Furey's ceramic analysis revealed that almost half of the sherd collection consisted of the type Belle Glade Plain. Partly because of this, Furey interpreted the Spanish River Complexes as representing a coastal extension of the interior Belle Glade area. Furey also generalized that all of coastal Martin and Palm Beach counties was influenced mainly from the Lake Okeechobee area. Furey's interpretation was seemingly strengthened by Browning's (1975) work at the Rocky Point 2 Site (8MT33) in northern Martin County. Here, Browning reported a sherd assemblage that consisted of 25% Belle Glade Plain.

Despite this, Milanich and Fairbanks (1980) included the coastal portions of Martin and Palm Beach counties in a "Circum-Glades" area. They defined this area as including all of southeastern Florida and the east coast as far north as Indian River County. The term, "Circum-Glades," was coined earlier by Griffin (1974) who argued that the major focus for settlement and subsistence in southeastern Florida was along the coasts. He interpreted the smaller tree-island sites within the Everglades themselves as small, temporary hunting camps, which were used sporadically by the coastal inhabitants. Apparently, Milanich and Fairbanks considered this interpretation to be appropriate for coastal Palm Beach and Martin counties as well, although they provided little explanation for this argument.

Carr and Beriault (1984) rejected most of the cultural names and boundaries used by Milanich and Fairbanks for southern Florida and reiterated Furey's generalizations on the coastal portions of Martin and Palm Beach Counties. In their analysis, Boca Raton was considered to be the southern boundary of a separate cultural area, which they called "East Okeechobee", and was mainly influenced from the west. Based on the work of Browning at Rocky Point, Carr and Beriault suggested that the northern boundary for the area was probably somewhere around the border of Martin and St. Lucie counties. A western boundary was chosen that would exclude inland sites in Martin and Palm Beach Counties like Big Mound City (8PB48), the Boynton Mounds (8PB100), Barley Barber I

(8MT19), and Belle Glade (8PB41), as these sites seem to be complexes and earthworks associated with the Lake Okeechobee culture area.

In his synthesis of Everglades archaeology, Griffin (1988) provided a detailed description of his thoughts concerning southern Florida prehistoric cultural boundaries. He supported the boundaries that Carr and Beriault used for their East Okeechobee Area, but he did not accept a name for the area. Instead, Griffin referred to the area as being "unclassified," probably due to the lack of archaeological work conducted there. He also refers to the area as being transitional between three different areas, presumably the Belle Glade Area to the west, the Everglades Area to the south and another cultural area to the north. Because of this, he suggested that it might be more appropriate to consider this area to be a district of one of its neighboring areas.

In doctoral work conducted under the direction of Milanich, McGoun (1989) renamed the Circum-Glades area "Southeast Florida." Overall, he kept Milanich's boundaries for this area intact, arguing that there were no major differences within the area from Cape Canaveral to Cape Sable. He also stressed the predominance of sand-tempered plain pottery within this area.

Recent surveys, stratigraphic excavations, and salvage work in Jupiter by students from Florida Atlantic University seem to contradict interpretations of a Gold Coast or East Okeechobee Area influenced mainly from the west. Stratigraphic excavations at Jupiter Inlet I (8PB34) revealed that Belle Glade Plain was a minor type, accounting for less than 4% of the entire sherd assemblage. The St. Johns ceramic series, including St. Johns Plain, St. Johns Check-Stamped, St. Johns Simple-Stamped, and Dunns Creek Red makes up a greater proportion of the total ceramics recovered at this site (about 11%) than Belle Glade Plain, even though the St. Johns series was only recovered from the upper-most, or more recent stratigraphic levels. Radiocarbon dates from the site also demonstrate that St. Johns Check-Stamped pottery was first used at this site around A.D. 1000 (Kennedy *et al*., 1993). Previously in southern Florida the earliest date for this ceramic type was A.D.1200, although it was present as early as A.D. 1000 in the St. Johns culture area (Purdy, 1990).

Salvage work conducted on the Suni Sands oyster midden (8PB7718) corroborates evidence that the region is distinct (Pepe and Kehoe, 1992). Here, unprovenienced collections were made from the spoil piles resulting from the installation of new electrical lines. No Belle Glade Plain or St. Johns Check-Stamped sherds were recovered during these investigations, although 192 sand-tempered plain, 33 St. Johns Plain and three Dunns Creek Red sherds were recovered.

Surveys much farther upstream from the Jupiter Inlet, along the Northwest Fork of the Loxahatchee River on the Shunk Tract (8PB7944, 8PB7945) and at the Loxahatchee River Corridor Site (8PB7946), also failed to turn up any Belle Glade Plain pottery (Kennedy *et al.,* 1994a, 1994b). It is also interesting to note that no St. Johns Check-Stamped sherds and only a small number of St. Johns Plain sherds (N=2) were recovered in these investigations, with by far, the most dominant ceramic type being sand-tempered plain (N=254). Belle Glade Plain sherds were not recovered in recent surveys near the

original headwaters of the Loxahatchee River either (Kennedy *et al.*, 1994a 1994b; Carr *et al.*, 1995). In addition, the work in Jupiter demonstrates that the St. Johns ceramic series makes up a large part of the ceramic assemblages from the coastal sites and is virtually absent from those farther inland.

Recent archaeological investigations in the project area include an assessment of the Palm Beach County Biotechnology Research Park (Scripps) parcel located west of the subject parcel (Carr and Mankowski, 2004). No historic or archaeological sites were located during that assessment.

Cultural Summary

Frequent contact and trade between the St. Johns, Indian River and East Okeechobee culture areas is documented in the archaeological record. The presence of St. Johns pottery, type X *Busycon* picks, *Busycon* adzes and exotic northern trade goods such as greenstone celts and plummets in these areas demonstrate communication between them (Rouse, 1951; Goggin, 1952; DuBois, 1957; Kennedy *et al*., 1993; Wheeler, 1993).

Ethnographic evidence for contact and trade between various regions, at least in historic times, can be found in *Jonathan Dickinson's Journal* (Dickinson, 1985). On his journey up the coast to St. Augustine, Dickinson and his party stopped at Jece, which was almost certainly an Ais village. When the leader of this village learned that the people of Jobe, a Jeaga town, had a good deal of European goods which had been salvaged from Dickinson's wrecked ship, he went to Jobe himself and returned with most of it. This illustrates that the Jeaga, or at least the Jeaga town of Jobe, was in some kind of vassal-type relationship with the Ais, or at least with the town of Jece.

Thus, the main influence on the East Okeechobee area during the seventeenth century seems to have come from those cultural areas to the north, such as the Indian River and St. Johns Areas, rather than from the Lake Okeechobee Area, as was previously thought. Contact and trade with the west certainly did occur, though. Influence from and trade with the Lake Okeechobee Area is evident in the East Okeechobee Area from the presence of Belle Glade Plain pottery. Several earthworks reminiscent of the Lake Okeechobee Area can also be found in the East Okeechobee Area. The Riviera Complex, for instance, was reported to have had sand earthworks (Goggin n.d.; Small, 1928).

St. Johns pottery can also be found in the Lake Okeechobee, Caloosahatchee and Ten Thousand Island Areas. It is possible that this pottery, or at least the idea of making this type of pottery, made its way to the southwest coast from East Okeechobean contact with the Lake Okeechobee Area. The same can be said for the *Busycon* adzes which have been found in post-archaic contexts in the Belle Glade and Ten Thousand Island Areas (Wheeler, 1993).

The strong influence of the Lake Okeechobee Area shown in the Boca Raton sites requires a more sophisticated political explanation, but a reasonable explanation can be given if patterns throughout southern Florida are examined. First, the Lake Okeechobee Area itself must be examined. This area is distinguished in part by remarkable earthworks. Complexes and earthwork sites like Fort Center, Big Mound City (8PB48), Big Gopher (8PB6292), Tony's Mound (8HN3) and others all provide evidence that demonstrates that the Lake Okeechobee peoples were, at least for a time, populous, successful, organized and stratified enough to engage in such major undertakings. It is entirely possible that the Lake Okeechobee Area was dominated by a chiefdom or proto-chiefdom long before their

neighbors, the Calusa, were dominated by one. It is also entirely possible that the Lake Okeechobee proto-chiefdom established permanent coastal villages as a way to expand their influence and subsistence base and obtain marine tools and materials such as shark teeth and shell tools. It is suggested here that the dominance of Belle Glade Plain pottery in the Caloosahatchee Area from A.D. 650-1350 (Cordell, 1992), the dominance of this type in Boca Raton during part of this same period (Furey, 1972) and the construction of large linear earthworks in the Lake Okeechobee Area also during this period (Sears, 1982; Carr *et al*., 1995; Griffin, 1988) provide evidence for these hypotheses.

It is also suggested here that the colonization of the Atlantic coast by Lake Okeechobee peoples was directed towards only one area, the region of present-day Boca Raton. Evidence for this hypothesis is provided in part by the presence of the Boynton Mound Complex (8PB56), about 11 miles to the northwest of Boca Raton, in what was once the eastern Everglades. This site contains several associated mounds and earthworks and is quite similar to sites farther north and west in the Lake Okeechobee Area. No other site like this has been identified in eastern Martin, Palm Beach, Broward or Dade counties. Because of this fact and its close proximity and similarities to the Spanish River Complex, it is probable that the people living at the Boynton Mounds were Lake Okeechobean peoples who, like the Spanish River residents, migrated to the southeast at some point. The Boynton Mounds may represent the initial colony and/or a group of Spanish River residents who split from the main group on the coast. The Boynton residents probably served as intermediaries between the Lake Okeechobee Area heartland and the Spanish River colony.

Decorated ceramics are absent in this area until the appearance of St. Johns Check Stamped pottery. The numerous incised sand-tempered types, which are used so successfully in the Everglades Area for relative dating of sites, are almost completely absent from the East Okeechobee Area, especially as one moves further north in the area. Sand-tempered plain is the dominant type, except in and around Boca Raton, which, as discussed, seems to be an eastern outpost for a Lake Okeechobee proto-chiefdom. Thus, sites closest to Boca Raton are expected to have a greater proportion of Belle Glade Plain pottery than sites farther to the north in this area. The types Belle Glade Plain, sand-tempered plain, St. Johns Plain, and St. Johns Check-stamped make up the bulk of all ceramic artifacts found here. Other types, such as Savannah Fine Cord-marked, Surfside Incised, Engelwood Incised, Opa Locka Incised, Dunn's Creek Red, Carrabelle Punctated, Little Manatee Zoned Shell Stamped, St. Johns Simple Stamped, Weeden Island Incised, and Sarasota Incised have been recovered in very small amounts in the area and probably represent trade wares.

Non-ceramic artifacts that distinguish the East Okeechobee Area are *Busycon* adzes and picks typical of the Indian River and St. John's Areas. Rare trade items typical of these areas include greenstone artifacts like celts and plummets. Bone artifacts, such as points and hair pins, are not uncommon and a few have been recovered which display incised decorations (Wheeler, 1992b; Kennedy *et al*., 1993).

Burials that have been encountered and reported demonstrate several mortuary practices, such as primary burial, extended burial, and bundle burial. Isolated burials have even been noted in village midden contexts (Kennedy *et al.*, 1993; DuBois, 1994). However, it is

probable that the lack of discernable temporal and spatial patterns is due to a lack of general evidence and research in the area.

Site types are generally oyster shell or black earth middens. Both villages and camp sites have been located, with the largest sites being along the coast. Small coastal procurement sites have also be recorded, though. The Singer Island Site (8PB214), for instance, is located on a barrier island and seems to have served as both a site of procurement of sea turtles and other marine fauna and as a lookout point for the salvaging of shipwrecked European vessels (Dickel, 1988). Sand earthworks have also been occasionally noted, such as at the Riviera Complex mentioned earlier, at the Loxahatchee Earthwork Complex (8PB49), and at the Jupiter Inlet Complex (Douglass, 1880). Sand burial mounds, such as the Highland Beach Burial Mound (8PB11), the Nebot Site (8PB219), the Palm Beach Inlet Mound (8PB29), Palm Beach 4 (8PB26) and 8PB4 of the Boca Raton Complex are not uncommon and are usually associated with coastal village complexes. Some, such as the Highland Beach Mound, are, or were, quite extensive, containing large numbers of burials. A. E. Douglass (1882, 1885, 1890), an early explorer and amateur archaeologist, also reported excavating in a burial mound associated with the Jupiter Inlet Complex, although recent attempts to find this mound proved unsuccessful.

Almost all recorded habitation sites are located in what are now or what once were hardwood hammocks. Coastal sites are located in tropical hammocks and inland sites are generally located in "low" hammocks. There were several adaptive advantages associated with these ecosystems that made them quite attractive to the aborigines of the East Okeechobee Area and southern Florida in general. First, hammock vegetation, especially that of low, or "hydric" hammocks, produces a great amount of edible fruits and seeds (Ewel, 1990). Species that were or probably were important aboriginally include the cabbage palm, pigeon plum, *Ficus aurea* (strangler fig) and *Ficus citrifolia*, sea grape, "fox grapes," laurel and live oaks, persimmon and dahoon holly (Austin, 1980). In addition, large numbers of potential game animals, including deer, are attracted to hammocks during mast (acorn) producing season. Low hammocks are also usually tree islands, surrounded by water or other ecosystems. Camping or living in such a place would allow easy access to drinking water and other ecosystems for foraging. Hammocks are also generally moist enough so that fires, especially campfires, would not have been a potential problem. Flooding would not have been a problem either, as hammocks usually occupy fairly high ground. Hammocks in their natural state are also often fairly free of underbrush or herbs of any kind. This would make movement easy and provide work and living areas. Hammocks also lack the temperature extremes found in other ecosystems, providing enough shade during the day to keep temperatures within them fairly cool and trapping enough heat at night to keep temperatures from dropping too low. Finally, many hammock soils contain clay deposits, important for the manufacture of ceramic vessels.

A tentative and general chronology for the East Okeechobee Area follows. It must be stressed though, that very little research has been done in the Area and this chronology must certainly undergo future revisions and even wholesale changes as more evidence is collected.

Paleo Period (10000 B.C. to 8000 B.C.)

Paleoindians lived in southern Florida in association with mammoths, bison, and other types of megafauna. Deposits of fossilized Pleistocene bone have been uncovered by dredging operations from several locations in southern Florida and from solution holes in south Dade County. These deposits yielded a wide range of grazing ungulates and sloths, indicating the presence of more extensive grasslands than present (Webb and Martin, 1974). With the extinction of the megafauna by about 11,000 B.P., Paleoindians apparently adapted to the emerging wetlands of southern Florida, and began to establish the patterns of subsistence that were to provide the basis of resource procurement for the subsequent 10,000 years. Evidence of the Paleo period in southern Florida is now well established with the discovery of a late Paleo/Early Archaic site at Cutler in south Dade County (Carr, 1986). Radiocarbon dates of 9,640 ± 120 years B.P. were determined for this site, which yielded evidence of exploitation of deer and rabbit, some marine fauna, and some indication of hunting extinct horse and peccary. However, the majority of data from this site reflects Indian adaptation to the extinction of New World megafauna.

Archaic Period (7500 B.C. to 750 B.C.)

During the Post Glacial, the sea level rose and greatly diminished Florida's land size. It has been calculated that the rate of sea level rise was approximately 8.3 cm per 100 years from 6000 to 3000 B.P. That rate has decreased to about 3.5 cm per 100 years from 3000 B.P. to present (Scholl and Stuiver, 1967).

By 5000 B.P., cypress swamps and hardwood forests characteristic of the sub-tropics began to develop in southern Florida (Carbone, 1983; Delcourt and Delcourt, 1981). The Archaic Period was characterized by an increased reliance on the shellfish and marine resources on the coast by the native populations, and a generally expanded hunting, fishing, and plant gathering base throughout southern Florida.

Florida archaeologists recognize three temporal divisions for the Florida Archaic: early, middle and late. Although these divisions have traditionally been based on changes in projectile points and pottery types, new environmental and climatic data and increased knowledge of artifact assemblages and site types are now also used for dividing the Archaic (Milanich, 1994).

Early Archaic (7500 B.C. to 5000 B.C.)

To date, only a few sites are known in southern Florida that contain early Archaic components. The Cutler Ridge site seems to date mainly to the early Archaic, as do the Little Salt Spring and Warm Mineral Spring sites in Sarasota County. These two sites are both deep sinkholes that were probably utilized as waterholes in the early Archaic. Other southern Florida sites from this time period may as yet be unidentified. If such sites are found they would be expected to be ancient cenotes or sinkholes, similar to the Sarasota sites, which served as ponds or waterholes in the past (Milanich, 1994).

Middle Archaic (5000 B.C. to 3000 B.C.)

During the middle Archaic more and larger areas of surface water were present in southern Florida. However, most known habitation sites are again located around ancient hydric

sinkholes or around similar features, which would have been good sources of water in the past. Little Salt Spring and Warm Mineral Spring have sizable middle Archaic components as do the Bay West site in Collier County and the Republic Grove site in Hardee County (Milanich, 1994).

One extremely interesting culture trait that seems to be peculiar to the Early and Middle Archaic of southern Florida is the mortuary pond. The Bay West site (Beriault *et al*., 1981), Little Salt Spring (Clausen *et al*., 1979), Warm Mineral Spring (Royal and Clark, 1960), and the Republic Grove site (Wharton *et al*., 1981) all contain human interments in what were shallow ponds during the middle Archaic. Preservation of organic materials from these pond burials is excellent because of the anaerobic condition of the ponds and the mucky soils that underlie them. Middle Archaic village middens are or were once located on the edges of these mortuary ponds.

In addition to mortuary ponds, small campsites are also common for the middle Archaic. These camps frequently occur as scatters of lithic artifacts and debitage. The Westridge site (8BD1119) on Pine Island ridge may be the only such mid-Archaic site identified so far in southeastern Florida (Carr *et al.*, 1992).

Late Archaic (3000 B.C. to 750 B.C.)

By 3000 B.C., the climate and environments of Florida had reached essentially modern conditions. This allowed for a regionalization of cultures as individual societies throughout Florida developed adaptations specific to their local environments (Milanich, 1994). During the late Archaic, the first pottery was produced by the aborigines of Florida. The development of ceramics is important as it suggests that the peoples of this time had adopted a more sedentary lifestyle.

In southeastern Florida, semi-fiber-tempered pottery has been recovered along Biscayne Bay at the Atlantis site (Carr, 1981a,b) and at interior sites such as the Honey Hill site (8DA411) (Carr *et al*., 1992), the 202nd Street site in northern Dade County (Laxson, 1962), and the Markham Park site (8BD183) in Broward County (Mowers and Williams, 1974). Along the Atlantic coast east of Lake Okeechobee, a possible semi-fiber-tempered sherd was recovered from the House of Refuge Midden on Hutchinson Island in Martin County during avocational excavations (Feaster, 1965). In addition, several possibly semi-fiber-tempered sherds from another Hutchinson Island site, Santa Lucea (8MT37), are on display at the Elliot Museum. Several semi-fiber-tempered sherds are also reported for Jupiter Inlet I (8PB34) farther south in Palm Beach County (Kennedy *et al*., 1993). Semi-fiber-tempered sherds were also recovered from the coastal Mt. Elizabeth site (8MT30) in a recent survey of Martin County (Carr *et al*., 1995).

Other sites did not contain any ceramics. This suggests that they represent short-term hunting camps occupied temporarily by coastal inhabitants, or that they date to earlier mid-Archaic times. The extreme densities of some of these sites argues against them being anything other than permanent habitation sites. Research also shows that these tree island communities date back no farther than 5000 B.P., or 3000 B.C. (Kremer and Spackman, 1981). This seems to rule out habitation of these sites during periods earlier than the late

Archaic, although the possibility remains that initial occupation may have begun during mid-Archaic times at some.

This Glades Archaic culture seems to have had little contact with other cultures. This is documented in part by the non-ceramic nature of these sites. As Sassaman (1993) discussed, the fiber-tempered pottery tradition was adopted and practiced intensively in only a few areas. Thus, it should not be difficult to imagine that a population dispersed among and well adapted to the interior marshes of southern Florida would have had no trouble avoiding contact with or resisting the influences of neighboring cultures. The ability of the Seminoles to do this well into modern times can be considered adequate evidence for this postulation.

The general lack of stone tools in southern Florida is obviously due in part to a corresponding lack of good lithic procurement sites here, but it may also have something to do with the postulated isolationist nature of the Glades Archaic peoples. The natural resources utilized and eaten by these people probably required little of the sort of archaeologically recognizable material culture represented by ceramic and lithic artifacts. Vegetable fibers, including wood, and bone probably provided most of the raw materials needed for artifact production. The use of biodegradable material translates into an incredibly low number of artifacts known from these sites. Most artifacts recovered are made from bone, although *Strombus* celts have been recovered from some sites. These celts may represent contact with coastal Orange cultures but most likely represent occasional coastal procurement by Glades Archaic populations themselves.

The Glades Archaic is postulated as being a culture that was well adapted to life within the newly formed interior wetlands of the late Archaic. This adaptation was so complete that Glades Archaic peoples were able to remain relatively unchanged for over 2000 years.

East Okeechobee Period (Ca. 750 B.C. to 1750)

The recent research conducted by Florida Atlantic University makes it clear that Goggin's (1947) Glades chronology is not useful for the East Okeechobee Area. Therefore, a new chronology, specific to this area, is proposed. It must be noted though, that the only radiocarbon dates recorded in the area have come from Jupiter Inlet I (8PB34) and the following chronology is based mainly on sites in the Jupiter area. Thus, the chronology will be most successfully applied to sites found along the Loxahatchee River.

The East Okeechobee I period (750 B.C. - ca. A.D. 800) is characterized by the use of undecorated sand-tempered pottery in most of the area, such as in the Hungryland Midden (8PB6294) (Kennedy *et al*., 1991), the numerous sites recently identified along the upper Loxahatchee River (Kennedy *et al*., 1991; Kennedy, Jester, Pepe, Sinks and Wernecke 1994; Kennedy, Jester, Pepe, Sinks, Wernecke and Flaherty 1994; Carr, *et al*., 1995), and in basal levels of Jupiter Inlet I (8PB34) (Kennedy *et al*., 1993). Belle Glade Plain is a minor type except in and around Boca Raton where it is the dominant type and sand-tempered plain is the minor type. This pattern is evidenced by the ceramic assemblage from the Spanish River Complex (Furey, 1972). Again, this is probably the result of a Lake Okeechobean settlement in the Boca Raton area. Other types of pottery are absent or make up only trace amounts of total assemblages from this period. It is important to note that this

period is marked by an absence of St. Johns pottery. This seems to demonstrate a direct transition from the Glades Archaic culture rather than from the Orange culture.

As with the Glades Archaic, sites seem to be concentrated in the interior wetlands rather than on the coast. However, the upper Loxahatchee River sites seem to demonstrate that, unlike the earlier Glades Archaic, East Okeechobee I sites may be found along the upper reaches of rivers and streams in the area. These sites probably represent camps that were occupied seasonally and not located in exactly the same place every year. This would explain the extended length and unevenly distributed middens of most of the upper Loxahatchee sites. Coastal sites such as Jupiter Inlet I were probably occupied seasonally as well during this time. The time span for this period is quite long but it could possibly be broken down into sub-periods if more research is done in the area. Changes in ceramic rim styles may prove to be the most useful tool for this purpose.

The East Okeechobee II period can be tentatively stated as starting around A.D. 800 and extending to about A.D. 1000. This relatively short period is marked by the appearance of St. Johns Plain ceramics as documented at Jupiter Inlet I (8PB34) and Suni Sands (8PB7718). The noticeable lack of St. Johns ceramics in the interior sites mentioned for the last period testify to a change in settlement patterns for East Okeechobee II. It appears that permanent settlements in this period were concentrated along the coast for the first time (excepting earlier Orange settlements). In the southern part of the area, dominated by the proposed Lake Okeechobean settlement, this period is marked by an increase in the use of sand-tempered plain pottery and by a corresponding slight decrease in Belle Glade Plain. The dates for this period in and around Boca Raton may also be slightly later, perhaps from about A.D. 950 to A.D. 1200.

Jupiter Inlet I (8PB34) has provided a radiocarbon date on the beginning of the next period, East Okeechobee III. The marker type for this period, St. Johns Check Stamped, makes its first appearance at about A.D. 1000. No date on the first appearance of this type has been obtained from the Spanish River Complex, but it may very well appear somewhat later, perhaps at around A.D. 1200, as it does in the rest of southern Florida. In all parts of the East Okeechobee Area though, this period is marked by a substantial increase in the St. Johns ceramic series, until St. Johns Plain and St. Johns Check-stamped eventually become the dominant types. This can be seen at the Riviera Site (8PB30) (Wheeler, 1992). Before the St. Johns series becomes dominant in the Boca Raton area though, the increase in sand-tempered plain and decrease in Belle Glade Plain continues, so that, for a while at least, both the amounts of sand-tempered plain and the St. Johns wares are increasing simultaneously. This period ends with the appearance of European goods. A tentative date in line with other areas in southern Florida for sustained European contact is A.D. 1500.

Therefore, the next period, East Okeechobee IV, is marked by essentially the same ceramics as the previous period except that this period has the addition of European goods. The St. Johns series is dominant and the Riviera Site (8PB30) suggests that St. Johns Check-Stamped may actually be the most dominant ware. The tribe encountered in the East Okeechobee Area by Europeans at this time was called the Jeaga. It is possible that the Jeaga were under the political dominance of the Calusa, a tribe centered on the southwestern coast of Florida (Fontaneda in True, 1945). However, the large amounts of St. Johns pottery

and other artifacts from the Indian River and St. Johns Areas in the East Okeechobee Area during this time suggests dominance by these northern areas instead. As mentioned before, Dickinson also observed that the Jeaga were forced to hand over his shipwrecked cargo to the Ais, their neighbors to the north. Thus, it would seem that if the Calusa did exert any control over the Jeaga, it was minimal or sporadic and was not nearly as strong as was that exerted by the Ais and perhaps by the Timucua farther to the north.

It has been estimated that there were about 20,000 Indians in south Florida when the Spanish arrived (Milanich and Fairbanks, 1980). By 1763, when the English gained control of Florida, that population had been reduced to several hundred. These last survivors were reported to have migrated to Cuba with the Spanish (Romans, 1962), however, it is likely that the so-called "Spanish Indians" (Sturtevant, 1953), who raided Indian Key in 1840, were the mixed-blood descendants of the Calusa and/or refugees from north Florida missions raided by the English in the early eighteenth century. The Spanish-Indians joined the Seminoles, who had fled en masse into south Florida in 1838 after the Battle of Okeechobee, although some Creek groups apparently had migrated to south Florida earlier in the century.

Historic Period (1750 AD – 1900 AD)

The earliest documentary evidence of Seminole settlement in South Florida is an account by John Lee Williams (1837) describing Snake Warrior's Island at the headwaters of Snake Creek. Recently, site 8BD1867 in Miramar in southern Broward County was identified as this site.

Seminole archaeology is a relatively new focus in South Florida, and recent work has contributed new data. Numerous Seminole sites have been identified in Palm Beach County, including those associated with Fort Jupiter and the Loxahatchee River (Carr *et al.,* 1994; Carr *et al.,*1995; Pepe and Carr, 1996a and 1996b; Pepe *et al.,* 1998).

By the 1860s, several pioneer families had settled along the coastal area. Fishing, citrus groves, and farming were some of the means of livelihood. In the 1890s the arrival of the Florida East Coast Railway began development in the region that continues to present-day.

Methodology

Prior to conducting fieldwork in the project parcel, an archival and literature search was performed. This included, but was not limited to, studying prior archaeological reports for sites in Palm Beach County, reviewing information from the Master Site File in Tallahassee concerning nearby sites, and examining USGS maps and black and white aerial photographs dating from 1965, 1973, 1994, and 2002 which could aid in revealing anthropogenic changes to the topography and floral communities.

Research Design

The objective of this assessment was to determine whether any prehistoric or historic sites, features, or artifacts occur on the project parcel. This phase I survey of the Vavrus South parcel incorporated the use of certain predictive archaeological site models. These models are based on topographic and vegetative attributes that are associated with prehistoric sites in interior Palm Beach County. These models postulate that elevated sandy knolls and cabbage palm hammocks are high probability features for being associated with archaeological sites. The elevational information on the Delta and West of Delta Quadrangle maps for the area also was used. It was determined that overall, based on the large size of the tract, the project parcel had a medium to high possibility of containing archaeological sites.

After reviewing the aerial photographs and surveying the parcel from field-level, a total of five archaeological targets were identified on the subject parcel to be tested in the field.

Field Work

Each of the five archaeological targets were visited and assessed for their archaeological potential. All other parts of the subject parcel also were visited and assessed. A windshield/ pedestrian survey of the entire parcel was conducted in order to identify any additional archaeological targets or features that were not visible in the aerial photographs. Areas of exposed natural soil on the parcel were examined for any evidence of archaeological material.

The archival research and windshield/ pedestrian survey was followed by sub-surface testing, which was conducted in June, 2005. Each of the five targets was visited and photographed (Figures 3, 4). All of the targets were subject to sub-surface testing. A total of twenty test holes was excavated across the five selected targets.

This assessment resulted in the excavation of twenty 45 cm square shovel tests. All shovel tests were dug to sterile sub-soils, or beneath the water table. All dug sediments were screened through a ¼" mesh hardware cloth and any cultural material was saved. All material suspected of being of archaeological significance was placed in sealable plastic bags and sent to the AHC laboratory in Davie for evaluation and analysis.

Collections

All recovered materials (FS 1) were brought to the AHC laboratory in Davie to be cleaned, identified, and quantified.

Informants

No informants were interviewed for this assessment.

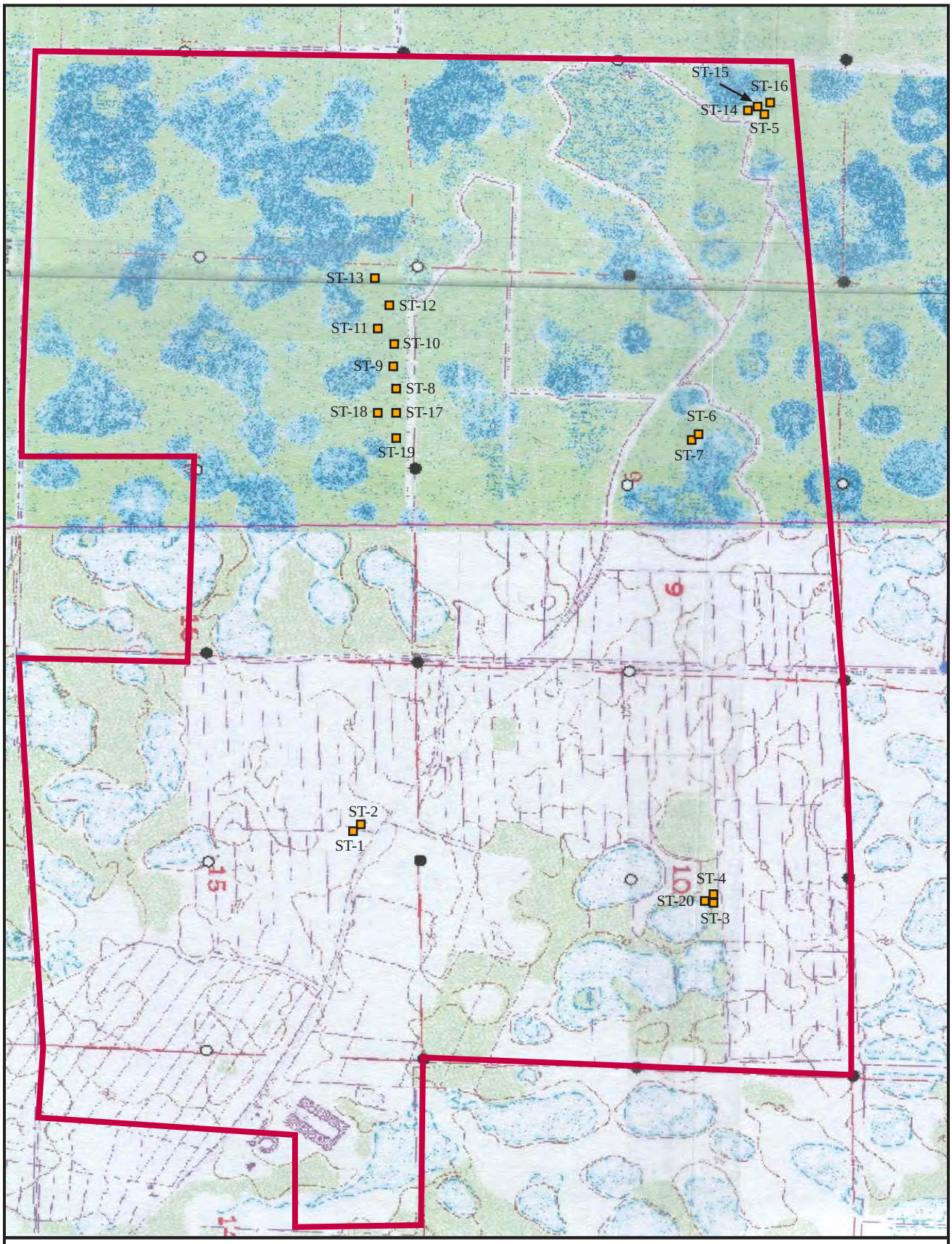

Figure 6. Map of the Vavrus South parcel showing test hole locations

N

Archaeological Test Hole

Source: USGS Delta Quadrangle (1945, rev. 1983)
USGS West of Delta Quadrangle (1971, rev. 1984)

0 1/4 1/2 mile

Results and Conclusions

This phase I survey of the Vavrus South parcel resulted in a survey of all parts of the parcel. No historic or archaeological sites were found, but five targets of moderate probability for being associated with archaeological sites were observed (Appendix 1). A total of twenty shovel tests was excavated across the target areas. One shovel test produced a circa 1930's wine bottle (FS 1). However, the remaining nineteen shovel tests yielded negative results. No structures occur on the subject parcel.

As a result of this assessment, it was determined that the parcel has a low probability for any archaeological sites occurring on the parcel that could be potentially eligible for listing on the National Register of Historic Places. This low site potential is probably because of the low elevation of the parcel. Due to the large size of the subject parcel, however, it is possible that archaeological material, features or small sites could occur. If any archaeological materials are encountered during development, then the consultant archaeologist and appropriate agencies should be notified. If human remains are found then the provisions of Florida Statute 872.05, the Unmarked Human Graves Act, will apply.

References Cited

Austin, DF

1980 Historically important plants of southeast Florida. *The Florida Anthropologist 3* (1):17-31.

Beriault, JG, RS Carr, J Stipp, R Johnson, and J Meeder

1981 The Archaeological Salvage of the Bay West Site, Collier County, Florida. *The Florida Anthropologist 34*(20):39-58.

Beriault, John G. and Charles Strader

1984 A Preliminary Report on Stratigraphic Excavation on Chokoloskee Island, Florida. Southwest Florida Archaeological Society, MS on file, AHC.

Browning, WD

1975 Archaeological investigation at the Rocky Point 2 Site: 8MT33. Conducted for Deal Development Co.

Carbone, VA

1983 Late Quaternary Environments in Florida and the Southeast. *The Florida Anthropologist 36*:3-17.

Carr, RS

1986 Preliminary Report on Excavations at the Cutler Fossil Site (8DA2001) in Southern Florida. *The Florida Anthropologist* 39:231-232.

1981a Salvage Excavations at Two Prehistoric Cemeteries in Dade County, Florida. Paper presented at the 45th Annual Meeting of the Florida Academy of Sciences.

1981b *Dade County Historic Final Report: The Archaeological Survey*. Metropolitan Dade County Office of Community and Economic Development, Historic Preservation Division, Miami, Florida.

Carr, RS and JG Beriault

1984 Prehistoric Man In South Florida. In P.J. Gleason (ed.) *Environments of South Florida: Present and Past II*. Miami Geological Society, Coral Gables, Florida, pp 1-14.

Carr, RS, D Dickel and M Masson

1995 Archaeological Investigations at the Ortona Earthworks and Mounds. *The Florida Anthropologist 48*(4):227-264.

Carr, RS, L Jester and J Pepe

1995 Phase II Archaeological Investigations of the Riverbend #12 Site, Palm Beach County, Florida. *AHC Technical Report #112.*

Carr, RS and J. Mankowski

2004 An Archaeological and Historical Assessment of the Palm Beach County Biotechnology Research Park Parcel, Palm Beach County, Florida. *AHC Technical Report # 483.*

Carr, RS and WS Steele
1995 An Archaeological Survey of the Citrus Project Property, Brighton Seminole Reservation, Glades County, and Big Cypress Reservation, Hendry County, Florida. *AHC Technical Report #65*.

Carr, RS, WS Steele and J Davis
1994a A Phase I Archaeological and Historical Assessment of the Piper Tract, Collier County, Florida. *AHC Technical Report #83*.

1994b A Phase II Archaeological and Historical Assessment of the Piper Tract, Collier County, Florida. *AHC Technical Report #99*.

Carr, RS, WS Steele, S Norman, and R Ferrer
1992 An Archaeological Survey and Management Plan of the Town of Palm Beach. October, 1992. *AHC Technical Report #61*.

Carr, RS, WS Steele, J Pepe, and L Spears-Jester
1994 An Archaeological and Historical Assessment of Riverbend Park, Palm Beach County, Florida. *AHC Technical Report #106.*

Clausen, CJ, AD Cohen, C Emiliani, JA Holman and J J Stipp
1979 Little Salt Spring, Florida a Unique Underwater Site. *Science 203*:609-614.

Cockrell, WA
1970 Glades I and Pre-Glades Settlement and Subsistence Patterns on Marco Island (Collier County, Florida). M.A. thesis of file, Florida State University, Tallahassee, Florida.

1972 Report on file with FDAHRM.

Cordell, A
1992 Technological investigations of pottery variability in southwest Florida. In WH Marquardt (ed.) *Culture and Environment in the Domain of the Calusa*. Gainesville: IAPS University of Florida, pp. 105-189.

Delcourt, P.A. and H.R. Delcourt
1981 Vegetation Maps for Eastern North America: 40,000 Years B.P. to Present, in *Geobotany II.* R.C. Romans editor, Olenum Publishing Press, New York, NY.

Dickel, D
1988 Test excavations at the Singer Island site (8PB214), MacArthur Beach State Park, Palm Beach County, FL.

Dickinson, Johnathan
1885 *Johnathan Dickinson's Journal*. Florida Classics Library, Port Salerno, Florida

Douglass, AE
1882 A find of ceremonial weapons in a Florida mound, with brief notice of other mounds in the State. *Proceedings of the American Association for the Advancement of Science 31*.

1885 Ancient Canals on the South-west Coast of Florida. *American Antiquarian* 7:227-285.

1890 Mounds in Florida. *American Antiquarian* 12:105-107.

Dubois, BW
1957 Celt and pendant from Jupiter Inlet Mound. *The Florida Anthropologist 10*:15-16.

Ehrenhard, JE, RS Carr and RC Taylor
1978 The Archaeological Survey of the Big Cypress National Preserve: Phase I. Southeast Archaeological Center, National Park Service, Tallahassee, Florida.

1979 The Archaeological Survey of the Big Cypress National Preserve: Season 2. Southeast Archaeological Center, National Park Service, Tallahassee, Florida.

Ehrenhard, JE, RC Taylor, and G Komara
1980 The Archaeological Survey of the Big Cypress National Preserve: Season 4. Southeast Archaeological Center, National Park Service, Tallahassee, Florida.

Ewel, KC
1990 Swamps. In RL Myers and JJ Ewel (eds.) *Ecosystems of Florida*. Orlando: University of Central Florida Press, pp. 281-323.

Feaster, SV
1965 Archaeological Survey of the House of Refuge Site, Hutchinson Island, FL. Unpublished MS Thesis.

Furey, JE Jr
1972 Spanish River Complex: Archaeological Settlement Patterning in the East Okeechobee Sub-area. Unpublished MA Thesis, College of Social Science, Florida Atlantic University.

Goggin, John M.
n.d. The Archaeology of the Glades Area, Southern Florida. Typescript on file in Florida's Division of Historic Resources.

1947 A Preliminary Definition of Archaeological areas and Periods in Florida. *American Antiquity* 13:114-127.

1952 *Space and Time Perspective in Northern St. Johns Archeology, Florida*. Yale University Publications in Anthropology No. 47. New Haven: Yale University Press.

Griffin, JW
1974 Archaeology and Environment in South Florida. pp 342-346 . In PJ Gleason (ed.) *Environments of South Florida: Present and Past I.* Miami, Florida: Miami Geological Society.

1988 *The Archaeology of Everglades National Park: A Synthesis*. National Park Service, Southeast Archaeological Center, Tallahassee, Florida.

Kennedy, WJ, L Jester, J Pepe, N Sinks, C Wernecke and D Flaherty
1994a, b Phase I and Phase II Archaeological Survey of the Loxahatchee River. Proposed for Environmental Management and Engineering , Palm Beach County.

Kennedy, WJ., C Roberts, S Shaw and R Wheeler
1991 *Prehistoric Resources in Palm Beach County*-A Preliminary Predictive Study. Florida Atlantic University, Boca Raton.

Kennedy, WJ, S Lewis, N Cassel, L Jester, J Pepe and AJ Sassi
1991 The SR706/Indiantown Road Realignment, Palm Beach County, Florida: Archaeological Reconnaissance Survey and Gildan Right-of-Way & Bridge/Ca. Florida Atlantic University Department of Anthropology, Boca Raton.

Kennedy, WJ, R Wheeler, L Spears-Jester, J pepe, N Sinks and C Wernecke
1993 Archaeological Survey and Excavations at the Jupiter Inlet I Site (8PB34), DuBois Park, Palm Beach County, Florida. Florida Atlantic University Department of Anthropology, Boca Raton.

Kremer, PR and W Spackman
1981 The paleoecological evidence for environmental change in "neopaleobotanical" sediments of South Florida. In RC Romans (ed.) *Geobotany II.* Plenum Publishing Co. pp. 35-52.

Laxson, DD
1962 Excavations in Dade and Broward Counties. *The Florida Anthropologist 15*:1-11.

Marquardt, WH
1992 Recent Archaeological and Paleoenvironmental Investigations in Southwest Florida. In W.H. Marquardt (ed) *Culture and Environment in the Domain of the Calusa*. pp. 9-58. Institute of Archaeology and Paleoenvironmental Studies. Monograph 1, University of Florida, Gainesville.

McCollum, SA and OE Cruz
1981 *Soil Survey of Martin County*. United States Department of Agriculture, Soil Conservation Service.

McGoun, WE
1989 Prehistoric Peoples of Southern Florida. Unpublished Ph.D. dissertation, Dept. of Anthropology, University of Florida, Gainesville.

Milanich, JT
1994 *Archaeology of Precolumbian Florida.* University Press of Florida, Gainesville, Florida.

Milanich, JT and CH Fairbanks
1980 *Florida Archaeology.* New York: Academic Press.

Mowers, B and WB Williams
1972 The Peace Camp Site, Broward County, Florida. *The Florida Anthropologist* 25:1-20.

Newman, C and Weisman, BR
1992 A preliminary cultural resource inventory of Coupon Bight State Buffer Reserve Monroe County, FL.

Pepe, J and RS Carr
1996a Archaeological Testing and Monitoring at the Shunk Tract, Palm Beach County, Florida *AHC Technical Report #144*.

Pepe, J and RS Carr
1996b A Phase II Archaeological Survey of the Jupiter Parcel, Palm Beach County, Florida. *AHC Technical Report #168*.

Pepe, J and E Kehoe
1992 Field notes on Suni Sands (8PB7718). Manuscript on file, Dept. of Anthropology Florida Atlantic University, Boca Raton.

Pepe, J, W.S. Steele, Anne McCudden and Dan Hughes
1998 Archaeological Monitoring of the Indiantown Road Widening Project, Palm Beach County, Florida**.** *AHC Technical Report #176.*

Purdy, BA
1990 Chronology of cultivation in peninsular Florida: prehistoric or historic? *Southeast Archaeology 9*(1):35-42.

Romans, B
1962 *Natural History of Florida.* Facsimile of 1775 ed., University Presses of Florida, Gainesville.

Rouse, I
1951 A Survey of Indian River Archaeology. *Yale University Publications in Anthropology #44.* New Haven, Conn.

Royal, WD and E Clark
1960 Natural preservation of human brain, Warm Springs, Florida. *American Antiquity 26*:285-287.

Sassaman, KE
1993 *Early Pottery in the Southeast.* Tuscaloosa: University of Alabama Press.

Scholl, DW and M Stuiver
1967 Recent Submergence of Southern Florida. *Geological Society of America Bulletin* 78:437-454.

Sears, WH
1982 *Fort Center: An Archaeological Site in the Lake Okeechobee Basin.* University of Florida Press, Gainesville, Florida.

Sears, WH and C Hoffman
1965 Field Notes on the Reed Mound (8MT13). Manuscript on file, Dept. of Anthropology, Florida Atlantic University, Boca Raton.

Small, JK
1928 Botanical Fields, Historic and Prehistoric. *New York Botanical Garden Journal 29*: 149-235.

Sturtevant, WC
1953 Chakaika and the 'Spanish Indians': Documentary Sources Compared with Seminole Tradition. *Tequesta 13*:35-73.

True, DO
1945 Memoir of Do. D'Escalante Fonteneda Respecting Florida. Written in Spain about the Year 1575. Translated by Buckingham Smith. Coral Gables: Glade House, FL.

Webb, SD and RA Martin
1974 Late Pleistocene Mammals from the Devil's Den Fauna, Levy County. In SD Webb (Ed.) *Pleistocene Mammals of Florida*. Gainesville: University Presses of Florida, pp. 114-145.

Wharton, B, G. Ballo an M Hope
1981 The Republic Groves Site, Hardee County, Florida. *The Florida Anthropologist 34:*59-80.

Wheeler, RJ
1992 The Riviera Complex: An East Okeechobee Archaeological Area Settlement. *The Florida Anthropologist 45*(1):5-17.

1993 Spatial and temporal distribution of shell tools from the East Okeechobee area. Paper presented at the 50th Southeast Archaeological Conference, Raleigh, NC.

1994 Cultural Resources Survey and Assessment of the Proposed Farr Prison Site, Okeechobee County, Florida. Manuscript on file with the FL Master Site File.

Williams, JL
1837 *The Territory of Florida*. Gainesville: University Press of Florida.

Appendix 1: Target Log

Target: 1
Dimensions: 15 meters in diameter
Elevation: 1 meter above surrounding area
Vegetation: mature ficus
Description: An elevated, sandy push pile vegetated by a few mature ficus trees. Target appears to be a push pile associated with the clearing of the pasture.
Shovel Tests: #1, #2
Field Specimen: #1 (20th century bottle)

Target: 2
Dimensions: 100 meters in diameter
Elevation: 0.5-1 meter above wetland area to the south
Vegetation: predominantly maple w/ interspersed cabbage palms and a solitary oak.
Description: This targetis an elevated feature on the north side of a large pond. A solitary, mature oak is present on the south side of the target, adjacent to the pond.
Shovel Tests: #3, #4, #20

Target: 3
Dimensions: 200 meters north to south x 150 meters east to west
Elevation: slightly elevated (0.5 meter) relative to surrounding wetland area
Vegetation: predominantly pine w/ cabbage palms, and saw palmetto understory.
Description: This target is a slightly elevated pineland adjacent to the northeast of a low wetland feature. Melaleuca surrounds the target area. The vegetation in this target is likely indicative of the subject parcel prior to modern disturbances.
Shovel Tests: #5, #14, #15, #16

Target: 4
Dimensions: 60 meters in diameter
Elevation: slightly elevated (0.5 meter) relative to surrounding wetland area
Vegetation: pineland
Description: Target is undisturbed pineland adjacent to the southeast of a large wetland area. The vegetation in this target is likely indicative of the subject parcel prior to modern disturbances.
Shovel Tests: #6, #7

Target: 5
Dimensions: 1,100 meters east to west x approx. 300 meters north to south
Elevation: elevated 1-2 meters above wetland area to the south
Vegetation: predominantly pineland w/ a saw palmetto understory; also a few interspersed melaleuca and wax myrtle.
Description: Target is an elevated, elongated, pine sandy ridge. Several wetland features abut the ridge to the south. Because of its elevation and relatively intact vegetation, this target was the most promising for yielding archaeological material. Aside from some

intrusive melaleuca at places on the toe of the ridge, the vegetation and terrain in this target is likely indicative of the subject parcel prior to modern disturbances.
Shovel Tests: #8, #9, #10, #11, #12, #13, #17, #18, #19

Appendix 2: Shovel Test Log

ST 1 (45cm x 45cm) Positive
Target: 1
0-28 cm medium gray silt sand (disturbed)(FS #1)
28-34 cm tan sand (disturbed)
34-58 cm dark gray/ black silt sand w/ charcoal and wood and iron frags. (disturbed)
58-78 cm light gray/ light tan sand (wet)(intact)

ST 2 (45cm x 45cm) Negative
Target: 1
0-15 cm medium gray silt sand w/ limestone pebbles (loosely compacted)(disturbed)
15-22 cm tan sand (disturbed)
22-65 cm light to medium gray silt sand w/ arboreal debris (disturbed)
65 cm arboreal debris impasse

ST 3 (45cm x 45cm) Negative
Target: 2
0-7 cm black/ dark gray loamy root mat
7-27 cm medium gray sand (moist)
27-60 cm blonde sand (wet)
52 cm water table

ST 4 (45cm x 45cm) Negative
Target: 2
0-13 cm dark gray silty sand w/ root mat
13-20 cm light gray sand w/ roots
20-29cm dark gray/ brown sand
29-45 cm light brown sand w/ iron stains
45-60 cm pale gray sand w/ iron stains
60-70 cm dark brown/ black loam (wet)
60 cm water table

ST 5 (45cm x 45cm) Negative
Target: 3
0-30 cm dark gray sand w/ lateral roots
30-44 cm strong brown sand
44-67 cm very pale light brown sand (wet)
67-72 cm yellow sand w/ degrading limestone (wet)
55 cm water table

ST 6 (45cm x 45cm) Negative
Target: 4
0-10 cm dark gray sand w/ lateral roots
10-20 cm medium gray sand

20-45 cm brown/ yellowish brown sand (wet)
45 cm water table/ limestone bedrock

ST 7 (45cm x 45cm) Negative
Target: 4
0-25 cm dark gray sand w/ lateral roots
25-43 cm brown sand
43-68 cm very light gray sand (wet)
68-85 cm very dark brown hydric sand (wet)
85 cm water table

ST 8 (45cm x 45cm) Negative
Target: 5
0-19 cm medium gray sand
19-30 cm brown silt sand
30-57 cm tan/ yellow sand
57-64 cm dark brown clayey sand (wet)
58 cm water table

ST 9 (45cm x 45cm) Negative
Target: 5
0-6 cm dark gray silt sand w/ lateral roots
6-27 cm light gray sand w/ black organic stains
27-35 cm brown/ pale brown/ gray silt sand
35-68 cm pale brown sand
68-74 cm dark brown clayey sand (wet)
71 cm water table

ST 10 (45cm x 45cm) Negative
Target: 5
0-20 cm medium to light gray sand
20-46 cm very light brown sand
46-63 cm light gray sand (wet)
63-72 cm black loamy sand (wet)
53 cm water table

ST 11 (45cm x 45cm) Negative
Target: 5
0-4 cm black loamy sand w/ roots
4-26 cm very light brown sand
26-55 cm brownish gold sand
55-75 cm light gray/ light brown sand (moist)
75-80 cm dark brown clayey sand (wet)
68 cm water table

ST 12 (45cm x 45cm) Negative

Target: 5
0-36 cm light gray sand
36-50 cm orange/ brown sand
50-63 cm brown/ gray silt sand (moist)
63-72 cm brown/ gray clayey sand (wet)
57 cm water table

ST 13 (45cm x 45cm) Negative
Target: 5
0-20 cm medium gray sand
20-30 cm light brown silt sand
30-50 cm yellow sand
50-72 cm bright orange/ yellow sand (moist)
72-80 cm light gray fading to dark gray sand (wet)
57 cm water table

ST 14 (45cm x 45cm) Negative
Target: 3
0-31 cm dark gray silt sand
31-58 cm light gray sand
58-72 cm dark gray/ dark brown silt sand (wet)
58 cm water table

ST 15 (45cm x 45cm) Negative
Target: 3
0-13 cm light gray sand
13-22 cm medium gray/ brown sand
22-38 cm medium to pale brown sand
38-63 cm light tan sand (moist)
63-77 cm dark gray/ brown clayey sand (wet)
60 cm water table

ST 16 (45cm x 45cm) Negative
Target: 3
0-14 cm light to medium gray sand
14-62 cm brown silt sand
62-75 cm brown/ orange-brown silt sand
75-83 cm dark gray/ brown clayey sand (wet)
75 cm water table

ST 17 (45cm x 45cm) Negative
Target: 5
0-30 cm light gray sand
30-55 cm brown silt sand (moist)
55-76 cm gray/ brown silt sand (wet)
76-84 cm mottled light to medium brown silt sand and gray/ brown silt sand w/

limestone marl (wet)
72 cm water table

ST 18 (45cm x 45cm) Negative
Target: 5
0-17 cm medium gray sand
17-32 cm brown silt sand
32-57 cm tan/ yellow sand
57-69 cm dark brown clayey sand (wet)
57cm water table

ST 19 (45cm x 45cm) Negative
Target: 5
0-19 cm medium gray sand
19-35 cm brown silt sand
35-55 cm tan/ yellow sand
55-67 cm dark brown clayey sand (wet)
55 cm water table

ST 20 (45cm x 45cm) Negative
Target: 2
0-10 cm dark gray silty sand w/ root mat
10-20 cm light gray sand w/ roots
20-30cm dark gray/ brown sand
30-45 cm light brown sand w/ iron stains
45-60 cm pale gray sand w/ iron stains
60-70 cm dark brown/ black loam (wet)
60 cm water table

Appendix 3: Field Specimen Log

FS	Provenience	Description	Coll. By	Date
1	Target: 1, ST: 1, 0-28 cm	ca. 1930's wine bottle	VL/NG*	6/15/05

*VL= Victor Longo
NG= Ned Gordon

A Phase I Archaeological Survey of the Vavrus North Parcel, Palm Beach County, Florida

by
Joseph F. Mankowski, B.A.
Victor Longo, B.A.
.

conducted under the direction of
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for

E.W. Consultants, Inc.

AHC Technical Report #623
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2005.107

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Consultant Summary

In June, 2005, the Archaeological and Historical Conservancy Inc. (AHC) conducted an archaeological phase I survey for E.W. Consultants, Inc. of the Vavrus North parcel located south of Northlake Boulevard and approximately 3.5 miles west of the intersection of State Road 710 and Northlake Boulevard in central Palm Beach County. The +/-2000 acre parcel was surveyed to locate sites of archaeological and/or historical significance.

This assessment was conducted to fulfill historic resource requirements as part of a DRI application in response to Florida's Chapter 267. This assessment was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966 (Public Law 89-665), as amended in 1992, and 36 C.F.R., Part 800: Protection of Historic Properties. The work and the report conform to the specifications set forth in Chapter IA-46, Florida Administrative Code.

The parcel encompasses Sections 28, 33 in Township 41S, Range 41E and Sections 4, 5, 8, 9 in Township 42S, Range 41E. Historically most of the parcel area was mixed pine flatwoods and interspersed ponds. The parcel has been partially cleared and impacted with several drainage canals. Prior land use includes improved pasture. There are no structures on the subject parcel.

This phase I survey included an archival review, a pedestrian and vehicular survey, and subsurface testing across the entire parcel. A site search with the Florida Division of Historic Resources determined that no recorded archaeological sites occur on the subject parcel. A review of aerial photographs and USGS maps of the subject parcel, coupled with the windshield and pedestrian survey identified twenty-two features that suggested the location of possible archaeological sites. Fifteen shovel tests were dug at the targets. One prehistoric camp site (site number pending) was discovered. Testing there uncovered faunal bone, pottery, and a Busycon tool fragment. A second possible site (Target 10, Fig. 5) also was identified, although test holes there were negative.

It is the consultant's opinion that based on available data that the discovered prehistoric site may be potentially eligible for listing on the National Register of Historic Places based on Criterion D, because the site contains scientific data that could contribute to our knowledge of a part of the historic eastern Everglades in an area not well known in South Florida. This site is located in a proposed green space preserve. A second possible site at Target 10 should be subjected to additional testing if it is in an area that may be subject to development.

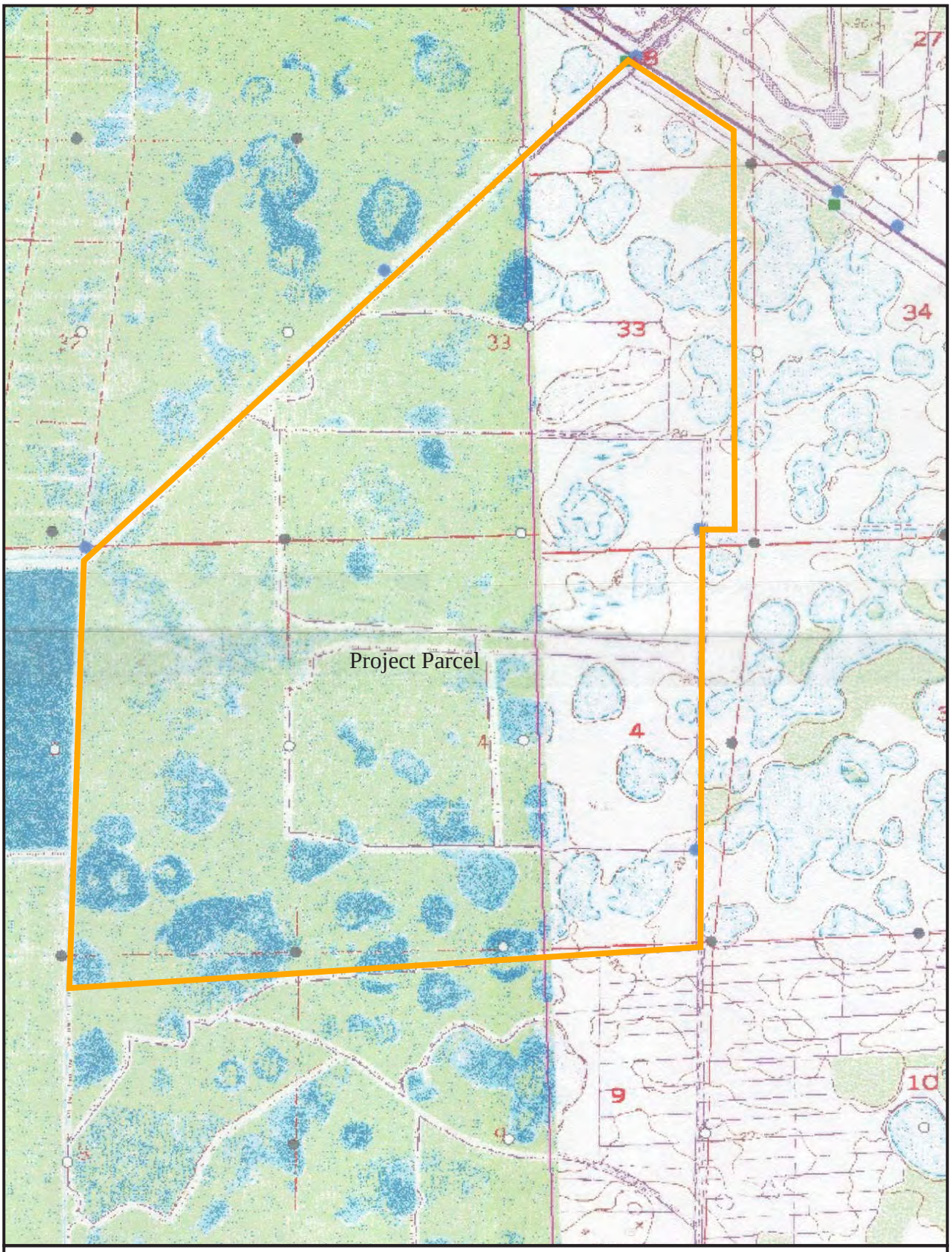


Figure 1. Map of the Vavrus North parcel area
Twp. 41S, Rng. 41E, Sections 28, 33
Twp. 42S, Rng. 41E, Sections 4, 5, 8, and 9
Source: USGS Delta Quadrangle (1945, rev. 1983)
USGS West of Delta Quadrangle (1971, rev. 1984)

0 1/4 1/2 mile

N

Project Setting

The parcel encompasses Sections 28, 33 in Township 41S, Range 41E and Sections 4, 5, 8, 9 in Township 42S, Range 41E. Historically most of the parcel area was mixed pine islands interspersed with ponds and marshes. The parcel has been partially cleared and impacted by several drainage canals. Prior land use includes vegetable farming and cattle ranching. There are no structures on the subject parcel. The parcel location is central Palm Beach County, Florida (Figure 1). The +/-2000 acre project area is a polygon with sides more or less oriented to the cardinal points. The subject parcel is bordered by the Vavrus South parcel to the south, privately owned parcels to the west, and Okeechobee Road to the west. The relevant USGS maps are Delta and West of Delta, Fla.

The parcel has been disturbed by previous clearing activities and the dredging of several drainage canals. The parcel lies in what was historically part of the northeastern corner of the Everglades Trough, an immense drainage feature extending from Lake Okeechobee south to the Shark River/Florida Bay area in Southern Florida.

The geology of the general area is characterized by sand mantles of varying depths covering limestone marls and caprocks. Much of the surfacial sands are present due to wind activity and Pleistocene terracing and are usually fine-grained poorly-drained hydric types with differing percentages of organic peat content. Below these are tan to golden hardpan sands with differing degrees of consolidation and with the varying presence of iron oxide nodules formed through soil processes. Unconsolidated, marly, and chalky limestone caprock layers are found intermittently throughout the area, and can be surfacially exposed.

The vegetation of the area is relict marginal wetland systems and pine/saw palmetto flatwood vegetative communities. Nearly all of the above-mentioned plant communities have at least some small percentage of established invasive exotics, most notably melaleauca, and brazillian pepper.

Slash pine flatwoods communities are usually situated on higher ground. Historically, these communities, which contain a dense, often head-high understory of saw palmetto, were subject to and maintained by periodic forest fires. Fires started either naturally by lightning strikes or by prehistoric Indians or by early settlers to aid hunting or cattle grazing. Among the plants typically found in the slash pine/saw palmetto flatland/prairie environments are: slash pine, saw palmetto, gallberry, shiny lyonia, rusty lyonia, staggerbush, dahoon holly, ground oak, wire grass, broom sedges, shiny blueberry, xyris, and a variety of annual and perennial herbs and wildflowers blooming seasonally.

The geology of the central Palm Beach County area is characterized by solutioned limestone caprock lying exposed or overlain to various depths by sands or shelly marls. Most of the surfacial sands are as “hydric, level, poorly drained” (Watts and Stankey 1980) and are fine-grained wind and water-born deposits from the late Pleistocene/early Holocene. Among the soils present in the area surrounding and including the subject parcel are: Wabasso fine sand; Pineda fine sand; Arents, nearly level; Pepper sand, and Nettles sand. Gray and tan sands found extensively in the district usually overlie relict

marine deposits of shelly marl and marly limestone caprock that are part of Pleistocene formations. At greater depths and more to the north are often found formations of a calcified “sandstone” or shelly conglomerate, which is part of the Anastasia Formation. Marine marls contain lenses and deposits of clay intermixed with varying percentages of sand. These clays may have been a source for ceramic manufacture by the Formative period Native Americans. Mantling the Pleistocene sands are windblown deposits of gray sands of varying depths.

Other areas contain tan and gray sand surfacial zones overlying a dense brown sand spodic horizon (often referred to as “hardpan”). This formation is a zone of organic leaching accumulation. Occasionally, harder “nuggets” or nodules of an iron oxide precipitate will be found in this zone, which is sometimes a basal archaeological zone.

The central Palm Beach County area has been subjected for many years by low-impact/low density ranching and farming activities. “Improved” areas are interspersed with undeveloped woodlands. The area has in the last twenty years seen increased growth in the form of planned residential communities that have advanced at a steady rate of growth from the coast toward the interior of Palm Beach County.

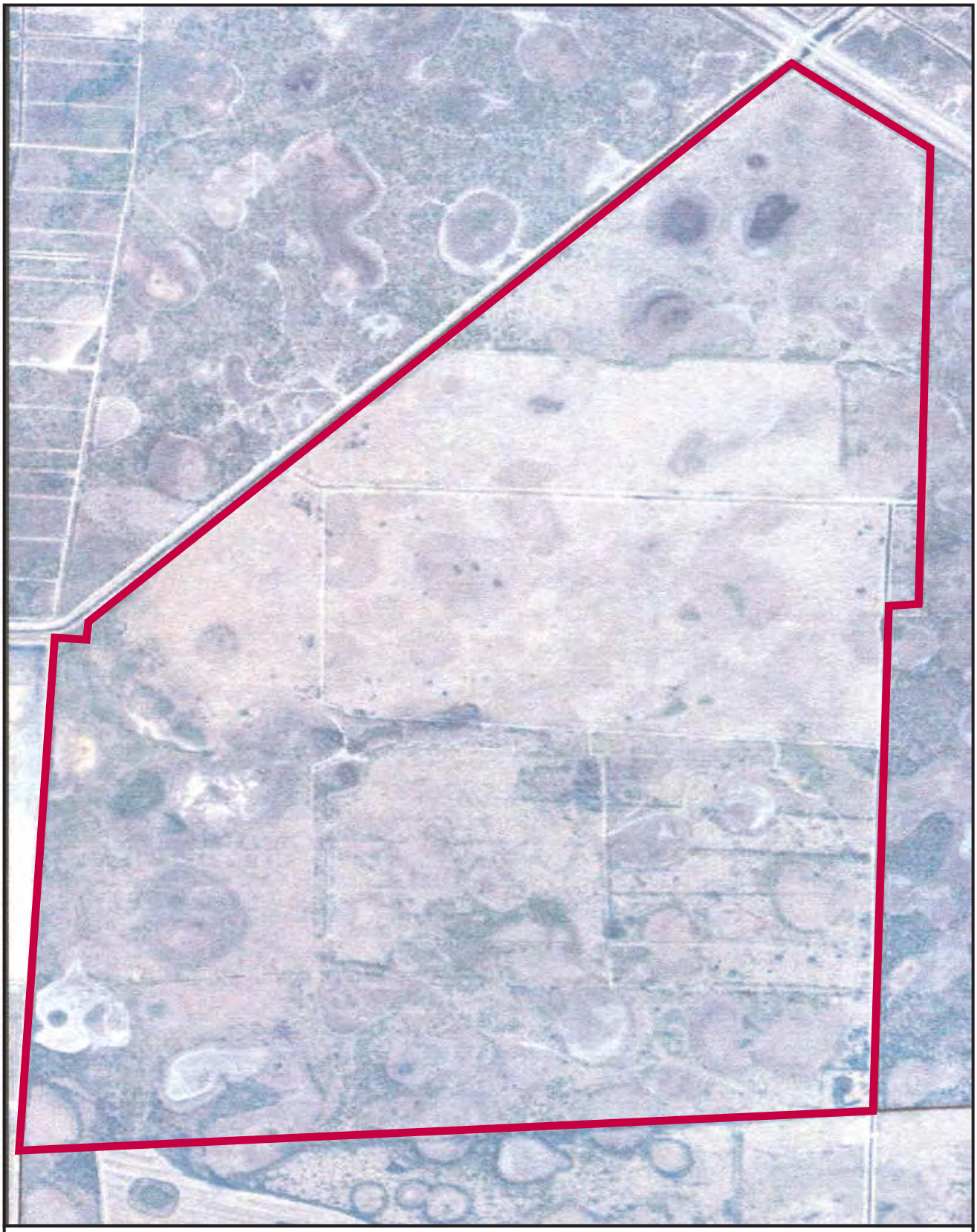


Figure 2. Aerial photograph of the Vavrus North parcel

= Project boundaries

0 1/4 1/2 mile

N

Figure 3. View west at Target 1

Figure 4. View northeast at Target 10

Previous Research

The archaeology of the area east of Lake Okeechobee, including Palm Beach and Martin Counties, is not well understood. John M. Goggin was the first to recognize this area as being somewhat unique and defined it as being the East Coast Region of the Okeechobee archaeological sub-area (Goggin, n.d.). In his description of the region, Goggin noted that no "local" ceramic forms could be found here. Undoubtedly, this is partly a reference to a lack of unique incised types. In addition, Goggin also lists a number of traits for the region that are usually considered to be more common in northern Florida, such as a large quantity of St. Johns Plain and St. Johns Check-Stamped.

Little archaeological work was conducted in the region until the 1970s. In the early 1970s, John Furey, a graduate student at Florida Atlantic University, conducted an investigation of several sites in the Boca Raton area. Collectively these sites are known as the Spanish River Complex (Furey, 1972). Although the complex was supposed to fall just within the southern border of Goggin's East Coast Region of the Okeechobee subarea, Furey's ceramic analysis revealed that almost half of the sherd collection consisted of the type Belle Glade Plain. Partly because of this, Furey interpreted the Spanish River Complexes as representing a coastal extension of the interior Belle Glade area. Furey also generalized that all of coastal Martin and Palm Beach counties was influenced mainly from the Lake Okeechobee area. Furey's interpretation was seemingly strengthened by Browning's (1975) work at the Rocky Point 2 Site (8MT33) in northern Martin County. Here, Browning reported a sherd assemblage that consisted of 25% Belle Glade Plain.

Despite this, Milanich and Fairbanks (1980) included the coastal portions of Martin and Palm Beach counties in a "Circum-Glades" area. They defined this area as including all of southeastern Florida and the east coast as far north as Indian River County. The term, "Circum-Glades," was coined earlier by Griffin (1974) who argued that the major focus for settlement and subsistence in southeastern Florida was along the coasts. He interpreted the smaller tree-island sites within the Everglades themselves as small, temporary hunting camps, which were used sporadically by the coastal inhabitants. Apparently, Milanich and Fairbanks considered this interpretation to be appropriate for coastal Palm Beach and Martin counties as well, although they provided little explanation for this argument.

Carr and Beriault (1984) rejected most of the cultural names and boundaries used by Milanich and Fairbanks for southern Florida and reiterated Furey's generalizations on the coastal portions of Martin and Palm Beach Counties. In their analysis, Boca Raton was considered to be the southern boundary of a separate cultural area, which they called "East Okeechobee", and was mainly influenced from the west. Based on the work of Browning at Rocky Point, Carr and Beriault suggested that the northern boundary for the area was probably somewhere around the border of Martin and St. Lucie counties. A western boundary was chosen that would exclude inland sites in Martin and Palm Beach Counties like Big Mound City (8PB48), the Boynton Mounds (8PB100), Barley Barber I (8MT19), and Belle Glade (8PB41), as these sites seem to be complexes and earthworks associated with the Lake Okeechobee culture area.

In his synthesis of Everglades archaeology, Griffin (1988) provided a detailed description of his thoughts concerning southern Florida prehistoric cultural boundaries. He supported the boundaries that Carr and Beriault used for their East Okeechobee Area, but he did not accept a name for the area. Instead, Griffin referred to the area as being "unclassified," probably due to the lack of archaeological work conducted there. He also refers to the area as being transitional between three different areas, presumably the Belle Glade Area to the west, the Everglades Area to the south and another cultural area to the north. Because of this, he suggested that it might be more appropriate to consider this area to be a district of one of its neighboring areas.

In doctoral work conducted under the direction of Milanich, McGoun (1989) renamed the Circum-Glades area "Southeast Florida." Overall, he kept Milanich's boundaries for this area intact, arguing that there were no major differences within the area from Cape Canaveral to Cape Sable. He also stressed the predominance of sand-tempered plain pottery within this area.

Recent surveys, stratigraphic excavations, and salvage work in Jupiter by students from Florida Atlantic University seem to contradict interpretations of a Gold Coast or East Okeechobee Area influenced mainly from the west. Stratigraphic excavations at Jupiter Inlet I (8PB34) revealed that Belle Glade Plain was a minor type, accounting for less than 4% of the entire sherd assemblage. The St. Johns ceramic series, including St. Johns Plain, St. Johns Check-Stamped, St. Johns Simple-Stamped, and Dunns Creek Red makes up a greater proportion of the total ceramics recovered at this site (about 11%) than Belle Glade Plain, even though the St. Johns series was only recovered from the upper-most, or more recent stratigraphic levels. Radiocarbon dates from the site also demonstrate that St. Johns Check-Stamped pottery was first used at this site around A.D. 1000 (Kennedy *et al.*, 1993). Previously in southern Florida the earliest date for this ceramic type was A.D.1200, although it was present as early as A.D. 1000 in the St. Johns culture area (Purdy, 1990).

Salvage work conducted on the Suni Sands oyster midden (8PB7718) corroborates evidence that the region is distinct (Pepe and Kehoe, 1992). Here, unprovenienced collections were made from the spoil piles resulting from the installation of new electrical lines. No Belle Glade Plain or St. Johns Check-Stamped sherds were recovered during these investigations, although 192 sand-tempered plain, 33 St. Johns Plain and three Dunns Creek Red sherds were recovered.

Surveys much farther upstream from the Jupiter Inlet, along the Northwest Fork of the Loxahatchee River on the Shunk Tract (8PB7944, 8PB7945) and at the Loxahatchee River Corridor Site (8PB7946), also failed to turn up any Belle Glade Plain pottery (Kennedy *et al.*, 1994a, 1994b). It is also interesting to note that no St. Johns Check-Stamped sherds and only a small number of St. Johns Plain sherds (N=2) were recovered in these investigations, with by far, the most dominant ceramic type being sand-tempered plain (N=254). Belle Glade Plain sherds were not recovered in recent surveys near the original headwaters of the Loxahatchee River either (Kennedy *et al.*, 1994a 1994b; Carr *et al.*, 1995). In addition, the work in Jupiter demonstrates that the St. Johns ceramic

series makes up a large part of the ceramic assemblages from the coastal sites and is virtually absent from those farther inland.

Recent archaeological investigations in the project area include an assessment of the Palm Beach County Biotechnology Research Park (Scripps) parcel located west of the subject parcel (Carr and Mankowski, 2004). No historic or archaeological sites were located during that assessment.

Cultural Summary

Frequent contact and trade between the St. Johns, Indian River and East Okeechobee culture areas is documented in the archaeological record. The presence of St. Johns pottery, type X *Busycon* picks, *Busycon* adzes and exotic northern trade goods such as greenstone celts and plummets in these areas demonstrate communication between them (Rouse, 1951; Goggin, 1952; DuBois, 1957; Kennedy *et al*., 1993; Wheeler, 1993).

Ethnographic evidence for contact and trade between various regions, at least in historic times, can be found in *Jonathan Dickinson's Journal* (Dickinson, 1985). On his journey up the coast to St. Augustine, Dickinson and his party stopped at Jece, which was almost certainly an Ais village. When the leader of this village learned that the people of Jobe, a Jeaga town, had a good deal of European goods which had been salvaged from Dickinson's wrecked ship, he went to Jobe himself and returned with most of it. This illustrates that the Jeaga, or at least the Jeaga town of Jobe, was in some kind of vassal-type relationship with the Ais, or at least with the town of Jece.

Thus, the main influence on the East Okeechobee area during the seventeenth century seems to have come from those cultural areas to the north, such as the Indian River and St. Johns Areas, rather than from the Lake Okeechobee Area, as was previously thought. Contact and trade with the west certainly did occur, though. Influence from and trade with the Lake Okeechobee Area is evident in the East Okeechobee Area from the presence of Belle Glade Plain pottery. Several earthworks reminiscent of the Lake Okeechobee Area can also be found in the East Okeechobee Area. The Riviera Complex, for instance, was reported to have had sand earthworks (Goggin n.d.; Small, 1928).

St. Johns pottery can also be found in the Lake Okeechobee, Caloosahatchee and Ten Thousand Island Areas. It is possible that this pottery, or at least the idea of making this type of pottery, made its way to the southwest coast from East Okeechobean contact with the Lake Okeechobee Area. The same can be said for the *Busycon* adzes which have been found in post-archaic contexts in the Belle Glade and Ten Thousand Island Areas (Wheeler, 1993).

The strong influence of the Lake Okeechobee Area shown in the Boca Raton sites requires a more sophisticated political explanation, but a reasonable explanation can be given if patterns throughout southern Florida are examined. First, the Lake Okeechobee Area itself must be examined. This area is distinguished in part by remarkable earthworks. Complexes and earthwork sites like Fort Center, Big Mound City (8PB48), Big Gopher (8PB6292), Tony's Mound (8HN3) and others all provide evidence that demonstrates that the Lake Okeechobee peoples were, at least for a time, populous, successful, organized and stratified enough to engage in such major undertakings. It is entirely possible that the Lake Okeechobee Area was dominated by a chiefdom or proto-chiefdom long before their neighbors, the Calusa, were dominated by one. It is also entirely possible that the Lake Okeechobee proto-chiefdom established permanent coastal villages as a way to expand their influence and subsistence base and obtain marine tools and materials such as shark teeth and shell tools. It is suggested here that the dominance of Belle Glade Plain pottery in the Caloosahatchee Area from A.D. 650-1350 (Cordell, 1992), the dominance of this type in

Boca Raton during part of this same period (Furey, 1972) and the construction of large linear earthworks in the Lake Okeechobee Area also during this period (Sears, 1982; Carr *et al*., 1995; Griffin, 1988) provide evidence for these hypotheses.

It is also suggested here that the colonization of the Atlantic coast by Lake Okeechobee peoples was directed towards only one area, the region of present-day Boca Raton. Evidence for this hypothesis is provided in part by the presence of the Boynton Mound Complex (8PB56), about 11 miles to the northwest of Boca Raton, in what was once the eastern Everglades. This site contains several associated mounds and earthworks and is quite similar to sites farther north and west in the Lake Okeechobee Area. No other site like this has been identified in eastern Martin, Palm Beach, Broward or Dade counties. Because of this fact and its close proximity and similarities to the Spanish River Complex, it is probable that the people living at the Boynton Mounds were Lake Okeechobean peoples who, like the Spanish River residents, migrated to the southeast at some point. The Boynton Mounds may represent the initial colony and/or a group of Spanish River residents who split from the main group on the coast. The Boynton residents probably served as intermediaries between the Lake Okeechobee Area heartland and the Spanish River colony.

Decorated ceramics are absent in this area until the appearance of St. Johns Check Stamped pottery. The numerous incised sand-tempered types, which are used so successfully in the Everglades Area for relative dating of sites, are almost completely absent from the East Okeechobee Area, especially as one moves further north in the area. Sand-tempered plain is the dominant type, except in and around Boca Raton, which, as discussed, seems to be an eastern outpost for a Lake Okeechobee proto-chiefdom. Thus, sites closest to Boca Raton are expected to have a greater proportion of Belle Glade Plain pottery than sites farther to the north in this area. The types Belle Glade Plain, sand-tempered plain, St. Johns Plain, and St. Johns Check-stamped make up the bulk of all ceramic artifacts found here. Other types, such as Savannah Fine Cord-marked, Surfside Incised, Engelwood Incised, Opa Locka Incised, Dunn's Creek Red, Carrabelle Punctated, Little Manatee Zoned Shell Stamped, St. Johns Simple Stamped, Weeden Island Incised, and Sarasota Incised have been recovered in very small amounts in the area and probably represent trade wares.

Non-ceramic artifacts that distinguish the East Okeechobee Area are *Busycon* adzes and picks typical of the Indian River and St. John's Areas. Rare trade items typical of these areas include greenstone artifacts like celts and plummets. Bone artifacts, such as points and hair pins, are not uncommon and a few have been recovered which display incised decorations (Wheeler, 1992b; Kennedy *et al*., 1993).

Burials that have been encountered and reported demonstrate several mortuary practices, such as primary burial, extended burial, and bundle burial. Isolated burials have even been noted in village midden contexts (Kennedy *et al.*, 1993; DuBois, 1994). However, it is probable that the lack of discernable temporal and spatial patterns is due to a lack of general evidence and research in the area.

Site types are generally oyster shell or black earth middens. Both villages and camp sites have been located, with the largest sites being along the coast. Small coastal procurement sites have also be recorded, though. The Singer Island Site (8PB214), for instance, is

located on a barrier island and seems to have served as both a site of procurement of sea turtles and other marine fauna and as a lookout point for the salvaging of shipwrecked European vessels (Dickel, 1988). Sand earthworks have also been occasionally noted, such as at the Riviera Complex mentioned earlier, at the Loxahatchee Earthwork Complex (8PB49), and at the Jupiter Inlet Complex (Douglass, 1880). Sand burial mounds, such as the Highland Beach Burial Mound (8PB11), the Nebot Site (8PB219), the Palm Beach Inlet Mound (8PB29), Palm Beach 4 (8PB26) and 8PB4 of the Boca Raton Complex are not uncommon and are usually associated with coastal village complexes. Some, such as the Highland Beach Mound, are, or were, quite extensive, containing large numbers of burials. A. E. Douglass (1882, 1885, 1890), an early explorer and amateur archaeologist, also reported excavating in a burial mound associated with the Jupiter Inlet Complex, although recent attempts to find this mound proved unsuccessful.

Almost all recorded habitation sites are located in what are now or what once were hardwood hammocks. Coastal sites are located in tropical hammocks and inland sites are generally located in "low" hammocks. There were several adaptive advantages associated with these ecosystems that made them quite attractive to the aborigines of the East Okeechobee Area and southern Florida in general. First, hammock vegetation, especially that of low, or "hydric" hammocks, produces a great amount of edible fruits and seeds (Ewel, 1990). Species that were or probably were important aboriginally include the cabbage palm, pigeon plum, *Ficus aurea* (strangler fig) and *Ficus citrifolia*, sea grape, "fox grapes," laurel and live oaks, persimmon and dahoon holly (Austin, 1980). In addition, large numbers of potential game animals, including deer, are attracted to hammocks during mast (acorn) producing season. Low hammocks are also usually tree islands, surrounded by water or other ecosystems. Camping or living in such a place would allow easy access to drinking water and other ecosystems for foraging. Hammocks are also generally moist enough so that fires, especially campfires, would not have been a potential problem. Flooding would not have been a problem either, as hammocks usually occupy fairly high ground. Hammocks in their natural state are also often fairly free of underbrush or herbs of any kind. This would make movement easy and provide work and living areas. Hammocks also lack the temperature extremes found in other ecosystems, providing enough shade during the day to keep temperatures within them fairly cool and trapping enough heat at night to keep temperatures from dropping too low. Finally, many hammock soils contain clay deposits, important for the manufacture of ceramic vessels.

A tentative and general chronology for the East Okeechobee Area follows. It must be stressed though, that very little research has been done in the Area and this chronology must certainly undergo future revisions and even wholesale changes as more evidence is collected.

Paleo Period (10000 B.C. to 8000 B.C.)

Paleoindians lived in southern Florida in association with mammoths, bison, and other types of megafauna. Deposits of fossilized Pleistocene bone have been uncovered by dredging operations from several locations in southern Florida and from solution holes in south Dade County. These deposits yielded a wide range of grazing ungulates and sloths, indicating the presence of more extensive grasslands than present (Webb and Martin,

1974). With the extinction of the megafauna by about 11,000 B.P., Paleoindians apparently adapted to the emerging wetlands of southern Florida, and began to establish the patterns of subsistence that were to provide the basis of resource procurement for the subsequent 10,000 years. Evidence of the Paleo period in southern Florida is now well established with the discovery of a late Paleo/Early Archaic site at Cutler in south Dade County (Carr, 1986). Radiocarbon dates of 9,640 ± 120 years B.P. were determined for this site, which yielded evidence of exploitation of deer and rabbit, some marine fauna, and some indication of hunting extinct horse and peccary. However, the majority of data from this site reflects Indian adaptation to the extinction of New World megafauna.

Archaic Period (7500 B.C. to 750 B.C.)

During the Post Glacial, the sea level rose and greatly diminished Florida's land size. It has been calculated that the rate of sea level rise was approximately 8.3 cm per 100 years from 6000 to 3000 B.P. That rate has decreased to about 3.5 cm per 100 years from 3000 B.P. to present (Scholl and Stuiver, 1967).

By 5000 B.P., cypress swamps and hardwood forests characteristic of the sub-tropics began to develop in southern Florida (Carbone, 1983; Delcourt and Delcourt, 1981). The Archaic Period was characterized by an increased reliance on the shellfish and marine resources on the coast by the native populations, and a generally expanded hunting, fishing, and plant gathering base throughout southern Florida.

Florida archaeologists recognize three temporal divisions for the Florida Archaic: early, middle and late. Although these divisions have traditionally been based on changes in projectile points and pottery types, new environmental and climatic data and increased knowledge of artifact assemblages and site types are now also used for dividing the Archaic (Milanich, 1994).

Early Archaic (7500 B.C. to 5000 B.C.)

To date, only a few sites are known in southern Florida that contain early Archaic components. The Cutler Ridge site seems to date mainly to the early Archaic, as do the Little Salt Spring and Warm Mineral Spring sites in Sarasota County. These two sites are both deep sinkholes that were probably utilized as waterholes in the early Archaic. Other southern Florida sites from this time period may as yet be unidentified. If such sites are found they would be expected to be ancient cenotes or sinkholes, similar to the Sarasota sites, which served as ponds or waterholes in the past (Milanich, 1994).

Middle Archaic (5000 B.C. to 3000 B.C.)

During the middle Archaic more and larger areas of surface water were present in southern Florida. However, most known habitation sites are again located around ancient hydric sinkholes or around similar features, which would have been good sources of water in the past. Little Salt Spring and Warm Mineral Spring have sizable middle Archaic components as do the Bay West site in Collier County and the Republic Grove site in Hardee County (Milanich, 1994).

One extremely interesting culture trait that seems to be peculiar to the Early and Middle Archaic of southern Florida is the mortuary pond. The Bay West site (Beriault *et al*., 1981), Little Salt Spring (Clausen *et al*., 1979), Warm Mineral Spring (Royal and Clark, 1960), and the Republic Grove site (Wharton *et al*., 1981) all contain human interments in what were shallow ponds during the middle Archaic. Preservation of organic materials from these pond burials is excellent because of the anaerobic condition of the ponds and the mucky soils that underlie them. Middle Archaic village middens are or were once located on the edges of these mortuary ponds.

In addition to mortuary ponds, small campsites are also common for the middle Archaic. These camps frequently occur as scatters of lithic artifacts and debitage. The Westridge site (8BD1119) on Pine Island ridge may be the only such mid-Archaic site identified so far in southeastern Florida (Carr *et al.*, 1992).

Late Archaic (3000 B.C. to 750 B.C.)

By 3000 B.C., the climate and environments of Florida had reached essentially modern conditions. This allowed for a regionalization of cultures as individual societies throughout Florida developed adaptations specific to their local environments (Milanich, 1994). During the late Archaic, the first pottery was produced by the aborigines of Florida. The development of ceramics is important as it suggests that the peoples of this time had adopted a more sedentary lifestyle.

In southeastern Florida, semi-fiber-tempered pottery has been recovered along Biscayne Bay at the Atlantis site (Carr, 1981a,b) and at interior sites such as the Honey Hill site (8DA411) (Carr *et al*., 1992), the 202nd Street site in northern Dade County (Laxson, 1962), and the Markham Park site (8BD183) in Broward County (Mowers and Williams, 1974). Along the Atlantic coast east of Lake Okeechobee, a possible semi-fiber-tempered sherd was recovered from the House of Refuge Midden on Hutchinson Island in Martin County during avocational excavations (Feaster, 1965). In addition, several possibly semi-fiber-tempered sherds from another Hutchinson Island site, Santa Lucea (8MT37), are on display at the Elliot Museum. Several semi-fiber-tempered sherds are also reported for Jupiter Inlet I (8PB34) farther south in Palm Beach County (Kennedy *et al*., 1993). Semi-fiber-tempered sherds were also recovered from the coastal Mt. Elizabeth site (8MT30) in a recent survey of Martin County (Carr *et al*., 1995).

Other sites did not contain any ceramics. This suggests that they represent short-term hunting camps occupied temporarily by coastal inhabitants, or that they date to earlier mid-Archaic times. The extreme densities of some of these sites argues against them being anything other than permanent habitation sites. Research also shows that these tree island communities date back no farther than 5000 B.P., or 3000 B.C. (Kremer and Spackman, 1981). This seems to rule out habitation of these sites during periods earlier than the late Archaic, although the possibility remains that initial occupation may have begun during mid-Archaic times at some.

This Glades Archaic culture seems to have had little contact with other cultures. This is documented in part by the non-ceramic nature of these sites. As Sassaman (1993) discussed, the fiber-tempered pottery tradition was adopted and practiced intensively in only

a few areas. Thus, it should not be difficult to imagine that a population dispersed among and well adapted to the interior marshes of southern Florida would have had no trouble avoiding contact with or resisting the influences of neighboring cultures. The ability of the Seminoles to do this well into modern times can be considered adequate evidence for this postulation.

The general lack of stone tools in southern Florida is obviously due in part to a corresponding lack of good lithic procurement sites here, but it may also have something to do with the postulated isolationist nature of the Glades Archaic peoples. The natural resources utilized and eaten by these people probably required little of the sort of archaeologically recognizable material culture represented by ceramic and lithic artifacts. Vegetable fibers, including wood, and bone probably provided most of the raw materials needed for artifact production. The use of biodegradable material translates into an incredibly low number of artifacts known from these sites. Most artifacts recovered are made from bone, although *Strombus* celts have been recovered from some sites. These celts may represent contact with coastal Orange cultures but most likely represent occasional coastal procurement by Glades Archaic populations themselves.

The Glades Archaic is postulated as being a culture that was well adapted to life within the newly formed interior wetlands of the late Archaic. This adaptation was so complete that Glades Archaic peoples were able to remain relatively unchanged for over 2000 years.

East Okeechobee Period (Ca. 750 B.C. to 1750)

The recent research conducted by Florida Atlantic University makes it clear that Goggin's (1947) Glades chronology is not useful for the East Okeechobee Area. Therefore, a new chronology, specific to this area, is proposed. It must be noted though, that the only radiocarbon dates recorded in the area have come from Jupiter Inlet I (8PB34) and the following chronology is based mainly on sites in the Jupiter area. Thus, the chronology will be most successfully applied to sites found along the Loxahatchee River.

The East Okeechobee I period (750 B.C. - ca. A.D. 800) is characterized by the use of undecorated sand-tempered pottery in most of the area, such as in the Hungryland Midden (8PB6294) (Kennedy *et al*., 1991), the numerous sites recently identified along the upper Loxahatchee River (Kennedy *et al*., 1991; Kennedy, Jester, Pepe, Sinks and Wernecke 1994; Kennedy, Jester, Pepe, Sinks, Wernecke and Flaherty 1994; Carr, *et al*., 1995), and in basal levels of Jupiter Inlet I (8PB34) (Kennedy *et al*., 1993). Belle Glade Plain is a minor type except in and around Boca Raton where it is the dominant type and sand-tempered plain is the minor type. This pattern is evidenced by the ceramic assemblage from the Spanish River Complex (Furey, 1972). Again, this is probably the result of a Lake Okeechobean settlement in the Boca Raton area. Other types of pottery are absent or make up only trace amounts of total assemblages from this period. It is important to note that this period is marked by an absence of St. Johns pottery. This seems to demonstrate a direct transition from the Glades Archaic culture rather than from the Orange culture.

As with the Glades Archaic, sites seem to be concentrated in the interior wetlands rather than on the coast. However, the upper Loxahatchee River sites seem to demonstrate that, unlike the earlier Glades Archaic, East Okeechobee I sites may be found along the upper

reaches of rivers and streams in the area. These sites probably represent camps that were occupied seasonally and not located in exactly the same place every year. This would explain the extended length and unevenly distributed middens of most of the upper Loxahatchee sites. Coastal sites such as Jupiter Inlet I were probably occupied seasonally as well during this time. The time span for this period is quite long but it could possibly be broken down into sub-periods if more research is done in the area. Changes in ceramic rim styles may prove to be the most useful tool for this purpose.

The East Okeechobee II period can be tentatively stated as starting around A.D. 800 and extending to about A.D. 1000. This relatively short period is marked by the appearance of St. Johns Plain ceramics as documented at Jupiter Inlet I (8PB34) and Suni Sands (8PB7718). The noticeable lack of St. Johns ceramics in the interior sites mentioned for the last period testify to a change in settlement patterns for East Okeechobee II. It appears that permanent settlements in this period were concentrated along the coast for the first time (excepting earlier Orange settlements). In the southern part of the area, dominated by the proposed Lake Okeechobean settlement, this period is marked by an increase in the use of sand-tempered plain pottery and by a corresponding slight decrease in Belle Glade Plain. The dates for this period in and around Boca Raton may also be slightly later, perhaps from about A.D. 950 to A.D. 1200.

Jupiter Inlet I (8PB34) has provided a radiocarbon date on the beginning of the next period, East Okeechobee III. The marker type for this period, St. Johns Check Stamped, makes its first appearance at about A.D. 1000. No date on the first appearance of this type has been obtained from the Spanish River Complex, but it may very well appear somewhat later, perhaps at around A.D. 1200, as it does in the rest of southern Florida. In all parts of the East Okeechobee Area though, this period is marked by a substantial increase in the St. Johns ceramic series, until St. Johns Plain and St. Johns Check-stamped eventually become the dominant types. This can be seen at the Riviera Site (8PB30) (Wheeler, 1992). Before the St. Johns series becomes dominant in the Boca Raton area though, the increase in sand-tempered plain and decrease in Belle Glade Plain continues, so that, for a while at least, both the amounts of sand-tempered plain and the St. Johns wares are increasing simultaneously. This period ends with the appearance of European goods. A tentative date in line with other areas in southern Florida for sustained European contact is A.D. 1500.

Therefore, the next period, East Okeechobee IV, is marked by essentially the same ceramics as the previous period except that this period has the addition of European goods. The St. Johns series is dominant and the Riviera Site (8PB30) suggests that St. Johns Check-Stamped may actually be the most dominant ware. The tribe encountered in the East Okeechobee Area by Europeans at this time was called the Jeaga. It is possible that the Jeaga were under the political dominance of the Calusa, a tribe centered on the southwestern coast of Florida (Fontaneda in True, 1945). However, the large amounts of St. Johns pottery and other artifacts from the Indian River and St. Johns Areas in the East Okeechobee Area during this time suggests dominance by these northern areas instead. As mentioned before, Dickinson also observed that the Jeaga were forced to hand over his shipwrecked cargo to the Ais, their neighbors to the north. Thus, it would seem that if the Calusa did exert any control over the Jeaga, it was minimal or sporadic and was not nearly as strong as was that exerted by the Ais and perhaps by the Timucua farther to the north.

It has been estimated that there were about 20,000 Indians in south Florida when the Spanish arrived (Milanich and Fairbanks, 1980). By 1763, when the English gained control of Florida, that population had been reduced to several hundred. These last survivors were reported to have migrated to Cuba with the Spanish (Romans, 1962), however, it is likely that the so-called "Spanish Indians" (Sturtevant, 1953), who raided Indian Key in 1840, were the mixed-blood descendants of the Calusa and/or refugees from north Florida missions raided by the English in the early eighteenth century. The Spanish-Indians joined the Seminoles, who had fled en masse into south Florida in 1838 after the Battle of Okeechobee, although some Creek groups apparently had migrated to south Florida earlier in the century.

Historic Period (1750 AD – 1900 AD)

The earliest documentary evidence of Seminole settlement in South Florida is an account by John Lee Williams (1837) describing Snake Warrior's Island at the headwaters of Snake Creek. Recently, site 8BD1867 in Miramar in southern Broward County was identified as this site.

Seminole archaeology is a relatively new focus in South Florida, and recent work has contributed new data. Numerous Seminole sites have been identified in Palm Beach County, including those associated with Fort Jupiter and the Loxahatchee River (Carr *et al.,* 1994; Carr *et al.,*1995; Pepe and Carr, 1996a and 1996b; Pepe *et al.,* 1998).

By the 1860s, several pioneer families had settled along the coastal area. Fishing, citrus groves, and farming were some of the means of livelihood. In the 1890s the arrival of the Florida East Coast Railway hastened development in the region.

Methodology

Prior to conducting fieldwork in the project parcel, an archival and literature search was performed. This included, but was not limited to, studying prior archaeological reports for sites in Palm Beach County, reviewing information from the Master Site File in Tallahassee concerning nearby sites, and examining USGS maps and black and white aerial photographs dating from 1965, 1973, 1994, and 2002 which could aid in revealing anthropogenic changes to the topography and floral communities.

Research Design

The objective of this assessment was to determine whether any prehistoric or historic sites, features, or artifacts occur on the project parcel. This phase I survey of the Vavrus North parcel incorporated the use of certain predictive archaeological site models. These models are based on topographic and vegetative attributes that are associated with prehistoric sites in interior Palm Beach County. These models postulate that elevated sandy knolls and cabbage palm hammocks are high probability features for being associated with archaeological sites. The elevational information on the Delta and West of Delta Quadrangle maps for the area also was used. It was determined that overall, based on the large size of the tract, the project parcel had a medium to high possibility of containing archaeological sites.

After reviewing the aerial photographs and surveying the parcel from field-level, a total of 22 archaeological targets were identified on the subject parcel to be assessed in the field.

Field Work

Each of the 22 archaeological targets was visited and assessed for their archaeological potential. A windshield and pedestrian survey also was conducted across the entire parcel to identify any additional archaeological targets or features that were not visible in the aerial photographs. Areas of exposed natural soil, when encountered, were examined for evidence of archaeological material.

The windshield/pedestrian survey was followed by sub-surface testing, which was conducted in July, 2005. Each of the targeted areas was visited and photographed. Selected targets of higher elevation were subject to sub-surface testing. A total of 15 test holes were excavated across seven selected targets.

This assessment resulted in the excavation of fifteen 45 cm square shovel tests. All shovel tests were dug to sterile sub-soils, or beneath the water table. All dug sediments were screened through a ¼" mesh hardware cloth and any cultural material was saved. All cultural material was placed in sealable plastic bags and sent to the AHC laboratory in Davie for evaluation and analysis.

Collections

All recovered materials (FS 1-2) were brought to the AHC laboratory in Davie to be cleaned, identified, and quantified.

Informants

No informants were interviewed for this assessment.

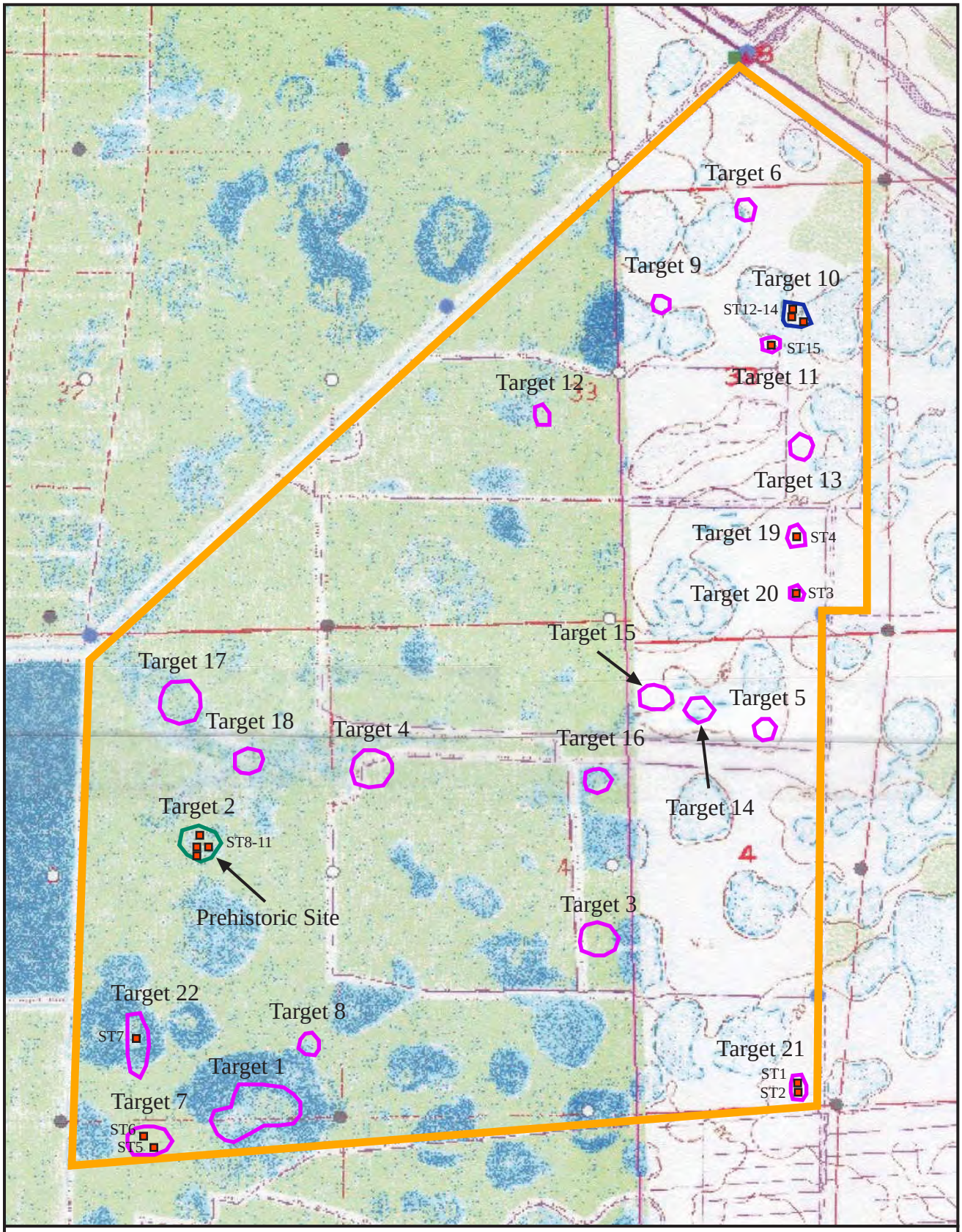


Figure 5. Map of the Vavrus North parcel showing archaeological targets, test holes and sites.

0 1/4 1/2 mile

Archaeological Test Hole Archaeological Site Possible Archaeological Site

Source: USGS Delta Quadrangle (1945, rev. 1983)
USGS West of Delta Quadrangle (1971, rev. 1984)

N

Results and Conclusions

This phase I survey of the Vavrus North parcel resulted in a survey of all parts of the parcel. One prehistoric site (site number pending) was found. Twenty-two targets of variable probability of being associated with archaeological sites were assessed (Appendix 1). A total of 15 shovel tests were excavated across the target areas. Two shovel tests produced a sparse quantity of faunal bone, shell and one fragment of a *Busycon* shell tool (FS 1-2). No structures occur on the subject parcel.

The Vavrus site is a prehistoric campsite and is potentially eligible for listing on the National Register of Historic Places (Figure 5). A second location (Target #10) was identified as having at least a medium probability of being associated with an archaeological site (Figure 5). Although our testing there produced negative results, the size of the Target 10 feature—a knoll measuring 75 by 100 feet with an elevation about two feet above the surrounding wetlands—suggests the possibility that an archaeological site might occur there.

All other twenty targets were visited and determined to be of too low an elevation (less than one foot above the surrounding area) to be associated with archaeological activity since they would have been under one to two feet of water until recent times when the area was ditched to allow for drainage and improved pastures.

Due to the large size of the subject parcel, however, it is possible that archaeological material, features or other small sites could occur. If any archaeological materials are encountered during development, then the consultant archaeologist and appropriate agencies should be notified. If human remains are found then the provisions of Florida Statute 872.05, the Unmarked Human Graves Act, will apply.

Site Summary

Site Name:	Vavrus
State Site Number:	8PB0000 (site number pending)
Environmental Setting:	Hardwood and palm hammock island
Location:	Range 41E, Township 42S, Section 5
Site Type:	Prehistoric campsite
Site Function:	Habitation, resource extraction
Description:	The site is characterized by a black dirt midden horizon, containing a sparse quantity of faunal bone, shell and shell tools. The cultural horizon occurs at a depth of 0-10 inches. The site measures approximately 75 feet by 100 feet and has a maximum elevation of 2.5 feet.
Chronology:	Prehistoric: unspecified
Collections:	Faunal bone, snail shell, *Busycon* shell tool fragment (FS 1-2)
Previous Research:	None
Preservation Quality:	Excellent, no disturbances were observed
Ownership:	Private
Significance:	Site is of local significance and may be considered eligible for listing on the National Register of Historic Places.

Figure 6. View southwest at the Vavrus Site (Target 2)

Figure 7. View south at Victor Longo at the Vavrus Site (Target 2)

References Cited

Austin, DF
1980 Historically important plants of southeast Florida. *The Florida Anthropologist 3* (1):17-31.

Beriault, JG, RS Carr, J Stipp, R Johnson, and J Meeder
1981 The Archaeological Salvage of the Bay West Site, Collier County, Florida. *The Florida Anthropologist 34*(20):39-58.

Beriault, John G. and Charles Strader
1984 A Preliminary Report on Stratigraphic Excavation on Chokoloskee Island, Florida. Southwest Florida Archaeological Society, MS on file, AHC.

Browning, WD
1975 Archaeological investigation at the Rocky Point 2 Site: 8MT33. Conducted for Deal Development Co.

Carbone, VA
1983 Late Quaternary Environments in Florida and the Southeast. *The Florida Anthropologist 36*:3-17.

Carr, RS
1986 Preliminary Report on Excavations at the Cutler Fossil Site (8DA2001) in Southern Florida. *The Florida Anthropologist* 39:231-232.

1981a Salvage Excavations at Two Prehistoric Cemeteries in Dade County, Florida. Paper presented at the 45th Annual Meeting of the Florida Academy of Sciences.

1981b *Dade County Historic Final Report: The Archaeological Survey*. Metropolitan Dade County Office of Community and Economic Development, Historic Preservation Division, Miami, Florida.

Carr, RS and JG Beriault
1984 Prehistoric Man In South Florida. In P.J. Gleason (ed.) *Environments of South Florida: Present and Past II*. Miami Geological Society, Coral Gables, Florida, pp 1-14.

Carr, RS, D Dickel and M Masson
1995 Archaeological Investigations at the Ortona Earthworks and Mounds. *The Florida Anthropologist 48*(4):227-264.

Carr, RS, L Jester and J Pepe
1995 Phase II Archaeological Investigations of the Riverbend #12 Site, Palm Beach County, Florida. *AHC Technical Report #112.*

Carr, RS and J. Mankowski
2004 An Archaeological and Historical Assessment of the Palm Beach County Biotechnology Research Park Parcel, Palm Beach County, Florida. *AHC Technical Report # 48.*

Carr, RS and WS Steele
1995 An Archaeological Survey of the Citrus Project Property, Brighton Seminole Reservation, Glades County, and Big Cypress Reservation, Hendry County, Florida. *AHC Technical Report #65*.

Carr, RS, WS Steele and J Davis
1994a A Phase I Archaeological and Historical Assessment of the Piper Tract, Collier County, Florida. *AHC Technical Report #83*.

1994b A Phase II Archaeological and Historical Assessment of the Piper Tract, Collier County, Florida. *AHC Technical Report #99*.

Carr, RS, WS Steele, S Norman, and R Ferrer
1992 An Archaeological Survey and Management Plan of the Town of Palm Beach. October, 1992. *AHC Technical Report #61*.

Carr, RS, WS Steele, J Pepe, and L Spears-Jester
1994 An Archaeological and Historical Assessment of Riverbend Park, Palm Beach County, Florida. *AHC Technical Report #106.*

Clausen, CJ, AD Cohen, C Emiliani, JA Holman and J J Stipp
1979 Little Salt Spring, Florida a Unique Underwater Site. *Science 203*:609-614.

Cockrell, WA
1970 Glades I and Pre-Glades Settlement and Subsistence Patterns on Marco Island (Collier County, Florida). M.A. thesis of file, Florida State University, Tallahassee, Florida.

1972 Report on file with FDAHRM.

Cordell, A
1992 Technological investigations of pottery variability in southwest Florida. In WH Marquardt (ed.) *Culture and Environment in the Domain of the Calusa*. Gainesville: IAPS University of Florida, pp. 105-189.

Delcourt, P.A. and H.R. Delcourt
1981 Vegetation Maps for Eastern North America: 40,000 Years B.P. to Present, in *Geobotany II.* R.C. Romans editor, Olenum Publishing Press, New York, NY.

Dickel, D
1988 Test excavations at the Singer Island site (8PB214), MacArthur Beach State Park, Palm Beach County, FL.

Dickinson, Johnathan
1885 *Johnathan Dickinson's Journal*. Florida Classics Library, Port Salerno, Florida

Douglass, AE
1882 A find of ceremonial weapons in a Florida mound, with brief notice of other mounds in the State. *Proceedings of the American Association for the Advancement of Science 31*.

1885 Ancient Canals on the South-west Coast of Florida. *American Antiquarian* 7:227-285.

1890 Mounds in Florida. *American Antiquarian* 12:105-107.

Dubois, BW
1957 Celt and pendant from Jupiter Inlet Mound. *The Florida Anthropologist 10*:15-16.

Ehrenhard, JE, RS Carr and RC Taylor
1978 The Archaeological Survey of the Big Cypress National Preserve: Phase I. Southeast Archaeological Center, National Park Service, Tallahassee, Florida.

1979 The Archaeological Survey of the Big Cypress National Preserve: Season 2. Southeast Archaeological Center, National Park Service, Tallahassee, Florida.

Ehrenhard, JE, RC Taylor, and G Komara
1980 The Archaeological Survey of the Big Cypress National Preserve: Season 4. Southeast Archaeological Center, National Park Service, Tallahassee, Florida.

Ewel, KC
1990 Swamps. In RL Myers and JJ Ewel (eds.) *Ecosystems of Florida*. Orlando: University of Central Florida Press, pp. 281-323.

Feaster, SV
1965 Archaeological Survey of the House of Refuge Site, Hutchinson Island, FL. Unpublished MS Thesis.

Furey, JE Jr
1972 Spanish River Complex: Archaeological Settlement Patterning in the East Okeechobee Sub-area. Unpublished MA Thesis, College of Social Science, Florida Atlantic University.

Goggin, John M.
n.d. The Archaeology of the Glades Area, Southern Florida. Typescript on file in Florida's Division of Historic Resources.

1947 A Preliminary Definition of Archaeological areas and Periods in Florida. *American Antiquity* 13:114-127.

1952 *Space and Time Perspective in Northern St. Johns Archeology, Florida*. Yale University Publications in Anthropology No. 47. New Haven: Yale University Press.

Griffin, JW
1974 Archaeology and Environment in South Florida. pp 342-346 . In PJ Gleason (ed.) *Environments of South Florida: Present and Past I.* Miami, Florida: Miami Geological Society.

1988 *The Archaeology of Everglades National Park: A Synthesis*. National Park Service, Southeast Archaeological Center, Tallahassee, Florida.

Kennedy, WJ, L Jester, J Pepe, N Sinks, C Wernecke and D Flaherty
1994a, b Phase I and Phase II Archaeological Survey of the Loxahatchee River. Proposed for Environmental Management and Engineering , Palm Beach County.

Kennedy, WJ., C Roberts, S Shaw and R Wheeler
1991 *Prehistoric Resources in Palm Beach County*-A Preliminary Predictive Study. Florida Atlantic University, Boca Raton.

Kennedy, WJ, S Lewis, N Cassel, L Jester, J Pepe and AJ Sassi
1991 The SR706/Indiantown Road Realignment, Palm Beach County, Florida: Archaeological Reconnaissance Survey and Gildan Right-of-Way & Bridge/Ca. Florida Atlantic University Department of Anthropology, Boca Raton.

Kennedy, WJ, R Wheeler, L Spears-Jester, J pepe, N Sinks and C Wernecke
1993 Archaeological Survey and Excavations at the Jupiter Inlet I Site (8PB34), DuBois Park, Palm Beach County, Florida. Florida Atlantic University Department of Anthropology, Boca Raton.

Kremer, PR and W Spackman
1981 The paleoecological evidence for environmental change in "neopaleobotanical" sediments of South Florida. In RC Romans (ed.) *Geobotany II.* Plenum Publishing Co. pp. 35-52.

Laxson, DD
1962 Excavations in Dade and Broward Counties. *The Florida Anthropologist 15*:1-11.

Marquardt, WH
1992 Recent Archaeological and Paleoenvironmental Investigations in Southwest Florida. In W.H. Marquardt (ed) *Culture and Environment in the Domain of the Calusa*. pp. 9-58. Institute of Archaeology and Paleoenvironmental Studies. Monograph 1, University of Florida, Gainesville.

McCollum, SA and OE Cruz
1981 *Soil Survey of Martin County*. United States Department of Agriculture, Soil Conservation Service.

McGoun, WE
1989 Prehistoric Peoples of Southern Florida. Unpublished Ph.D. dissertation, Dept. of Anthropology, University of Florida, Gainesville.

Milanich, JT
1994 *Archaeology of Precolumbian Florida.* University Press of Florida, Gainesville, Florida.

Milanich, JT and CH Fairbanks
1980 *Florida Archaeology.* New York: Academic Press.

Mowers, B and WB Williams
1972 The Peace Camp Site, Broward County, Florida. *The Florida Anthropologist* 25:1-20.

Newman, C and Weisman, BR
1992 A preliminary cultural resource inventory of Coupon Bight State Buffer Reserve Monroe County, FL.

Pepe, J and RS Carr
1996a Archaeological Testing and Monitoring at the Shunk Tract, Palm Beach County, Florida *AHC Technical Report #144*.

Pepe, J and RS Carr
1996b A Phase II Archaeological Survey of the Jupiter Parcel, Palm Beach County, Florida. *AHC Technical Report #168*.

Pepe, J and E Kehoe
1992 Field notes on Suni Sands (8PB7718). Manuscript on file, Dept. of Anthropology Florida Atlantic University, Boca Raton.

Pepe, J, W.S. Steele, Anne McCudden and Dan Hughes
1998 Archaeological Monitoring of the Indiantown Road Widening Project, Palm Beach County, Florida**.** *AHC Technical Report #176.*

Purdy, BA
1990 Chronology of cultivation in peninsular Florida: prehistoric or historic? *Southeast Archaeology 9*(1):35-42.

Romans, B
1962 *Natural History of Florida.* Facsimile of 1775 ed., University Presses of Florida, Gainesville.

Rouse, I
1951 A Survey of Indian River Archaeology. *Yale University Publications in Anthropology #44.* New Haven, Conn.

Royal, WD and E Clark
1960 Natural preservation of human brain, Warm Springs, Florida. *American Antiquity 26*:285-287.

Sassaman, KE
1993 *Early Pottery in the Southeast.* Tuscaloosa: University of Alabama Press.

Scholl, DW and M Stuiver
1967 Recent Submergence of Southern Florida. *Geological Society of America Bulletin* 78:437-454.

Sears, WH
1982 *Fort Center: An Archaeological Site in the Lake Okeechobee Basin.* University of Florida Press, Gainesville, Florida.

Sears, WH and C Hoffman
1965 Field Notes on the Reed Mound (8MT13). Manuscript on file, Dept. of Anthropology, Florida Atlantic University, Boca Raton.

Small, JK
1928 Botanical Fields, Historic and Prehistoric. *New York Botanical Garden Journal 29*: 149-235.

Sturtevant, WC
1953 Chakaika and the 'Spanish Indians': Documentary Sources Compared with Seminole Tradition. *Tequesta 13*:35-73.

True, DO
1945 Memoir of Do. D'Escalante Fonteneda Respecting Florida. Written in Spain about the Year 1575. Translated by Buckingham Smith. Coral Gables: Glade House, FL.

Webb, SD and RA Martin
1974 Late Pleistocene Mammals from the Devil's Den Fauna, Levy County. In SD Webb (Ed.) *Pleistocene Mammals of Florida*. Gainesville: University Presses of Florida, pp. 114-145.

Wharton, B, G. Ballo an M Hope
1981 The Republic Groves Site, Hardee County, Florida. *The Florida Anthropologist 34:*59-80.

Wheeler, RJ
1992 The Riviera Complex: An East Okeechobee Archaeological Area Settlement. *The Florida Anthropologist 45*(1):5-17.

1993 Spatial and temporal distribution of shell tools from the East Okeechobee area. Paper presented at the 50th Southeast Archaeological Conference, Raleigh, NC.

1994 Cultural Resources Survey and Assessment of the Proposed Farr Prison Site, Okeechobee County, Florida. Manuscript on file with the FL Master Site File.

Williams, JL
1837 *The Territory of Florida*. Gainesville: University Press of Florida.

Appendix 1: Target Log

Target 1: A low-lying peninsula of pine flatwoods with an elevation of ½ foot and located in a large marsh pond feature. A linear feature of pine trees and marsh plants approximately 100 feet long and 4 feet wide is located at the north end of the peninsula and branches off to the north. The feature is positioned long ways from north to south. This feature appears to be a natural formation.

Target 2: A palm and hardwoods hammock island with an elevation of 1-2 ½ feet. The south-end of the island tested positive for prehistoric cultural materials (FS1-2) and was most likely used as a place for campsites and resource extraction. Limestone caprock was observed at a depth of 10 inches.

Target 3: A cluster of dense melaleuca trees and some pines with a maximum elevation of ½ foot. This area has been partially cleared and ditched.

Target 4: A dense cluster of melaleuca trees, flooded with water and disturbances caused by a dirt roads and ditches.

Target 5: This is a cluster of sabal palms on a low elevation of approximately ½ foot that appears to be artificially constructed. Burn piles and ditches were observed nearby.

Target 6: Low-lying cluster of pine flatwoods growing on the edge of a marsh pond.

Target 7: Low lying large strand of pine flatwoods surrounded by marsh and ponds.

Target 8: Cluster of low-lying melaleuca trees on the north edge of a marsh pond.

Target 9: A small cluster of pine trees growing on the northeast edge of a marsh pond. This area was flooded.

Target 10: A curvilinear feature of pine trees and eucalyptus trees on a limestone outcropping with an elevation of 2-2 ½ feet. There is a remnant pond on the southwest corner of the target. This target was tested with three shovel tests and found no evidence of cultural activity, however, there is the possibility of sparse and isolated Archaic cultural materials occuring on this target, but more testing must be conducted to determine this.

Target 11: A cluster of pine trees and Brazilian pepper trees growing on what appears to be an artificially constructed elevation of 1 ½ feet. Most likely this is a debris push pile from the digging of a nearby canal. This target was tested with one shovel test that tested negative for cultural materials.

Target 12: A flooded area of marsh plants growing on the east sided of a marsh pond.

Target 13: A cluster of flooded pine flatwoods with some cabbage palms.

Target 14: A cluster of flooded cypress trees and marsh plants.

Target 15: A cluster of flooded cypress tress, marsh plants and some cabbage palms.

Target 16: A cluster of flooded melaleuca trees growing on the side of a road with ditches nearby.

Target 17: A flooded hammock island with marsh plants and some hardwoods.

Target 18: A flooded hammock island with marsh plants and some hardwoods.

Target 19: A small cluster of oak trees with no elevation and disturbances from ditches nearby.

Target 20: A cluster of oak trees with no elevation and disturbances from clearing and ditches.

Target 21: A cluster of pine flatwoods with a slight elevation.

Target 22: A cluster of pine flatwoods with an elevation of 1 foot. This target is located between two marsh ponds and was tested with shovel tests that found no cultural materials.

Appendix 2: Shovel Test Log

ST 1 (16" x 16") Negative
Target: 21
0-4" dark gray/ medium gray silt sand
4-11" brown silt sand
11-21" tan sand (wet)
21-27" dark gray/ black organic loam (wet)
21" water table

ST 2 (16" x 16") Negative
Target: 21
0-9" medium to dark gray silt sand
9-22" light gray/ tan sand
22-30" dark gray/ black organic loam (wet)
25" water table

ST 3 (16" x 16") Negative
Target: 20
0-8" medium to dark gray silt sand
8-25" light gray/ tan sand
25-33" brown silt sand (wet)
26" water table

ST 4 (16" x 16") Negative
Target: 19
0-10" medium to dark gray silt sand
10-22" light gray/ tan sand
22-30" brown silt sand (wet)
24" water table

ST 5 (16" x 16") Negative
Target: 7
0-16" gray silt sand (moist at bottom)
16-27" tan sand (wet)
16" water table

ST 6 (16" x 16") Negative
Target: 7
0-18" gray silt sand (moist at bottom)
18-22" tan sand (wet)
14" water table

ST 7 (16" x 16") Negative
Target: 22

0-17" dark to medium gray silt sand
17-25" tan sand (wet)
18" water table

ST 8 (16" x 16") Positive
Target: 2
0-10" dark gray loamy sand, faunal bone, shell (FS 1)
10" limestone bedrock

ST 9 (16" x 16") Negative
Target: 2
0-8" dark gray sand
8" limestone bedrock

ST 10 (16" x 16") Negative
Target: 2
0-12" dark gray loamy sand
12-18" gray sand
18-20" limestone bedrock

ST 11 (16" x 16") Positive
Target: 2
0-9" dark gray sand, shell, *Busycon* shell tool (FS 2)
9-10" limestone bedrock

ST 12 (16" x 16") Negative
Target: 10
0-7" gray sand
18-15" light gray sand
15-19" brown sand
19-20” limestone bedrock

ST 13 (16" x 16") Negative
Target: 10
0-12" gray sand
12-17" light gray sand
17-20" brown sand
20” limestone bedrock

ST 14 (16" x 16") Negative
Target: 10
0-9" gray sand
9-19" light gray sand
19-24" brown sand
24” limestone bedrock

ST 15 (16" x 16") Negative
Target: 11
0-15" light gray sand

Appendix 3: Field Specimen Log

FS #	Provenience	Description	Collector*	Date
1	Target 2	Faunal bone (2 pcs), shell (2 pcs)	JFM	07-13-05
2	Target 2	Snail shell (3 pcs), *Busycon* shell tool fragment (1 pc)	JFM	07-13-05

* Collector: Joseph F. Mankowski

Page 1
x Original
☐ Update

ARCHAEOLOGICAL SITE FORM
FLORIDA MASTER SITE FILE
Version 2.2 12/95

Site # _____
Recorder # _____
Field Date _07/12/05-07/15/05___
Form Date _07/18/05_ _____

Site Name(s) __Vavrus _____ *[Multiple Listing #8_____]*
Project Name __Vavrus North Parcel Phase 1 _____ *[Survey # _____]*
Ownership: X private-profit ☐private-nonprofit ☐private-individual private-unspecified ☐city ☐county ☐state ☐ federal ☐foreign ☐native american ☐unknown
USGS 7.5 map name & date: Delta Quadrangle 1983, West of Delta Quadrangle 1984___ County Palm Beach_____
Township_42__ Range_41_ Section _5__, ¼ Sect.: XNE NW XSE SW (check all that apply)
City / Town __Palm Beach Gardens_____ in Current City Limits? N
UTM: zone ☐16 ☐17 easting __ __ __ __ __0 northing __ __ __ __ __ __ 0
Address / Vicinity of / Route to :_2 miles north of Northlake Blvd._____
Landgrant _____ Tax Parcel # _____
Name of Public Tract (e.g., park) _____

TYPE OF SITE (Check all choices that apply; if needed write others in at bottom)

SETTING

X Land – *terrestrial* ☐ Lake/Pond - *lacustrine*
☐ Cave/Sink - *subterranean*
- ☐ terrestrial
- ☐ aquatic
- ☐ intermittently flooded

☐ Wetland - *palustrine*
- ☐ usually flooded (historically)
- ☐ sometimes flooded
- ☐ usually dry

☐ River/Stream/Creek - *riverine*
☐ Tidal - *estuarine*
☐ Saltwater - *marine*
- ☐ marine unspecified
- ☐ "high energy" marine
- ☐ "low energy" marine

STRUCTURES - OR - FEATURES

☐ aboriginal boat
☐ agric/farm bldg
☐ burial mound
☐ building remains
☐ cemetery/grave
☐ dump/refuse
☐ earthworks
☐ fort
X midden
☐ mill unspecified
☐ mission
☐ mound unspecified
☐ plantation
☐ platform mound
☐ road segment
☐shell midden
☐ shell mound
☐ shipwreck
☐ subsurface features
☐ surface scatter
☐ well

FUNCTION

☐ none specified
X campsite
X extractive site
X habitation (prehistoric)
☐ homestead (historic)
☐ farmstead
☐ village (prehistoric)
☐ town (historic)
☐ quarry

other_____

HISTORIC CONTEXTS (Check all that apply, except use most specific subphases only)

Aboriginal
☐ Alachua
☐ Archaic Unspecified?
☐ Belle Glade I
☐ Belle Glade II
☐ Belle Glade III
☐ Belle Glade IV
☐ Belle Glade Unspec
☐Cades Pond
☐ Deptford
☐ Early Archaic
☐ Early Swift Creek
☐ Englewood
☐ Fort Walton
☐ Glades Ia
☐ Glades Ib
☐ Glades I Unspec
☐ Glades IIa
☐ Glades IIb
☐ Glades IIc
☐ Glades II Unspec
☐Glades IIIa
☐ Glades IIIb
☐ Glades IIIc
☐ Glades III Unspec
☐ Glades Unspec
☐ Hickory Pond
☐ Late Archaic ?
☐ Late Swift Creek
☐ Leon-Jefferson
☐ Malabar I
☐ Malabar II
☐ Manasota
☐ Middle Archaic ?
☐ Mount Taylor
☐ Norwood
☐ Orange
☐ Paleoindian
☐ Pensacola
☐ Perico Island
☐ Safety Harbor
☐ St. Augustine
☐ St. Johns Ia
☐ St. Johns Ib
☐ St. Johns I Unspecified
☐ St. Johns IIa
☐ St. Johns IIb
☐ St. Johns IIc
☐ St. Johns II Unspecified
☐ St. Johns Unspecified
☐ Santa Rosa
☐ Santa Rosa-Swift Creek
☐ Seminole: Colonization
☐ Seminole: 1st War To 2d
☐ Seminole: 2d War To 3d
☐ Seminole: 3d War On
☐ Seminole-Unspecified
☐ Swift Creek Unspecified
☐ Transitional
☐ Weeden Island I
☐ Weeden Island II
☐ Weeden Island Unspec
☐ Prehistoric Nonceramic
☐ Prehistoric Ceramic
X Prehistoric Unspecified

Nonaboriginal
☐ 1st Spanish 1513-99
☐ 1st Spanish 1600-99
☐ 1st Spanish 1700-1763
☐ 1st Spanish Unspecified
☐ British 1763-1783
☐ 2nd Spanish 1783-1821
☐ Amer.Territor'l 1821-45
☐ Amer.Civil War 1861-65
☐ American 19th Century?
☐ American 20th Century
☐ American Unspecified
☐ African-American

other (Less common phases are not checklisted. For historic sites, also give specific dates if known _____

SURVEYOR'S EVALUATION OF SITE

Potentially eligible for local designation?	X yes	☐no	☐ insuff. info	Name of Local Register eligible for:
Individually eligible for National Register?	☐ yes	☐no	X insuff. info	_____
Potential contributor to NR district?	☐yes	☐no	X insuff. info	_____

Explanation of Evaluation (Required if evaluated; limit to 3 lines; attach full justification)

_____

Recommendations for Site__Preservation or further investigation

._____

DHR USE ONLY======== OFFICIAL EVALUATIONS ========DHR USE ONLY

NR DATE	*KEEPER-NR ELIGIBILITY:*	☐*y* ☐*n*	*Date* ___/___/_____
___/___/____	*SHPO-NR ELIGIBILITY:*	☐*y* ☐*n* ☐*pe* ☐*ii*	*Date* ___/___/_____
DELIST DATE	*LOCAL DESIGNATION:*_____		*Date* ___/___/_____
___/___/____	*Local office* _____		

National Register Criteria for Evaluation ☐a ☐b ☐c ☐d

ARCHAEOLOGICAL SITE FORM

Site #

FIELD METHODS (Check one or more methods for detection and for boundaries)

Site Detection			*Site Boundaries*		
☐ no field check	☐exposed ground	X screened shovel	☐ bounds unknown	☐ remote sensing	☐ unscreened shovel
☐ literature search	☐ posthole digger	☐ aerial photo	☐ none by recorder	☐insp exposed ground	☐ screened shovel
☐ informant report	☐ auger--size:___	Random Trowel_	☐ literature search	☐ posthole digger	☐ block excavations
☐ remote sensing	☐ unscreened shovel	_____	☐ informant report	☐ auger--size:___	X estimate or guess

Number, size, depth, pattern of units; screen size __Four 45 cm squared shovel tests were dug throughout the site and all sediments were screened through a ¼" hardware mesh. _____

SITE DESCRIPTION

Extent Size (m^2) __625m2____ Depth/stratigraphy of cultural deposit__0-25cm_____

Temporal Interpretation Components: ☐ single X prob single ☐ prob multiple ☐ multiple ☐ uncertain ☐ unknown

Describe each occupation in plan (refer to attached large scale map) and stratigraphically. Discuss temporal and functional interpretations.

_____

Integrity Overall disturbance: X none seen ☐ minor ☐ substantial ☐ major ☐ redeposited destroyed-document! ☐ unknown

Disturbances / threats / protective measures: _____ Area Collected _____ m^2

Surface: #collect. Units____ Excavation: #contiguous blocks _____

ARTIFACTS

Total Artifacts #__8__ (C)ount or (E)stimate ___C___ Surface #_____ Subsurface # _____

Overall Collection Strategy		*Artifact Categories / Artifact Depositions*		Disposition List
☐ unknown	X unselective (all artifacts)	____ unspecified	____ nonlocal-exotic	A - this catagory always collected
	☐ selective (some artifacts)	____ lithics, aboriginal	____ metal, nonprecious	O - observed, not collected
	☐ mixed selectivity	___ ceramic-aboriginal	_ bone-human	I - informant reported or collected
☐ uncollected	☐ general (not by subarea)	____ ceramic-nonaboriginal	_A_ _ bone-animal	S - some items in catagory collected
	☐ ontrolled (by subarea)	____ daub	____ bone-unspecif	R - collected & reburied at site
	☐ variable spatial control	____ brick/bldg matl	__A _ unworked shell	U - unknown
☐ Other Current survey, no collections _____		____ glass	__A _ worked shell	
		____ precious metal/coin ____	Other _____	Previous surveys - unknown___

(Use abbreviation(s) from Deposition List to fill blank(s) of pertinent Artifact Categories)

DIAGNOSTICS (Type and frequency)

1. Faunal bone_____	N=2_	5. _____	_ N=_	9. _____	N=__
2. *Busycon* shell tool fragment_____	N=1_	6. _____	N=__	10. _____	N=__
3. Snail shell_____	N=3_	7. _____	_ N=__	11. _____	N=__
4. Other shell_____	N=2	8. _____	N=__	12. _____	N=__

ENVIRONMENT

Nearest fresh water (type & name) Slough _____ Distance (m)/bearing site:Adjacent

Natural community: Hammock

Local vegetation climax: Oaks, Sabal Palms and other hardwoods

Topography : MIN Elevation __0___ m MAX Elevation _1m__

Present land use: ____Cattle pasture_____

SCS soil series _____ Soil association _____

FURTHER INFORMATION

Informant(s): Name/Address/Phone: Joseph F. Mankowski _____

Location & File numbers (field notes, artifacts/accession nos, photographs/negative nos.) __Archaeological and Historical Conservancy, Inc. _____

4800 SW 64th Avenue, Suite 107 Davie, FL. 33314 (954)792-9776 _____

Manuscripts or Publications on the site (Use Continuation Sheet, give FSF# if relevant)_____

Recorder(s): Name/Address/Phone Joseph F. Mankowski 4800 SW 64th Avenue, Suite 107 Davie, FL. 33314 954-792-9776 _____

Affiliation or FAS Chapter_____FAS, SHA, AHC _____

***** PLEASE INCLUDE SITE PLANS *****

LARGE SCALE MAP: At 1"=200' or larger scale, show: site boundaries, scale, North arrow, datum, test/collection units, tie-ins to USGS.

NARRATIVE DESCRIPTION/CONTINUATIONS: Attach additional sheets with detailed information or with continuations.

EW Consultants, Inc.
Natural Resource Management, Wetland, and Environmental Permitting Services

AVENIR

Habitat Restoration and Management Plan

Prepared For:
Avenir Holdings, LLC

Prepared By:
EW Consultants, Inc.

September 2015
REVISED NOVEMBER 2015

1000 SE Monterey Commons Boulevard, Suite 208 • Stuart, FL 34996 772-287-8771 • Fax 772-287-2988
www.ewconsultants.com

Executive Summary

As discussed in further detail in the following Habitat Restoration and Management Plan, the Avenir property (formerly known as the Vavrus Ranch) has a long history of agricultural and silvicultural activity. For more than 50 years there have been a variety of agricultural uses on the site including vegetable farms, timber harvest, and cattle operations. As a result there are no areas of the site that have not been altered from their natural state in some fashion. However, there are significant natural resources remaining on the site primarily in the form of wetland systems as well as some areas of upland habitat.

This Habitat Restoration and Management Plan has been prepared to provide a framework to guide the ecological restoration and long term management of the 2,407 +/- acres within the Conservation Area of the proposed Avenir project. This Conservation Area constitutes more than 50 percent of the 4,763 +/- acre Avenir property. The entire 2,407 +/- acre Conservation Area is designated for preservation and habitat restoration.

Within the Conservation Area, the wetland resources can be characterized on a continuum from very poor ecological quality (heavily invaded by non-native and/or nuisance vegetation and altered hydrology) up through excellent wetland functional quality with only minor occurrences of non-native vegetation or hydrologic impacts. The upland resources on the site are much less diverse, primarily as a result of severe invasion by non-native vegetation. Although there are areas of pine flatwoods community with intact native canopy, understory and ground cover vegetation, they are rare and most have reduced canopy due to past timber harvest practices and invasion by non-native forage grasses in the ground cover as a result of grazing uses. The vast majority of the uplands on the site are dominated by West Indian dropseed, an invasive non-native grass that has little if any value as forage for wildlife or cattle. The uplands are also invaded to a significant degree by Brazilian pepper, also an invasive non-native plant with little or no value to wildlife.

The land planning process for the Avenir project has entailed identification of areas with attributes that provide long term opportunity for natural habitats or special features and designating them for conservation and open space. The locational context of these conservation areas was considered in relation to surrounding conservation lands to develop an integrated corridor connection system in a regional context.

Of the 1,993 +/- acres of agency verified wetlands identified on the Avenir property, approximately 1,076 +/- acres are proposed for preservation. As far as upland resources, of the 728 +/- acres that can be described as native upland habitat 350 +/- acres (over 48%) are proposed for preservation.

Introduction

The following Habitat Restoration and Management Plan prepared for the Avenir Conservation Area is based on an assembly of information collected on the subject property over a period of over 10 years. Extensive baseline data collection was conducted in the period from 2004 through 2006 followed by a considerable reduction in intensive field survey activity in the period between 2006 and 2010. From 2010 to 2012, occasional general site evaluation visits were conducted, without specific data collection or inventory parameters. Beginning in 2013 and through the date of this Plan, multiple field visits to verify and update information regarding wetlands, wetland delineation and verification, upland habitats, wildlife utilization, and general ecological conditions have been completed in support of this Plan.

The tabular summary of wildlife observations (provided in Appendix A) represents a compilation of observations and data throughout the last 10 +/- years. The site habitat is generally homogeneous on a landscape scale such that that very few additional species have been observed in the field evaluations conducted in the last several years, although most have been confirmed and additional areas of similar habitats have been quantified. Listing of individual floral species (as opposed to vegetative assemblages), are limited to known or potentially occurring protected species. Refer to Appendix B for a detailed listing of these floral species as well as a summary of listed wildlife species and their potential for occurrence.

General Site Description -

The Avenir Conservation Area is comprised of 2,407 +/- acres of primarily agricultural land situated north of Northlake Boulevard, west of the Palm Beach County General Aviation Airport and Sweet Bay Natural Area, south of Beeline Highway (SR 710), and east of the Mecca Farms property, the Acreage, and the Hungryland Slough Natural Area. A Site Location Map and Aerial Photo dated 2013 are provided in the attached Figures.

The long and consistent agricultural use history on the property has resulted in considerable reduction in the otherwise expected vegetative and wildlife diversity. Virtually all of the 2,407 +/- acres of the Conservation Area have been altered in some fashion by agricultural and/or silvicultural activities. Silviculture related timber harvest generally results in the least long term effect because these areas tend to eventually re-generate pine canopy over time with minimal management. However, the clearing, ditching, and crop rotation of the past 50 plus years of row crop production and cattle grazing on the site have resulted in long term effects and changes that have altered the composition of natural systems. The more recent (25 +/- years) conversion to predominantly improved pasture has continued this trend.

The primary factor in facilitating agricultural use whether it be row crops or cattle is the need for water control. Water control entails providing accelerated drainage when there is excess rainfall and providing for irrigation water when rainfall is less than crop or cattle needs. The rarity of cattle watering ponds on the site when compared to other operations of similar size indicates that there has generally been sufficient surface water available for the cattle on site.

The water control system within the Conservation Area has evolved over the past 50 plus years to include a main north-south canal along with perimeter canals and several east-west oriented canals. Each of these main canal systems is connected to field lateral canals. With the exception the southwestern portion, the entire Conservation Area is served in some fashion by field lateral ditches collected into larger canals and carried north through the site by the main north-south canal and ultimately discharging to the C-18 Canal. A minor component appears to be collected in east-west running canals that connect to ditches off the site to the east.

The result of this agricultural drainage system is accelerated removal of rainfall and accumulated surface water from the site when compared to natural systems. The consequence of accelerated drainage is altered hydroperiods for all natural systems in the Conservation Area. The hydroperiod is the term for the combination of depth and duration of water presence in a given system. It can describe both inundation or standing water as well as saturation of soils in the root zone, both of which are driving forces in the occurrence and types of vegetation, both wetland and upland, that occur in a given system. The reduced hydroperiod from agricultural drainage has resulted in some degree of alteration to all of the wetlands and associated upland areas in the Conservation Area. There is, however, a broad range of differences in observed effects. Generally, the areas within and in close proximity to ditched and drained fields show greater effects, but that is not always the case. The specific wetland effects will be described in greater detail in subsequent sections of this Habitat Restoration and Management Plan.

Purpose

The primary purpose of the Avenir Habitat Restoration and Management Plan is to guide the two phases of the Conservation Area restoration and management. The first phase of the plan will entail the restoration of native habitat types from the current conditions which are generally dominated by agricultural water control (drainage) and invasive non-native vegetation. The second phase will provide for the long term management techniques and measures to maintain the hydrologic conditions and vegetative composition of the restored native communities in the Conservation Area.

On a broader scale, the Avenir Conservation Area provides a critical connection between existing publicly owned conservation areas to the west and east. The Avenir Conservation Area entails 2,407 +/- acres primarily situated between the Sweet Bay Natural Area to the east and the Hungryland Slough Natural Area to the west. It is helpful to understand the magnitude of the Avenir Habitat Restoration and Management program by putting it into context with these adjacent conservation areas. The Hungryland Slough Natural Area directly adjacent to the west comprises approximately 2,950 acres, comparable in size to the Avenir Conservation Area. The Sweetbay Natural Area directly adjacent to the east is comprised of just over 900 acres, less than 40 percent of the size of the Avenir Conservation Area. The Avenir Conservation Area affords the opportunity to provide a connection between these two existing publicly owned and managed conservation areas and a continuous corridor for additional surrounding conservation lands.

The Avenir Conservation Area will be managed to protect and maintain native biological diversity similar to the evolution of Florida's current natural rural landscape condition. Ecosystem functions will be enhanced and maintained in all 2,407 acres. The following fundamentals will guide the restoration and management program.

- Restoration of natural communities and their attendant hydroperiod through elimination of agricultural drainage systems

- Restoration and enhancement of native wetland and upland ecosystems at their natural extent

- Eradication and control of invasive non-native vegetation to maintain less than five percent coverage throughout the Habitat Restoration Area.

- Planning and implementation of a prescribed fire regime that maintains the sub-climax vegetative composition of fire dependent vegetative assemblages

- Control of non-native wildlife species to prevent degradation of habitat quality and depredation of native wildlife species

- Long term management of restored and protected habitats to mimic reference native ecosystems on adjacent natural area lands

- Implementation of appropriate access control and security to prevent unauthorized activities that would degrade native habitats

- Accommodation of public access for passive recreational uses, research, and environmental education that are consistent with the habitat restoration and management goals of the Conservation Area

Site Description

Existing Habitat Conditions -

The Environmental Assessment prepared for the overall Avenir property included mapping and quantification of the existing land cover in accordance with the Florida Land Use, Cover, and Forms Classification System (FLUCFCS). This system provides a baseline reference for inventory of land cover types and existing conditions on the site. However, FLUCFCS categories do not lend themselves well to technical evaluation of habitat restoration and management needs and projection of restoration and management goals. As such, for the purposes of this Habitat Restoration and Management Plan, the exiting conditions (as well as proposed restoration conditions) have been mapped and quantified in accordance with a hierarchical descriptive system based on the Florida Natural Areas Inventory (FNAI) approach.

The predominant upland plant community in the Avenir Conservation Area is improved pasture, which comprises over 40 percent of the area. These areas are generally dominated by invasive non-native species such as Brazilian pepper and West Indian dropseed (smut grass) as well as wax myrtle and some remaining planted pasture grasses. The other upland category within the Conservation Area is classified as mesic pine flatwoods. The predominant wetland community type in the Conservation Area is wet prairie which comprises approximately 30 percent of the area. The remaining wetland areas comprising approximately 15 percent of the site are comprised of freshwater marsh and strand swamp wetlands which often intergrade with wet prairie systems. Detailed descriptions of each of the habitat types and their existing conditions are provided below. An Existing Habitat Map depicting these areas is provided with the attached figures.

Improved Pasture - 984 +/- acres, 40% -

The improved pasture classification describes the majority of the uplands found in the Conservation Area. These areas have been cleared of most or all canopy trees and exhibit varying levels of shrubs reflecting differing levels of agricultural maintenance, however, they remain predominantly a grassland association. The groundcover is overwhelmingly dominated by invasive non-native and other introduced grasses with interspersed sedges and rushes. A network of excavated swales and ditches occurs in these areas, some open ended and others with culvert and riser structures. Common plant species include West Indian dropseed (dominant), bahia grass, carpet grass, blanket crabgrass, panic grasses, broom grass, coinwort, dog fennel, flat sedges, umbrella grass, and yellow-eyed grass. There are areas of heavy concentration of Brazilian pepper that are nearly impenetrable. These shrubs aggressively gain cover area in the absence of normal agricultural controls. There are a few trees occurring in the unimproved pasture areas including occasional slash pine, Australian pine, and cabbage palm.

Several areas exhibit localized concentrations of Brazilian pepper that have been removed under the existing cattle lease. Scattered trees occurring in this cover type are rare but include individuals or small groupings of slash pine, live oak, and cabbage palm.

The improved pasture areas, although currently uplands (in accordance with jurisdictional verification form SFWMD and USACOE) include areas that, absent the existing agricultural drainage system, would otherwise comprise wetland areas. These areas occur along the margins of existing wetland areas as well as areas where the agricultural drainage system has lowered the prevailing water table below that level that would otherwise provide for wetland hydrology at the existing ground level elevations.

Mesic Pine Flatwoods - 345 +/- acres, 14% -

The Conservation Area includes several concentrated areas of mesic pine flatwoods habitat distributed in distinct areas. Consistent with the agricultural and silvicultural activities on the subject site, pine trees have been periodically harvested from all of the existing mesic flatwoods areas for commercial purposes. Although pine tree cover in most areas is lower than typical pine flatwoods, this plant community is otherwise consistent with this vegetative association. The predominant vegetative associations include clumps of mature saw palmetto along with woody shrubs, including gallberry, fetterbush, rusty lyonia and wax myrtle. Relatively recent harvest (in the last 20 to 25 years) of slash pines has left few mature slash pines in many areas of the Conservation Area, however, there are pine seedlings and saplings regenerating in the understory. Ground cover species include wire grass, fleabane, flat-topped goldenrod, panic grasses, yellow-eyed grass and green brier along with various grasses, sedges and herbaceous species. The mesic pine flatwoods also include varying levels of invasion by nuisance and invasive non-native species along with occurrence of pasture grasses (primarily bahia grass) in the ground cover. Recruitment of the invasive exotic melaleuca in the pine flatwoods areas is heavy in some areas along with areas of Brazilian pepper.

Freshwater Marsh - 355 +/- acres, 15% -

Freshwater marsh wetlands are distinguished from wet prairies by generally greater depth and duration of inundation, which tends to create a greater relative percentage of obligate wetland plant species. The typical vegetative cover found in the freshwater marshes includes emergent wetland plants such as St. Johns wort, cork wood, saw grass, beakrushes, pickerelweed, and arrowhead. Several of these marshes have deeper pockets with a discrete assemblage of broad-leaved wetland plants such as pickerelweed, arrowhead, spatterdock, fragrant water lily, and fire flag. Several of these wetlands include significant spike rush and maidencane components. These longer hydroperiod wetlands tend to have less invasion by non-native and nuisance vegetation species. However, in isolated locations there are significant concentrations of melaleuca within the marshes and/or around the fringe of the marshes.

The freshwater marsh areas within the Conservation Area provide nesting opportunities for the Florida sandhill crane, the only listed avian species confirmed to be nesting and breeding on the Avenir property. Numerous nests (both active and remnant) have been observed within the freshwater marsh areas. In general, the freshwater marsh wetlands exhibit the least effects of the agricultural drainage system. This is likely the result of their generally deeper and longer inundation which results in accumulation of organic material resulting in some level of isolation from surrounding water table effects.

Wet Prairie - 703 +/- acres, 29% -

Wet prairies are generally shorter hydroperiod wetlands on the continuum between deeper freshwater marshes and surrounding upland habitats. The vegetative composition of wet prairies can be similar to that of freshwater marshes, however, these marshes have a shorter hydroperiod and exhibit a higher frequency of facultative wetland vegetation. Most or all of these wetlands dry down in most years under natural circumstances. As a result of the agricultural drainage system, several of the areas that are currently wet prairies may have been freshwater marsh systems in the past. The vegetation association in these wetlands includes many of the species described for freshwater marshes in the deeper areas along with beakrushes, blue maidencane, bog buttons, broom grass, coinwort, fringe-rushes, hatpins, meadow beauty, milkworts, panic grasses, redroot, spikerush, St. Johns wort, St. Andrew's-cross, marsh pennywort, star rush, and white-top sedge. In many cases, the wet prairies are grazed by cattle on site and reflect greatly reduced cover of native species along with invasion by pasture grasses such as bahia grass, to the point that they are nearly indistinguishable from surrounding improved pasture areas.

The shorter natural hydroperiod and further reductions by the agricultural drainage system make these wetlands vulnerable to invasion by non-native species. In most cases varying levels of melaleuca invasion occur in all wet prairie systems in the Conservation Area. In addition, fringe areas include Brazilian pepper in isolated locations along with non-native pasture grasses.

Strand Swamp - 20 +/- acres, < 1% -

This cover type is typically associated with strands, tree islands and floodplain forests where cypress or other forested wetland species such as pond apple are the dominant canopy species. In the areas mapped as strand swamp, the canopy is dominated by cypress trees or pond apple, often with melaleuca also intermixed. The understory plants include Brazilian pepper, which precludes ground cover where it occurs, wax myrtle, fetterbush, and young cabbage palms. In some open areas there is ground cover that includes swamp fern, saw grass, maidencane, marsh pennywort, coinwort, marsh fern, beakrushes and fleabane. Old world climbing fern a non-native highly invasive species has become established and is spreading rapidly. The strand swamp areas have been affected by agricultural drainage both on site as a result of lateral ditches as well as off site by the effects of the west leg of the C-18 canal. The reduced hydroperiod has enabled the invasion by melaleuca throughout nearly all of the strand swamp areas.

Summary of Wildlife Observations -

Wildlife survey activity in the Avenir Conservation Area has been ongoing at varying levels of intensity for over 10 years ranging from occasional site visits to intensive daily survey activities and species specific data collection. The seasonal coverage over this period has included the migratory and nesting periods for numerous avian species. It has also included sufficiently warm weather for observing reptile and amphibian species. The mammals encountered are active throughout the year. There was also an opportunity to encounter wetland systems progressing through dry down, which facilitated sampling for representative fish species. There were no unexpected species encountered during the surveys, and the predictable suite of resident, seasonal and migratory wildlife appears to utilize the site. However, the overall diversity and abundance of wildlife was considerably less than expected for an undeveloped property of this size within the region, and possible explanations of this general observation are provided. A tabular summary of observed species as well as expected species that were not observed during field survey is provided in Appendix A.

Upwards of 75 species of birds have been observed and several others have been included in the table because they are likely to occur on a resident, seasonal or migratory basis. Although not a complete list of all possible species for the site, these birds can be considered typical and representative. The following species are those most commonly observed throughout the property and seen on most or all site visits: black vulture, boat-tailed grackle, cattle egret, eastern meadowlark, mourning dove, northern bobwhite, red-winged blackbird, and northern mockingbird. Wading birds that were also seen on most visits included great blue heron, little blue heron, green back heron, white ibis, tri-colored heron, glossy ibis and wood stork. Florida sandhill cranes are also dependent on wetlands for nesting and foraging opportunities, and it is estimated that as many as seven to eight pairs have been observed at any given time.

A mature bald eagle was observed on several occasions perched in a pine snag in the northern portion of the site. Although there are several known bald eagle nests within the region, none are closer than one mile to this site. A single observation of an individual crested caracara roosted on a fence post occurred during wetland delineation and verification work during the winter of 2015.

Although several mammal species were observed or otherwise confirmed as occurring on-site, the paucity of direct observations and even of mammal signs other than raccoons and feral hogs was somewhat unexpected. All of the observed species were expected, as are others, particularly rodents. There were a number of observations of river otters during pedestrian survey activity and numerous live sightings and observed “rooting” by feral hogs. Only one bobcat was observed, and scat evidence for this predator was encountered on rare occasions throughout the site. Both eastern cottontail and marsh rabbits were occasionally flushed during pedestrian and vehicular surveys. White-tailed deer were observed on several occasions and recorded on the

basis of field indicators such as tracks and scat. Other observations included the cotton rat and the round-tailed muskrat. Presence of coyotes on the site was initially confirmed by track sign and regular group calls during crepuscular and nocturnal surveys. Several live sightings of coyotes have occurred during vehicular surveys in 2014 and 2015, confirming their resident presence on the site.

In addition to pedestrian, vehicular, and stationary survey efforts, there were four locations at which motion sensor cameras were deployed over periods ranging from two nights to two weeks. Surprisingly, aside from cattle and humans, there was only one photo of native wildlife species (white tailed deer) captured during the entire effort. There were several instances of "camera triggers" during nighttime hours where no image was collected so more activity may be occurring that was not captured. However, this technique has been successful at capturing numerous wildlife photos on other sites in the region.

It appears from field observations including group calls, tracks, a live sightings during daytime vehicular survey, and carcasses observed on the site that the local coyote population is robust. It is reasonable to conclude that a thriving coyote population would have an adverse effect on the local wildlife populations, which may account for the relative lack of signs and sightings of small mammals as well as progressive reduction on the numbers of juvenile sandhill cranes observed through the progression of nesting and fledging seasons.

Numerous reptile species were actually encountered, with more are expected to occur on-site, which have been listed as likely to occur. By far the most commonly observed species was the American alligator, which is present throughout the local canal system. Individuals were regularly encountered ranging in size from less than one foot to approximately eight feet in length. The next most commonly observed reptile was the peninsular cooter, which occurs in the same surface water habitats as the alligators. The only snake species seen with regularity was the southern black racer and several peninsular ribbon snakes, rough green snakes and an eastern garter snake were also observed. One cottonmouth and one Florida water snake and brown water snake were the only other snake species observed. The Florida soft shell turtle was observed on several occasions. Florida box turtles are known to occur, and green anoles were observed, but not the expected Cuban brown anole or any skinks. A single live sighting of a gopher tortoise occurred during pedestrian survey activity in the spring of 2014. This was the first confirmation of the occurrence of gopher tortoises on the site over the 10 or more years of site observations.

Listed Species Inventory and Evaluation –

The survey methodologies used for determining the status of state and/or federally listed wildlife and plant species occurrence on the site followed generally accepted protocols as specified in state and Federal guidance documents. The geographic range of the property and its associated habitats, vegetative cover types, and natural or disturbed status were the primary considerations in assessing potential occurrence of listed species. In addition, the protected species evaluations and survey methodologies have been, and will continue to be, addressed on a species-specific basis in accordance with FFWCC and USFWS requirements and techniques relative to the species under consideration.

The state and/or Federally listed wildlife species known or expected to occur on the subject site are summarized in tabular format in Appendix B. Likelihood of occurrence has been indicated based on species-specific evaluations and best professional judgment and noted as either observed during site review or likelihood of occurrence as high, medium or low.

Florida sandhill cranes were observed in the Conservation Area during nearly every reconnaissance visit, usually in pairs often with young. This species is relatively common within the region and is confirmed to nest on the property and in the surrounding vicinity. Aerial and ground surveys identified sandhill crane nests in several freshwater marsh wetlands and subsequent ground surveys consistently identified cranes nests in several different wetlands in the Conservation Area. This species is also known to nest in the Sweetbay Natural Area adjacent to the site on the east. Although some marshes are naturally better suited than others for sandhill crane nesting due to vegetative and hydrologic conditions, nesting sites typically vary between years.

A mature bald eagle was observed on several occasions perched in a pine snag in the northwest corner of the Conservation Area. There are no documented bald eagle nests within one mile of the site and no nests were observed during field reconnaissance, however transient foraging obviously occurs. The bald eagle is no longer listed as threatened or endangered, however, individuals and their nests are protected under the Bald and Golden Eagle Protection Act.

The wood stork is an endangered species that was occasionally observed foraging on site but not observed or known to be nesting in the Conservation Area. The site is, however, within the 18.6-mile core forage area of wood stork rookeries as per USFWS. One to six wood storks were observed on several occasions foraging in several marshes and canals during wetland dry down and low water conditions. The occurrence of wood storks especially as “contact feeders”, as well as other wading birds, was tied to particular water levels that concentrate aquatic prey.

Six species of wading birds considered to be "species of special concern" by the FFWCC were observed on site under similar circumstances to wood storks, but considerably more often than wood storks. The species were the little blue heron (regular observations included several juvenile plumaged individuals), snowy egret, tri-colored heron and glossy and white ibis. The herons and egret were observed on the order of several per day, but the ibis species were sometimes observed foraging in wetlands in flocks of up to 25 individuals. In addition, there was a single observation of a limpkin, also designated as a species of special concern by FFWCC.

Several other listed avian species that were not observed but could potentially occur on the site warrant discussion. The endangered Everglades snail kite is known to forage and nest within the region (confirmed in Grassy Waters Preserve). Wildlife agency personnel report that the species has been observed foraging occasionally in the reservoir impoundment on the Mecca Farms site adjacent to the west. The snail kite relies almost exclusively on apple snails for food. Wetland habitats without apple snails are unlikely to attract this species, unless there are otherwise acceptable roosting or nesting opportunities. The apple snail and its distinctive shell and eggs were regularly searched for in the on site wetlands during all field survey efforts. Over the period of site observations, one apple snail shell was encountered.

The snail kite is known to occur further east in association with the Grassy Waters Preserve, and like the wood storks, their location varies based on seasonal conditions, however, there does not appear to be any significant foraging habitat currently on the subject site for the snail kite. Similarly the limpkin, and state listed species of special concern relies almost exclusively on apple snails for food. Despite a field observation of a limpkin in Spring 2014, this species is not likely to rely on the Avenir property for regular foraging.

Audubon's crested caracara typically forages in open prairies and rangelands similar to some on site habitat including potential nest trees, typically isolated individuals or small groups of cabbage palms. A site specific survey was conducted in 2013 relation to the Beeline Highway widening project, however, caracaras were not observed and have not been reported in the immediate area of the property. Close inspection of the few potential nest tree locations on the site did not reveal their presence. During wetland delineation activities in the winter of 2015, a single crested caracara was observed roosted on a fence post in the southern portion of the Conservation Area. This was the first observation of this species on the site in more than 10 years of field survey work. The caracara flew off to the west and none were observed subsequently during intensive field efforts. The crested caracara is considered a transient occurrence on the site.

Several other potentially occurring listed avian species were not observed during field studies. Red-cockaded woodpeckers are extremely habitat specific, and occur only in mature pinelands with suitable cavity trees and adjacent pine foraging area. This species does occur to the west in the J.W. Corbett Wildlife Management Area, however there is no potential habitat for this species present on the site. The southeastern American kestrel prefers open prairie and

grasslands, similar to the preferred caracara habitat, but this state-threatened falcon subspecies was not observed during the studies. A single kestrel was observed on two occasions in early spring, which coincides with the end of the migration period for the unlisted American kestrel. During all subsequent field studies, no kestrels were observed, nor was their diagnostic call heard. Upon initial observation, site grassland habitats seem potentially suited to the occurrence of burrowing owls, however, the unmanaged height that the West Indian dropseed has reached lowers this potential and there were no observations or evidence of this species during extensive surveys in potential habitat.

The gopher tortoise is a Florida listed threatened species that was only recently observed outside the area of the Conservation Area, although there has been no evidence found of past or present burrows. Although there is a relatively high water table throughout the site uplands, this species has the potential to occur in sandy pine flatwoods habitat or establish burrows in spoil berms and levees. The sole live sighting of this species occurred during a pedestrian survey in spring 2014 along an existing embankment where Brazilian pepper had been recently removed.
The only other listed animal species observed was the American alligator, which is relatively common throughout the region in wetland and open water systems. During site surveys this species was observed with regularity in the canals.

A listed reptile species that was not observed but has potential to occur on the site is the threatened eastern indigo snake. The eastern indigo snake ranges widely over a diversity of upland and wetland habitats and is known to occur in the region. The extent and quality of natural habitats on adjacent lands is such that indigo snakes are likely to occur and may include the Conservation Area in their overall home range.

With respect to listed mammals, neither the Florida panther nor Florida black bear are likely to occur on site. A black bear was known to occur a number of miles south of the site several years ago which was an unusual occurrence and the individual was trapped and released elsewhere. The proposed plan for the project will provide for habitat connectivity between public lands for these species should any such wildlife movement occur in the future.

Historic and Archaeological Resources Summary –

A review of archival data including a search of the Florida Master Site File in Tallahassee indicated that no recorded historic or archaeological sites occur on the project parcel. However, given the potential for occurrence of archaeological sites on the subject property, a Phase 1 archaeological assessment of the subject property was appropriate. A Phase 1 Historic and Archaeological Assessment was conducted by Archaeological and Historical Conservancy, Inc. in June and July 2005.

As a result of the survey, one prehistoric archaeological site was identified and has been assigned Site Number 8PB11489. Existing data suggests that the site is potentially eligible for listing on the National Register of Historic Places. In addition, a second location was determined to be a "potential" archaeological site, despite the fact that no artifacts were discovered in samples from that location. Both the confirmed archaeological site, as well as the potential site, are included in the Avenir Conservation Area. As such, these resources will remain available for future study within the Conservation Area.

Management Objectives and Strategies

The primary objective of the Habitat Restoration and Management Plan is the re-establishment of a mosaic of natural communities that mimics the conditions prior to the impacts of agriculture and development in the area. Although off site constraints and regional drainage infrastructure will prevent complete restoration of pre-drainage conditions, the restoration area of more than 2,400 acres provides the opportunity to achieve substantial re-establishment of natural vegetative, hydrologic, and wildlife conditions with minimal external influence due to boundary conditions. This is aided greatly by the adjacent managed natural areas to the east and west of the Conservation Area.

The Existing Habitat Map indicates generalized vegetative associations and landscape conditions throughout the Conservation Area. The existing conditions are reflective of severely altered hydrologic conditions as well as significant invasion by non-native and nuisance vegetation along with nuisance wildlife species. As a result, the natural community functions typically associated with these generalized habitat types are severely depressed. Restoration that will approach the expected natural community functions will require re-establishment, to the degree practical, of the hydrologic regime that is the primary driver for these natural systems. Concurrently, aggressive eradication and control of invasive non-native vegetation and establishment of an appropriate fire regime will enable native vegetation communities to be restored, primarily through natural recruitment from the existing native seed bank in the soils and from surrounding natural areas.

The restoration of hydrologic conditions is the key driver for the success of the Habitat Restoration and Management Plan. The management approach is based on facilitation of a "flowway" that spans the habitat restoration area. In general, the topographic conditions indicate a drop in elevation of approximately two feet from the northwest to the southeast across the property. This enables a hydrologic restoration that can operate independently as a rainfall driven system or accommodate provision of off site flows from the west, across the habitat restoration area toward the east where it can connect with adjacent managed natural areas. In either instance, the hydrologic restoration can provide for enhanced water quality and flows into the headwaters of the Northwest Fork of the Loxahatchee River.

Management Activities

The management activities to be implemented in the Habitat Restoration Area will entail three main categories of activity which will include hydrologic restoration, invasive species eradication and control, and habitat management. Each of these activity areas is described in further detail as follows.

Hydrologic Restoration –

One of the primary drivers in the success of the Habitat Restoration and Management Plan is to restore a more natural hydrological regime to the Conservation Area. In order to accomplish this goal, a detailed hydrological restoration plan will be developed in coordination with the SFWMD and USACE environmental resource permitting process. The hydrologic restoration plan will include the implementation of the following three components:

1) Intercept the existing agricultural drainage infrastructure within the site in order to slow the rate of runoff and increase depth and duration of inundation,

2) Backfilling and re-grading of existing roads and canals to redirect surface water flows to follow natural topographic contours within the site, and

3) Increase the control elevation within the Habitat Restoration Area in order to raise the prevailing water table elevation to more closely mimic historic natural conditions.

Intercepting the agricultural drainage infrastructure within the site will entail plugging and/or installing control structures at the locations where main agricultural canals connect to the primary outfall canal. More detailed surface water management system engineering and design will be necessary in order to establish site specific elevations, however, the system will be designed to allow for variation of the effective water levels at the connection points in order to implement adaptive management based on the observed changes in the restoration area over time. Implementation of this connection control will allow for the backbone drainage system that the development area will rely on to continue to operate at its current configuration while allowing for increased depth and residence time for water within the habitat restoration area.

This is an essential step in the design approach that will allow the hydrologic restoration elements to operate as a rainfall driven system rather than relying on external inputs.

Backfilling and re-grading of existing roads and canals within the habitat restoration area will be undertaken in a strategic fashion in order to redirect flows to more natural patterns. The entire Conservation Area has been recently mapped using LIDAR technology, which provides relative elevation data from which natural flow patterns can be derived. In combination with historic and current aerial photography, flowway patterns will be developed based on actual ground elevations and historic flow patterns. When combined with the detailed mapping of existing canals, ditches and elevated dirt roads, the interruptions to the natural flow patterns can be identified. From this information, a flow path restoration map will be created and strategic locations for ditch blocks and re-grading of roads will be identified in order to re-establish natural flows wherever practical. This approach will function in a rainfall driven system to move water along natural flow paths and follow the underlying topographic contours of the habitat restoration area. In the event that external sources of water become available, this systematic natural approach will provide for a functional flowway that can accommodate additional flows with little or no modification.

The current normal pool elevation in most wetlands within the habitat restoration area is lower than the expected natural condition for these wetlands. During the wetland delineation efforts for the overall property, select wetland systems were analyzed for indicators of seasonal high water elevations as well as normal pool elevations. For the wetlands within the Conservation Area, the seasonal high water elevation (where indicators were available) indicators showed inundation at levels generally consistent with the wetland systems and expected depth. This observation indicates that there is sufficient precipitation input to fully hydrate wetland systems on a regular basis. However, the normal pool elevations, where inundation generally occurs for extended periods during the wet season, were generally 12 to 18 inches lower than what would be expected for the given wetland systems. This indicates a “flashy” hydrologic system where otherwise normal inundation levels do not have sufficient duration within the system to support the areal extent and type of wetland systems expected.

The primary cause of this condition is a prevailing water table level below the otherwise natural conditions, which in this case is the result of a control elevation for the overall site that is set to achieve agricultural drainage rather than natural wetland conditions. There are significant engineering design and surface water management calculations that remain to be completed as part of the overall environmental resource permitting for the Avenir project, thus a specific proposed control elevation change cannot be specified at this time. However, the restoration design approach anticipates an increase in effective control elevation for the habitat restoration area on the order of 18 inches as a result of modifications to outfall structures and the surface water management system. The result (which will be quantified in further detail in wetland mitigation plans) will be expansion of the areal extent of wetlands as well as the hydrologic diversity within wetlands. The increase in areal extent of wetland systems is expected to be on the order of 400 to 500 acres within the habitat restoration area. The hydrologic diversity will

result in a more consistent continuum of wetland conditions whereby deep water (freshwater marsh and open water) conditions occur in the central portions of wetland systems and transition to shallow water shorter hydroperiod (wet prairie) conditions in the outer limits of the wetlands.

Invasive Species Eradication and Control –

The current conditions in the habitat restoration area can be characterized as severely invaded by non-native invasive vegetation species. The improved pasture areas (984 +/- acres) are almost entirely comprised of non-native grasses that exhibit invasive characteristics. Most common are West Indian dropseed and bahia grass. The wetland systems exhibit a continuum of degree of invasion by non-native vegetation, with some areas near monocultures of melaleuca and others with only occasional occurrence of invasive non-native species. This range of conditions along with the relatively large size of the habitat restoration area (> 2,400 acres) will require a stepwise process for initial eradication of invasive non-native vegetation tailored to the landscape conditions within different habitat regimes. Although examples typical of invasive species are prescribed for eradication in the following sections, eradication and control of invasive species will include all Category I and II invasive species in accordance with the most recent edition of the Florida Exotic Pest Plant Council (FLEPPC) listing.

Initial Eradication -

Initial eradication of invasive species in improved pasture areas will entail a combined approach for control of these species. Significant areas (on the order of 400 to 500 acres) of the improved pasture will become inundated at a sufficient hydroperiod to restore wetland conditions. As such, the hydrologic restoration will achieve a significant portion of the initial eradication of invasive species. This inundation and saturation of the soil surface will be sufficient to eradicate nearly all of the invasive non-native grasses (primarily West Indian dropseed and bahia grass) that occur in these areas. This will greatly reduce the need for broad non-selective application of herbicides in these areas. The remaining improved pasture areas will be treated with appropriate herbicides (likely glyphosate based products) in order to eradicate invasive species. Initial; eradication will be through broadcast non-selective treatment due to the predominant cover by these species.

The existing areas of mesic pine flatwoods are characterized by patchy occurrence of invasive species. In areas adjacent to wetlands where melaleuca is present, individuals and small stands of melaleuca occur in the flatwoods. In general, edge areas adjacent to improved pasture and areas where pasture maintenance has been lacking have patchy and sometimes dense occurrences of Brazilian pepper. In nearly all cases there are areas of pasture grasses, primarily bahia grass, interspersed with native ground cover. Initial eradication in all of these cases will be achieved through selective application of herbicide to the invasive species. Basal bark treatment will be conducted for eradication of Brazilian pepper and depending on the trunk size, either hack and

squirt (for larger trees) or cut and stump treatment (for smaller diameter trees) will be utilized for eradication of melaleuca. Grasses and herbaceous species as well as occurrences of old world climbing fern will be treated with herbicide through foliar application.

As indicated earlier, the wetland systems in the habitat restoration area show widely varying levels of invasion by non-native species. The primary species of concern in the wetland systems is melaleuca. Because the density of melaleuca trees varies so widely within and between wetland systems, a multi-faceted approach to eradication will be necessary. Where it occurs in deeper areas of wetlands, depending on the trunk size, either hack and squirt (for larger trees) or cut and stump treatment (for smaller diameter trees) will be utilized for eradication of melaleuca. Tree trunks will be left in place to decay and fall naturally, as any efforts at manual removal would likely result in significant collateral damage to the wetland substrate and remaining native vegetation. In areas where inundation is shallower and generally shorter, cutting and stump treatment will be employed in order to create greater opening in the canopy to allow for recruitment of native species. Where practical (when substrate and native vegetation disturbance would be minimal) mechanical clearing will be utilized to remove trunks and root systems of high density areas of melaleuca.

Herbaceous invasive species occurring in the wetlands (primarily torpedograss) will be treated through foliar application of appropriate herbicides. The strand swamp wetlands (as well as areas with stands of melaleuca) exhibit considerable invasion by old world climbing fern. Eradication of this species will be through foliar application of herbicide.

The initial eradication phase is anticipated to take approximately 24 months for completion. Two full wet season cycles are anticipated to be needed to achieve the eradication expected from inundation effects. The various herbicide application methods must be spread over a sufficient amount of time and space to prevent “system collapse” that can occur when natural systems are overwhelmed by application of herbicides and their attendant effects. Rapid die off of biomass in a given time and space can result in excessive nutrient release that can overcome the assimilative capacity of individual wetlands and connected wetland systems. As such, a systematic approach of treatment in distinct separate areas over specific time periods will be employed to prevent undesirable system wide effects.

Maintenance Control -

As the initial eradication in distinct areas of the habitat restoration is completed, these areas will come under the maintenance control criterion for invasive species. The maintenance control technique involves constant and systematic surveillance through all areas under maintenance control to identify 1) concentrations of invasive species that may not have been fully eradicated in the initial treatment and 2) re-growth from seed, roots, or other remnants of treated plants. As the entire habitat restoration area comes under maintenance control, maintenance units will be developed based on in field observations of problem areas as well as areas needing little if any ongoing maintenance. The concurrently altered hydrologic conditions will likely result in

otherwise unexpected areas that require additional maintenance control as well as those requiring little if any. An adaptive management approach will be undertaken based on in field observations to apply maintenance control resources in the areas most in need throughout the habitat restoration area.

Long Term Management –

The primary trait of the habitat assemblage that will comprise the habitat restoration area (as well as the surrounding natural areas) is the maintenance of a sub-climax ecosystem. The ecological driver in the maintenance of this sub-climax ecosystem is fire. As such, in addition to the eradication and maintenance control of invasive non-native vegetation, a prescribed fire regime is an essential part of the long term management for the habitat restoration area. The basic elements of a prescribed fire management program are provided below. However, given the extensive hydrologic modifications and significant need for eradication of existing non-native vegetation anticipated in the habitat restoration area, it is premature to develop a detailed fire management plan for the property. The fire management criteria provided below will constitute the framework for the detailed prescribed fire program that will be implemented in the habitat restoration area.

Mesic flatwoods, wet flatwoods, wet prairie, freshwater marsh, and strand swamp habitats are all dependent upon fire for long-term restoration and maintenance. As such, the use of prescribed fire in manageable unit sizes and habitat types will be necessary to achieve successful long term habitat restoration and management. Within one year of initiating the hydrologic and invasive species eradication management activities, a flexible fire management plan for the habitat restoration area will be prepared. The development of this plan will be coordinated with the Florida Department of Agriculture and Consumer Services (FDACS) Division of Forestry (DOF), the Florida Fish and Wildlife Conservation Commission (FFWCC), Palm Beach County Department of Environmental Resources Management (ERM), and the Palm Beach Gardens Fire Rescue Department.

The fire management plan will be tailored to the existing site conditions (habitat, fuel load etc.) as well as the specific vegetation communities represented in the management goals. Surrounding land uses, safety precautions, and the ecological drivers of fire management strategies will be the primary factors in development of the plan. The intent of the fire management plan is to introduce a fire regime that will restore and maintain the fire-dependent communities on the site.

The fire management plan will incorporate methodologies and management practices intended to minimize adverse impacts to native vegetation and wildlife, while maximizing the beneficial effects of prescribed fire.

Development of manageable prescribed fire units and the associated system of firebreaks will be the first technical step in preparation of the detailed fire management plan. Where practical, firebreaks will take advantage of existing trails and roads both along the perimeter and interior to the habitat management area. Once the specific fire management units have been established, additional firebreaks will be established in those areas where existing roads or trails do not coincide with management unit boundaries. Firebreaks will be at least 15 feet wide open mineral soil, with additional vegetation trimming as necessary for active burn units.

The fire management plan will specify seasonality and frequency of prescribed fire in an effort to mimic natural frequencies and intensities for various vegetative communities. In general, prescribed fires will be conducted during the early growing season (late spring to early summer), coincident with the natural occurrence of fires caused by lightning strikes. Because of the long history of fire suppression in the remaining native habitat areas within the habitat restoration areas, fuel load reduction techniques such as roller chopping and winter season prescribed fire may be implemented in the early stages of the prescribed fire program. However, where fire has been suppressed for a long period of time and fuel loads have become heavy, prescribed winter fires may be used to begin restoration of a natural fire regime.

Although detailed fire management units and prescribed fire scheduling have not been developed at this point in the restoration program, this habitat restoration and management plan will include preparation of detailed plans within one year of initiation of the restoration program. Future planning for fire management will be a major element in the adaptive management protocols that allow for flexibility in approach based on the observed successes and needed modifications to the management activities.

Habitat Restoration

The previous sections of the Habitat Restoration and Management Plan have provided for an inventory of existing conditions as well as a set of actions that will be undertaken in order to restore and manage natural habitat conditions in the Avenir Conservation Area. The following Habitat Restoration section is to provide a summary of the intended outcomes from these restoration and management activities. The adjacent Sweet Bay Natural Area to the east and Hungryland Slough Natural Area to the west provide functional reference systems to establish the desired outcome for the Avenir Habitat Restoration and Management Plan. In fact, in completing a restoration of the Avenir Conservation Area, a critical missing link of managed native habitat will provide for functional connection between these two natural areas such that the whole becomes greater than the sum of the parts.

A fundamental change that is anticipated as a result of the habitat restoration will be conversion of the Conservation Area from primarily agricultural uplands (over 55 percent of the area is currently uplands grazed at varying intensity) to a mosaic of native habitats dominated by a diverse set of wetland habitats. The restoration plan is designed to convert between 400 and 500 acres of currently disturbed non-native upland pasture into wetlands consistent with the freshwater marsh – wet prairie systems found in the adjacent natural areas, such that approximately 65 percent of the habitat conservation area will be comprised of wetland ecosystems in the post-restoration state. The proposed Post Restoration Habitat Map depicting these conditions is provided in the attached figures.

<u>Mesic Pine Flatwoods - 767 +/- acres, 32% -</u>

The habitat restoration plan includes an increase of nearly 425 acres of this native upland habitat type, which is more than double the existing conditions. The mesic pine flatwoods restoration areas all occur in areas that are currently improved pasture thus no native upland systems are impacted for this restoration. The mesic flatwoods restoration has been strategically located to coincide with the higher topographic positions within the restoration area, and in all cases, is adjacent to existing areas of flatwoods habitat. In addition, the restored flatwoods areas are contiguous with existing and restored wetland systems providing for a diversity of habitat types and ecotones within the habitat restoration area.

<u>Freshwater Marsh - 730 +/- acres, 30% -</u>

The habitat restoration plan includes an increase of approximately 375 acres of this wetland habitat type, which is more than double the existing conditions. The freshwater marsh restoration areas all occur in areas that are currently existing wetlands, thus no native upland systems are impacted for this restoration. The freshwater marsh restoration is essentially

achieved through the increased depth and duration of inundation that will result from the hydrologic restoration. The increase in acreage and extent of this wetland type occurs primarily in areas of existing wet prairie that will experience increased hydroperiod and transition to freshwater marsh habitat.

Wet Prairie - 870 +/- acres, 36% -

The habitat restoration plan includes an increase of more than 165 acres of this wetland habitat type, which is an increase of approximately 25 percent over the existing conditions. The wet prairie restoration areas all occur in areas that are currently improved pasture thus no native upland systems are impacted for this restoration. The wet prairie restoration is essentially achieved through the increased depth and duration of inundation that will result from the hydrologic restoration. The increase in acreage and extent of this wetland type occurs primarily in topographically lower areas of improved pasture that will experience inundation sufficient to support a wet prairie wetland system. The wet prairie wetlands will occur primarily as the outer boundary and wetland transition from freshwater marsh to surrounding mesic flatwoods.

Strand Swamp - 40 +/- acres, 2% -

The habitat restoration plan includes an increase of approximately 20 acres of this wetland habitat type, which is an increase of approximately 100 percent over the existing conditions. The strand swamp restoration areas occur in areas that are currently wet prairie with interspersed wetland trees (primarily cypress) thus no native upland systems are impacted for this restoration. The strand swamp restoration is essentially achieved through the increased depth and duration of inundation along with facilitation of increased cypress canopy coverage through planting and natural recruitment. The increase in acreage and extent of this wetland type occurs primarily in existing wet prairie areas that will experience inundation sufficient to support a strand swamp wetland system.

Summary –

The proposed hydrologic restoration, eradication of invasive non-native species, and long term management including prescribed fire are designed to result in a restored native habitat mosaic throughout the Avenir Habitat Restoration and Management Area. All told, there is a projected net increase of approximately 560 acres of native wetland habitats which constitutes a 52 percent increase over the existing conditions. Along with this increase in wetland ecosystems, there is a projected net increase of 422 acres of native upland habitat in the form of mesic pine flatwoods habitat which constitutes an increase of more than 100 percent over the existing conditions. All of this habitat restoration will occur in areas that are currently improved pasture with extremely limited ecological function.

REFERENCES:

Palm Beach County Department of Environmental Resources Management. "*Management Plan for Hungryland Slough Natural Area*". February 2002.

Palm Beach County Department of Environmental Resources Management. "*North Palm Beach County General Aviation Airport – Habitat Management Plan for Preserve Areas*".

Florida Exotic Pest Plant Council. "*2015 List of Invasive Plant Species*". 2015.

Ferrell, J.A., M.B. Adjei, J.J. Mullahey, and P. Mislevy. "*Smutgrass Control in Perennial Grass Pastures*". University of Florida Institute of Food and Agricultural Sciences. 2006.

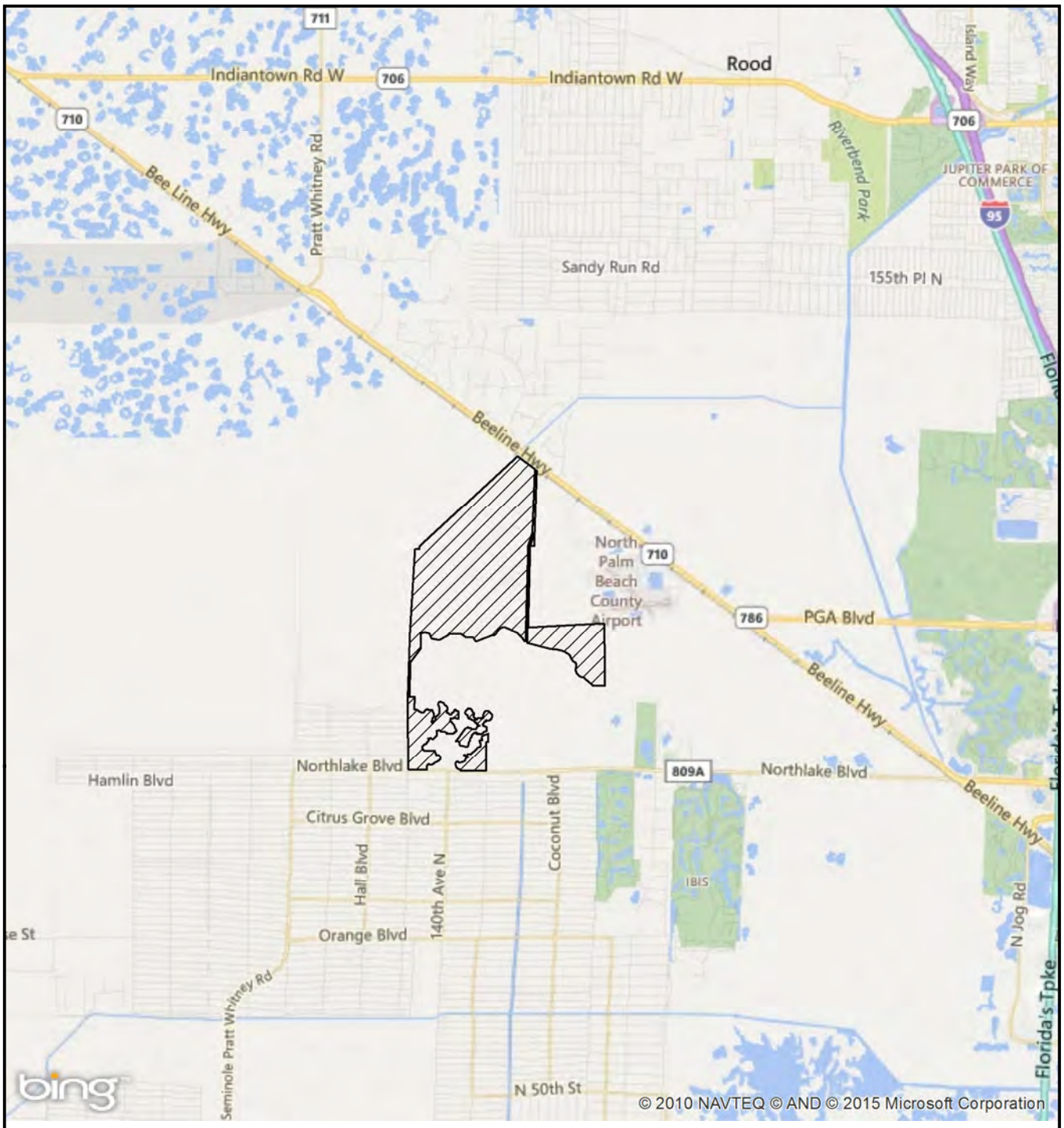
FIGURES

SITE LOCATION MAP

AERIAL PHOTO

EXISTING HABITAT MAP

POST RESTORATION HABITAT MAP



0 2 Miles

LEGEND

- CONSERVATION AREA (2,407+/- AC)

N

AVENIR HABITAT RESTORATION & MANAGEMENT PLAN

LOCATION MAP

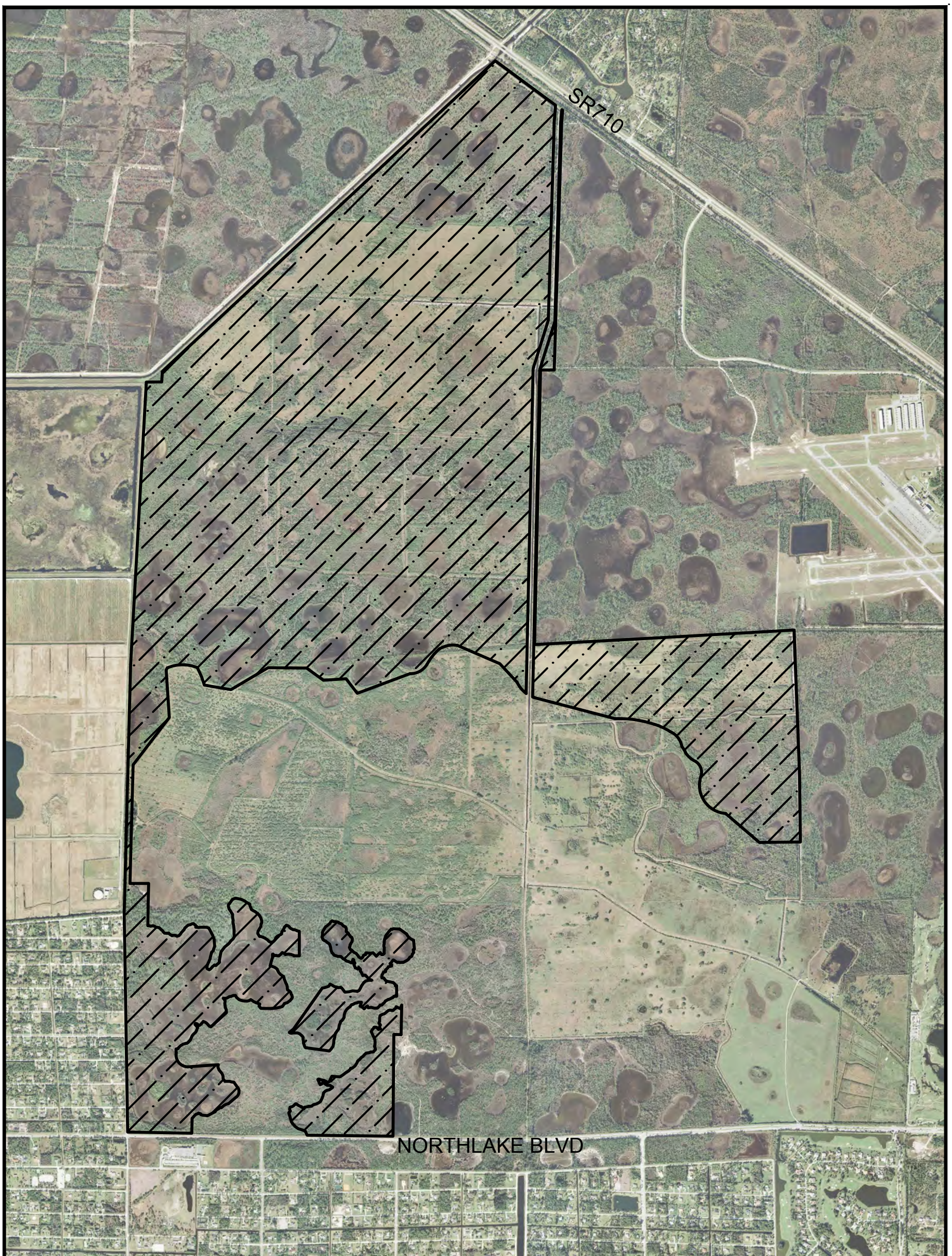
EW CONSULTANTS, INC.

EW Consultants, Inc.
1000 SE Monterey Commons Boulevard, Suite 208
Stuart, FL 34996
772-287-8771 Fax 772-287-2988
www.ewconsultants.com

SEPT 2015
REV NOV 2015

FIGURE

1



PALM BEACH COUNTY AERIALS DATED 2013

LEGEND

- CONSERVATION AREA

0 2000
SCALE IN FEET

AVENIR HABITAT RESTORATION & MANAGEMENT PLAN

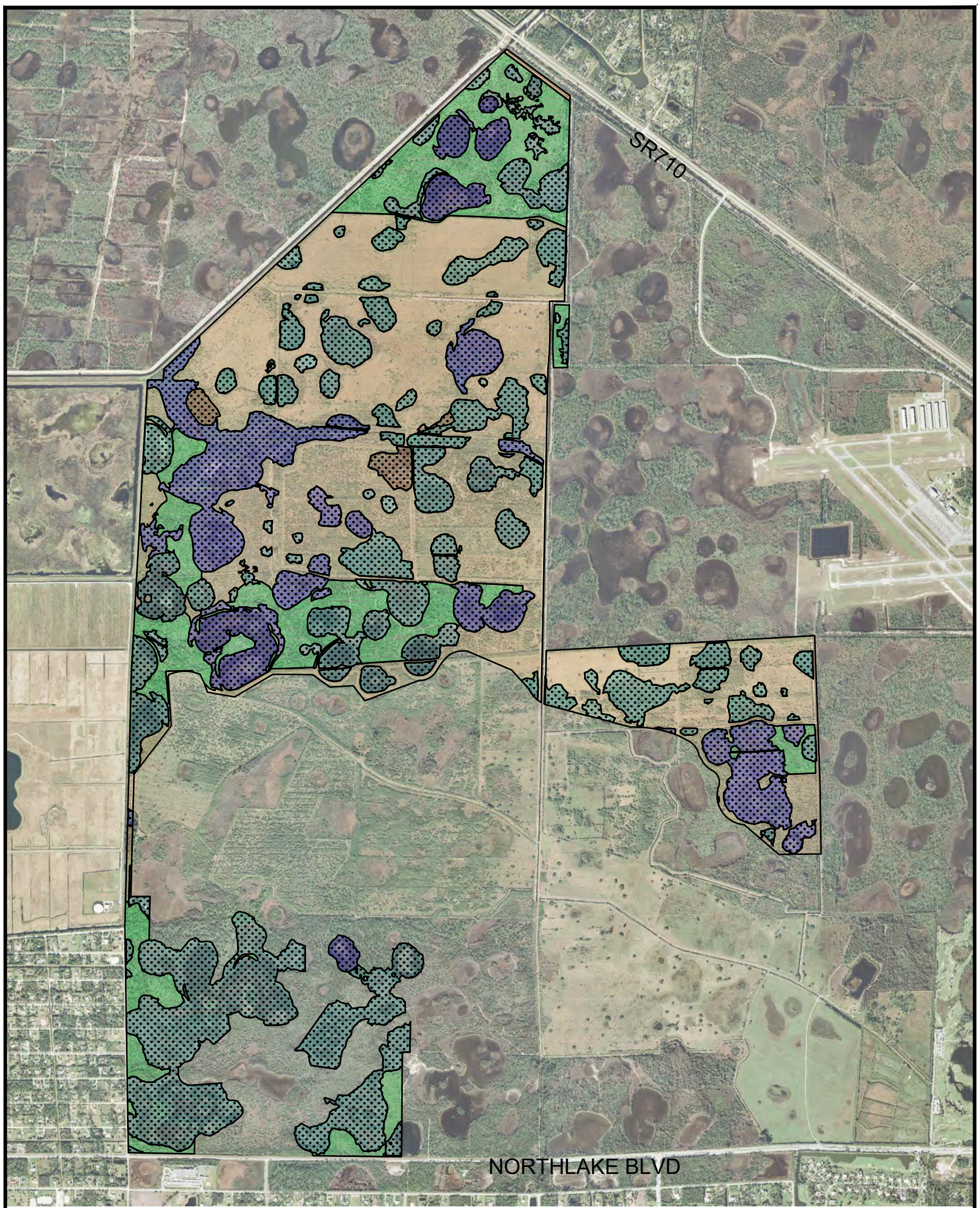
CONSERVATION AREA AERIAL PHOTO

EW CONSULTANTS, INC.
1000 SE MONTEREY COMMONS BLVD., SUITE 208
STUART, FL 34996
772-287-8771 FAX 772-287-2988
WWW.EWCONSULTANTS.COM

APRIL 2015
REV: NOV 2015

FIGURE
2

Avenir Habitat Management Plan 11-2015.dwg CONSERVATION AREA



PALM BEACH COUNTY
AERIALS DATED 2013

LEGEND

- FRESHWATER MARSH (355± AC)
- MESIC PINE FLATWOODS (345± AC)
- IMPROVED PASTURE (984± AC)
- STRAND SWAMP (20± AC)
- WET PRAIRIE (703± AC)

0 2000
SCALE IN FEET

AVENIR HABITAT RESTORATION & MANAGEMENT PLAN

EXISTING HABITAT MAP

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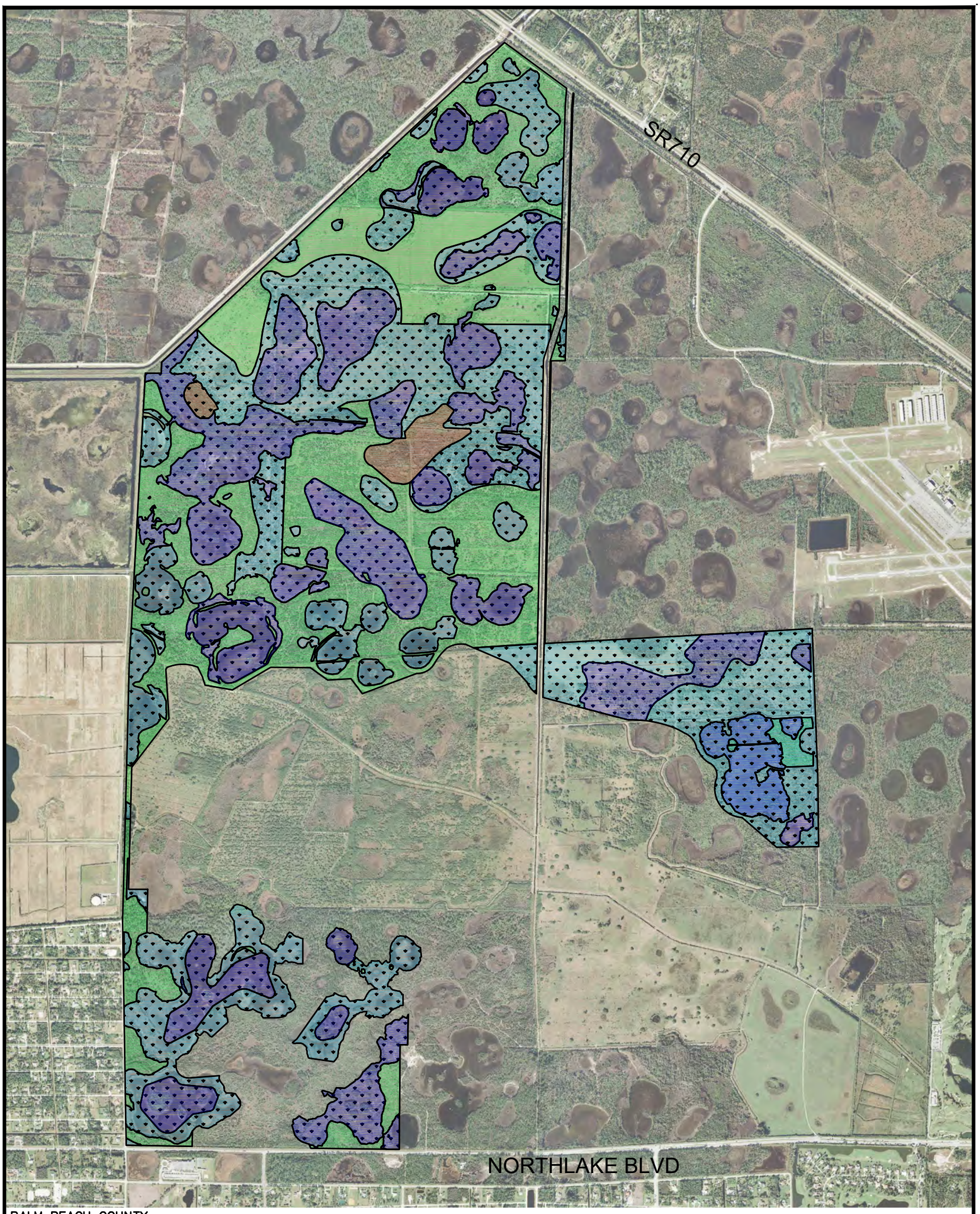
FIGURE 3

Avenir PBG Response NOV 2015 EXISTING HABITAT.dwg EXISTING HABITAT MAP



PALM BEACH COUNTY
AERIALS DATED 2013

LEGEND

- FRESHWATER MARSH (730± AC)
- MESIC PINE FLATWOODS (767± AC)
- STRAND SWAMP (40± AC)
- WET PRAIRIE (870± AC)

0 2000
SCALE IN FEET

AVENIR HABITAT RESTORATION & MANAGEMENT PLAN

POST - RESTORATION HABITAT MAP

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NOV 2015

FIGURE 4

APPENDIX A

SPECIES LISTING OF WILDLIFE OBSERVED OR EXPECTED IN THE AVENIR CONSERVATION AREA

Birds	
American Coot	*Fulica americana*
American Kestrel	*Falco sparverius*
American Redstart*	*Setophaga ruticella*
American Robin	*Turdus migratorius*
Anhinga	*Anhinga anhinga*
Bachman's Sparrow*	*Aimophila aestivalis*
Bald Eagle	*Haliaeetus leucocephalus*
Barn Swallow*	*Hirundo rustica*
Barred Owl*	*Strix varia*
Belted Kingfisher	*Ceryle alcyon*
Black Vulture	*Coragyps atratus*
Black-and-white Warbler*	*Mniotilla varia*
Black-crowned Night-heron	*Nycticorax nycticorax*
Black-necked Stilt	*Himantopus mexicanus*
Blackpoll Warbler*	*Dendroica striata*
Blue-gray Gnatcatcher	*Polioptila caerulea*
Blue Jay	*Cyanocitta cristata*
Blue-winged Teal	*Anas discors*
Boat-tailed Grackle	*Quiscalus major*
Broad-winged Hawk*	*Buteo platypterus*
Brown Thrasher*	*Toxostoma rufum*
Carolina Wren	*Thryothorus ludovicianus*
Cattle Egret	*Bubulcus ibis*
Chuck-will's-Widow	*Caprimulgus carolinensis*
Common Crow	*Corvus brachyrhynchos*
Common Grackle	*Quiscalus quiscula*
Common Ground Dove	*Columbina passerina*
Common Moorhen	*Gallinula chloropus*
Common Nighthawk	*Chordeilas minor*
Common Snipe	*Gallinago gallinago*
Common Yellowthroat	*Geothlypis trichas*
Double Crested Cormorant	*Phalacrocorax auritas*
Downy Woodpecker*	*Picoides pubescens*
Eastern Kingbird	*Tyrannus tyrannus*
Eastern Meadowlark	*Sturnella magna*
Eastern Phoebe	*Sayornis phoebe*
Eastern Screech-owl*	*Otus asio*

European Starling	*Sturnus vulgaris*
Fish Crow	*Corvus ossifragus*
Florida Sandhill Crane	*Grus canadensis pratensis*
Glossy Ibis	*Plegadis falcinellus*
Gray Catbird	*Dumetella carolinensis*
Great Blue Heron	*Ardea herodias*
Great Egret	*Ardea alba*
Great Horned Owl*	*Bubo vinginianus*
Great-crested Flycatcher*	*Myiarchus crinitis*
Green-backed Heron	*Butorides striatus*
Green Winged Teal	*Anas creca*
Hooded Merganser	*Lophodytes cucullatus*
Killdeer	*Charadrius vociferous*
Lesser Yellowlegs	*Tringa flavipes*
Little Blue Heron	*Egretta caerulea*
Loggerhead Shrike	*Lanius ludovicianus*
Marsh Harrier	*Circus cyaneus*
Marsh Wren	*Cistothorus palustris*
Mottled Duck	*Anas fulvigula*
Mourning Dove	*Zenaida macroura*
Northern Bobwhite	*Colinus virginianus*
Northern Cardinal	*Cardinalis cardinalis*
Northern Flicker	*Colaptes auratus*
Northern Harrier	*Circus cyaneus*
Northern Mockingbird	*Mimus polyglottos*
Northern Parula*	*Parula americana*
Osprey	*Pandion haliaeetus*
Ovenbird*	*Seiurus aurocapillus*
Palm warbler	*Dendroica palmarum*
Pileated Woodpecker	*Dryocopus pileatus*
Pine Warbler*	*Dendroica pinus*
Prairie Warbler*	*Dendroica discolor*
Purple Gallinule	*Porphyrula martinica*
Red-bellied Woodpecker	*Melanerpes carolinus*
Red-shouldered Hawk	*Buteo lineatus*
Red-tailed Hawk	*Buteo jamaicensis*
Red-winged Blackbird	*Agelaius phoeniceus*
Rufous-sided Towhee	*Pipilo erythrophthalmus*
Savannah Sparrow*	*Passerculus sandwichensis*
Sedge Wren	*Cistothorus platensis*
Sharp-shinned Hawk	*Accipiter striatus*

Snowy Egret	*Egretta thula*
Sora Rail	*Porzana carolina*
Swallow-tailed Kite	*Elanoides forficatus*
Tree Swallow	*Tachycineta bicolor*
Tricolored Heron	*Egretta tricolor*
Turkey Vulture	*Cathartes aura*
Vesper Sparrow	*Pooecetes gramineus*
White Ibis	*Eudocimus albus*
White-eyed Vireo	*Vireo griseus*
White-throated Sparrow	*Zonotrichia albicollis*
Wild Turkey	*Meleagris gallopavo*
Wood Stork	*Mycteria americana*
Yellow-billed Cuckoo*	*Coccyzus americanus*
Yellow-rumped Warbler*	*Dendroica coronata*
Yellow-throated Warbler*	*Dendroica dominica*
Mammals	
Bobcat	*Felis rufus*
Cotton rat	*Sigmodon hispidus*
Coyote	*Canis latrans*
Eastern cottontail	*Sylvilagus floridanus*
Feral hog	*Sus scrofa x S. vittatus*
Gray fox	*Urocyon cinereoargenteus*
Marsh rabbit	*Sylvilagus palustris*
Nine-banded armadillo	*Dasypus novemcinctus*
Opossum	*Didelphis virginiana*
Raccoon	*Procyon lotor*
River otter	*Lutra canadensis*
Round-tailed muskrat	*Neofiber alleni*
White-tailed deer	*Odocoileus virginianus*
Amphibians	
Barking treefrog*	*Hyla gratiosa*
Florida chorus frog*	*Pseudacris nigrita verrucosa*
Florida cricket frog	*Acris gryllus dorsalis*
Greater siren	*Siren lacertina*
Green treefrog	*Hyla cinerea*
Little grass frog	*Limnaoedus ocularis*
Oak toad*	*Bufo quercicus*
Peninsula newt	*Notophthalmus viridenscens piaropicola*
Pig frog	*Rana grylio*

Pinewoods treefrog	*Hyla femoralis*
Southern leopard frog	*Rana sphenocephala*
Southern toad*	*Bufo terrestris*
Squirrel tree frog	*Hyla squirella*
Reptiles	
American alligator	*Alligator mississippiensis*
Brown water snake	*Nerodia taxispilota*
Coral snake*	*Micrurus fulvius*
Cuban brown anole	*Anolis sagrei*
Dusky pygmy rattlesnake*	*Sistrurus miliarius barbouri*
Eastern diamondback rattlesnake*	*Crotalis adamanteus*
Eastern garter snake	*Thamnophis sirtalis sirtalis*
Florida box turtle	*Terrapene carolina bauri*
Florida cottonmouth	*Agkistrodon piscivorus conanti*
Florida mud turtle*	*Kinosternon subrubrum*
Florida red-bellied turtle*	*Chrysemys nelsoni*
Florida softshell	*Apalone ferox*
Florida water snake	*Nerodia fasciata pictiventris*
Green anole	*Anolis carolinensis*
Mud snake*	*Farancia abacura*
Peninsula cooter	*Chrysemys floridana*
Peninsula ribbon snake	*Thamnophis sauritus sackenii*
Red rat snake*	*Elaphe gutatta*
Rough green snake	*Opheodrys aestivus carinatus*
Six-lined racerunner*	*Cnemidophorus s. sexlineatus*
Southeastern five-lined skink*	*Eumeces inexpectatus*
Southern black racer	*Coluber constrictor priapus*
Yellow rat snake*	*Elaphe obsoleta quadrivitatta*
Fish	
Black acara (two-spot cichlid)	*Cichlasoma bimaculatum*
Bluefin killifish	*Lucania goodei*

Blue spotted sunfish	*Lepomis marginatus*
Bluegill*	*Lepomis mystacalis*
Bowfin*	*Amia calus*
Brook silverside*	*Labidesthes sicculus*
Brown haplo	*Haplosternum littorale*
Dollar sunfish	*Lepomis marginatus*
Everglades pygmy sunfish	*Elassoma evergladei*
Florida flagfish	*Jordanella floridae*
Florida gar	*Lepisosteus platyrhincus*
Golden shiner*	*Notemigonus crysoleucas*
Golden topminnow	*Fundulus chrysotus*
Largemouth bass	*Micropterus salmoides*
Least killifish	*Heterandria formosa*
Lined topminnow*	*Fundulus lineolatus*
Mosquitofish	*Gambusia holbrookii*
Red ear sunfish	*Lepomis microlophus*
Sailfin molly	*Poecillia latipinna*
Seminole killifish*	*Fundulus seminolis*
Spotted sunfish*	*Lepomis puntatus*
Swamp darter*	*Etheostoma fusiforme*
Walking catfish	*Clarias batrachus*
Warmouth	*Lepomis gulosus*

* Not observed during field reconnaissance but reasonably expected to occur on-site based on habitat, geographic range and documented occurrence by others in the vicinity.

APPENDIX B

KNOWN OR POTENTIALLY OCCURRING LISTED FLORAL AND FAUNAL SPECIES IN THE AVENIR CONSERVATION AREA

Known and Potentially Occurring Listed Floral Species

Common Name	Scientific Name	Occurrence Expectation*	Protective Status ** US/FL
Bahama brake fern	*Pteris bahamensis*	VL (pine rockland)	-/T
Beach jacquemontia	*Jacquemontia reclinata*	VL (coastal)	E/E
Beach star	*Remirea maritime*	VL (coastal)	-/E
Inkberry	*Scaevola plumieri*	VL (coastal)	-/T
Blue butterwort	*Pinguicula caerulea*	M (swamp)	-/T
Brown-hair combfern	*Ctenitis submarginalis*	M (swamps, hydric hammock)	-/E
Burrowing four-o'clock	*Okenia hypogaea*	VL (beach dunes)	-/E
Catesby's lily	*Lilium catesbaei*	M – H (flatwoods)	-/T
Celestial lily	*Nemastylis floridana*	M – H (flatwoods)	-/E
Climbing vine fern	*Microgramma heterophylla*	VL (rockland hammock)	-/E
Coastal vervian	*Verbena maritima*	VL (coastal)	-/E
Curtis' milkweed	*Ascelpias curtissii*	L (scrub)	-/E
Cutthroat grass	*Panicum abscissum*	M (swamp)	-/E
Dancing lady orchid	*Oncidium bahamense*	VL (scrub)	-/E
Delicate ionopsis	*Ionopsis utriculariodies*	VL (deep strand swamps)	-/E
Erect prickly-pear cactus	*Opuntia stricta*	VL (coastal scrub)	-/T
Florida jointtail	*Coelorachis tuberculosa*	M (marshes)	-/T
Florida Keys indigo	*Indigofera mucronata var keyensis*	VL (pine rockland)	-/E
Pineland lantana	*Lantana depressa*	VL (coastal)	-/E
Florida prarieclover	*Dalea carthagenesis var. floridana*	VL (Pine rockland)	-/E
Four-petal pawpaw	*Asimina tetramera*	L (scrub)	E/E
Giant swordfern	*Nephrolepis biserrata*	M (swamps)	-/T
Golden leather fern	*Acrostichum aureum*	VL (coastal)	-/T
Hand fern	*Ophioglossum palmatum*	L – M (cabbage palm)	-/E
		L (hydric hammock)	-/E

Common Name	Scientific Name	Occurrence Expectation*	Protective Status ** US/FL
Cuplet fern	*Dennstaedtia bipinnata*		
Inflated wild-pine	*Tillandsia balbisiana*	O (cypress)	-/T
Large-flowered rosemary	*Conradina grandiflora*	VL (scrub)	-/T
Night-scented epidendrum	*Epidendrum nocturnum*	VL (deep strand swamps)	-/E
Nodding pinweed	*Lechea cernua*	VL (scrub)	-/T
Okeechobee gourd	*Cucurbita okeechobeensis*	M (swamps, floodplains)	E/E
Perforate lichen	*Cladonia perforata*	VL (scrub)	E/E
Ray fern	*Schizaea germanii*	L (hammock flatwoods)	-/E
Everglades poinsettia	*Poinsettia pinetorum*	VL (pine rockland)	-/E
Sand-dune spurge	*Chamaesyce cumulicola*	VL (coastal)	-/E
Satinleaf	*Chrysophyllum oliviforme*	L (rockland hammock)	-/T
Silver thatch palm	*Coccothrinax argentata*	VL (rockland hammock)	-/T
Simpson's rain lily	*Zephyranthes simpsonii*	M (savanna, flatwoods)	-/T
Southern ladies'-tresses	*Spiranthes torta*	M (pine rockland)	-/E
Spreading pinweed	*Lechea divaricata*	L – M (flatwoods)	-/E
Star-scale fern	*Pleopeltis astrolepis*	VL (hydric hammock slough)	-/E
Tina polygala	*Polygala smallii*	L (pine rockland)	E/E
Dentate lattice-vein fern	*Thelypteris serrata*	L – M (cypress swamp)	-/E
Slender spleenwort	*Asplenium dentatum*	L – M (rockland hammock)	-/E
Twisted airplant	*Tillandsia flexuosa*	O (cypress)	-/T
Yellow nicker	*Caesalpinia major*	VL (coastal)	-/E

*H=High; M=Medium; L=Low; VL= Very Low; O=Observed; **US=US Fish and Wildlife Service; FL= Florida Department Agriculture and Consumer Services; E=Endangered; T=Threatened.

Known and Potentially Occurring Listed Faunal Species

Common Name	Scientific Name	Preferred Habitat	Sampling Method	Occurrence*	Listed Status**
					State/Federal
American alligator	*Alligator mississippiensis*	Wetland and aquatic habitat	Pedestrian and vehicular transects	O[2]	SSC/T/SA
Audubon's Crested Caracara	*Caracara cheriway*	Open prairies and rangeland	Pedestrian and vehicular transects	O[1]	T/T
Bald Eagle	*Haliaeetus leucocephalus*	Nest in tall trees (usually pine) near coasts, rivers, lakes and wetlands	Pedestrian and vehicular transects	O[1]	No longer listed.
Burrowing Owl	*Athene cunicularia*	Sandhills, ruderal communities, dry prairies	Pedestrian and vehicular transects	L	SSC/-
Eastern indigo snake	*Drymarchon corais couperi*	A diversity of upland/low land habitat	Pedestrian and vehicular transects	M	T/T
Florida black bear	*Ursus americanus floridanus*	Forested wetlands and uplands	Pedestrian and vehicular transects	L	T/-
Florida Grasshopper Sparrow	*Ammodramus savannarum floridanus*	Open prairies and rangeland	Pedestrian transects and playback tapes	L	E/E
Florida panther	*Felis concolor coryi*	Large wilderness areas	Pedestrian and vehicular transects	L	E/E
Florida Sandhill Crane	*Grus canadensis pratensis*	Breed in emergent palustrine wetlands; forage in pasture/prairie	Pedestrian and vehicular transects; aerial nest survey	O[2]	T/-
Everglades Snail Kite	*Rostrhamus sociabilis plumbeus*	Long hydroperiod wetlands/aquatic systems with Pomacea snails	Pedestrian and vehicular transects	M	E/E

Common Name	Scientific Name	Preferred Habitat	Sampling Method	Occurrence*	Listed Status**
Gopher tortoise	*Gopherus polyphemus*	Sandhills, oak scrub, sand pine scrub, scrubby flatwoods	Burrow survey ≥ 15% of suitable habitat	O	T/-
Limpkin	*Aramus guarauna*	Nest in a variety of ground and tree locations, uses streams, swamps, and marshes with apple snails	Pedestrian and vehicular transects	O[1]	SSC/-
Little Blue Heron	*Egretta caerulea*	Breeding: marshes, swamps, ponds, estuaries, rivers; nest in shrubs and small trees	Pedestrian and vehicular transects	O[1]	SSC/-
Red-cockaded Woodpecker	*Picoides borealis*	Mature pine woodlands	Pedestrian and vehicular transects	L	T/T
Roseate Spoonbill	*Ajaia ajaja*	Breeding: marshes, swamps, ponds, estuaries, rivers; nest in shrubs and small trees	Pedestrian and vehicular transects	M	SSC/-
Snowy egret	*Egretta thula*	Breeding: marshes, swamps, ponds, estuaries, rivers; nest in shrubs and small trees	Pedestrian and vehicular transects	O[1]	SSC/-
Southeastern American Kestrel	*Falco sparverius paulus*	Sandhill and open rangeland nest in cavities of dead trees and abandoned woodpecker nests	Pedestrian and vehicular transects	M	T/-

Common Name	Scientific Name	Preferred Habitat	Sampling Method	Occurrence*	Listed Status**
Tricolored Heron	*Egretta tricolor*	Breeding: marshes, swamps, ponds, estuaries, rivers; nest in shrubs and trees	Pedestrian and vehicular transects	O[1]	SSC/-
White Ibis	*Eduocimus albus*	Breeding: marshes, swamps, estuaries, rivers; nest in shrubs and small trees	Pedestrian and vehicular transects	O[1]	SSC/-
Whooping Crane	*Grus americana*	Breed in emergent palustrine wetlands; forage in pastures	Pedestrian and vehicular transects	L	"Experimental population"
Wood Stork	*Mycteria americana*	Estuarine or freshwater wetlands; nest in tops of trees in cypress or mangrove swamps	Pedestrian and vehicular transects	O[1]	E/E

[1] Observed transient
[2] Observed nesting and/or resident
*O= Observed; H= High probability; M= Medium; L= Low; **USFWS; 50 CFR 17; FFWCC: Chapter 68A-27.003 and .005 F.A.C.; E = Endangered; T = Threatened; T/SA = Threatened due to similarity of appearance; SSC = Species of Special Concern

EW Consultants, Inc.
Natural Resource Management, Wetland, and Environmental Permitting Services

Environmental Assessment

Avenir Property

Palm Beach Gardens, Florida

Prepared for:

Avenir Holdings, LLC

Prepared by:

EW Consultants, Inc.

Revised July 2015
Revised November 2015

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Executive Summary –

As discussed in further detail in the following Environmental Assessment, the Avenir property (formerly known as the Vavrus Ranch) has a long history of agricultural and silvicultural activity. For more than 50 years there have been a variety of agricultural uses on the site including vegetable farms, timber harvest, and cattle operations. As a result there are no areas of the site that have not been altered from their natural state in some fashion. However, there are significant natural resources remaining on the site primarily in the form of wetland systems as well as some areas of upland habitat.

The wetland resources can be characterized on a continuum from very poor ecological quality (heavily invaded by non-native and/or nuisance vegetation and altered hydrology) up through excellent wetland functional quality with only minor occurrences of non-native vegetation or hydrologic impacts. The upland resources on the site are much less diverse, primarily as a result of severe invasion by non-native vegetation. Although there are areas of pine flatwoods community with intact native canopy, understory and ground cover vegetation, they are rare and most have reduced canopy due to past timber harvest practices. The vast majority of the uplands on the site are dominated by West Indian dropseed, a non-native grass that has little if any value as forage for wildlife or cattle. The uplands are also invaded to a significant degree by Brazilian pepper, also an invasive non-native plant with little or no value to wildlife.

Considering these site attributes, the site planning effort seeks to protect the most valuable natural resources while achieving the development potential for the property. The guiding approach entails identifying the high quality natural resources as well as the areas with attributes that provide long term opportunity for natural habitats or special features and designating them for conservation and open space. The locational context of these conservation areas was considered in relation to surrounding conservation lands to develop an integrated corridor connection system in a regional context.

This approach follows the regulatory framework of both the State of Florida and Federal wetland regulatory policies that require elimination and reduction (state) and avoidance and minimization (Federal) of impacts to wetlands. In the case of the Avenir property, there have been 1,993 acres of wetlands identified ranging from poor to high ecological quality. Of these wetlands more than 1,076 +/- acres are proposed for preservation. The remaining 917 +/- acres of mostly low quality wetlands will be impacted for development. As far as upland resources, of the 728 +/- acres that can be described as native upland habitat 350 +/- acres (over 48%) are proposed for preservation.

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Within the 4,763 +/- acre Avenir property, a total of 2,407 acres or 51 percent is proposed for a Conservation Area. The entire Conservation Area will be the subject of native habitat preservation, habitat restoration, and long term management. The remaining area of the property will be developed into Avenir.

While the Avenir property is rather large, the impacts to natural communities will be relatively low. The long history of agricultural activity has resulted in a highly disturbed system and the lack of maintenance for many years has led to rapid encroachment of invasive non-native vegetation throughout the property. Implementation of the Conservation Area and proposed habitat restoration in the context of surrounding publicly owned conservation lands has yielded a plan with relatively low impact to natural communities and an opportunity for net improvement of habitat quality when compared to current conditions.

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Introduction –

The following Environmental Assessment prepared for the Avenir project provides an assembly of information collected on the subject property over a period of over 10 years. Extensive baseline data collection was conducted in the period from 2004 through 2006 in support of an Application for Development Approval (ADA) covering the subject property. This effort entailed over 500 hours of field data collection by qualified biologists throughout all seasonal and climatic conditions. There was a considerable reduction in intensive field survey activity in the period between 2006 and 2010 with only occasional site visits conducted. From 2010 to 2012, occasional general site evaluation visits were conducted, without specific data collection or inventory parameters. Beginning in 2013 and through the date of this submittal, multiple field visits to verify and update information regarding wetlands, wetland delineation and verification, upland habitats, wildlife utilization, and general ecological conditions have been completed in support of this application.

The information summarized in this submittal relies heavily on the base information developed during field reconnaissance between 2004 and 2006. The tabular summaries of floral and faunal observations represent a compilation of observations and data throughout the last 10 +/- years. The site habitat is generally homogeneous enough that very few additional species were observed in the field evaluations conducted in the last several years, although many were confirmed and additional areas of similar habitats were quantified.

General Site Description -

The Avenir property is comprised of 4,763 +/- acres of agricultural land situated north of Northlake Boulevard, west of the Palm Beach County General Aviation Airport, south of Beeline Highway (SR 710), and east of the Mecca Farms property and the Acreage. The property is approximately 4.5 miles in its longest north-south dimension and 2.5 miles in its longest east-west dimension. A Site Location Map and Aerial Photo dated 2013 are provided in the Appendix.

The long and consistent agricultural use history on the property (historically known as the Vavrus Ranch) has resulted in considerable reduction in the otherwise expected vegetative and wildlife diversity. Virtually all of the 4,763 +/- acres of the property have been altered in some fashion by agricultural and/or silvicultural activities. Silviculture related timber harvest generally results in the least long term effect because these areas tend to eventually re-generate pine canopy over time with minimal management. However, the clearing, ditching, and crop rotation of the past 50 plus years of row crop production and cattle grazing on the site have resulted in long term effects and changes that have altered the composition of natural systems throughout the site. The more recent (25 +/- years) conversion to predominantly improved pasture has continued this trend.

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The primary factor in facilitating agricultural use whether it be row crops or cattle is the need for water control. Water control entails providing accelerated drainage when there is excess rainfall and providing for irrigation water when rainfall is less than crop or cattle needs. The rarity of cattle watering ponds on the site when compared to other operations of similar size indicates that there has generally been sufficient surface water available for the cattle on site. However, the remaining row crop production areas comprising approximately 250 acres include an impounded historic wetland area from which irrigation water could be extracted as needed and to which excess drainage could be pumped for storage.

The water control system on the subject site has evolved over the past 50 plus years to include a main north-south canal along with perimeter canals and several east-west oriented canals. Each of these main canal systems is connected to field lateral canals that occur throughout the areas that have been improved for agricultural use in the past. With the exception of approximately 1,000 acres in the southwestern portion of the site and approximately 225 acres in the extreme northern portion of the site, the remaining 3,500 plus acres are all served in some fashion by the system described above including field lateral ditches collected into larger canals and carried north through the site by the main north-south canal and ultimately discharging to the C-18 Canal. A minor component appears to be collected in east-west running canals that connect to ditches off the site to the east.

The result of this agricultural drainage system is accelerated removal of rainfall and accumulated surface water from the site when compared to natural systems. The consequence of accelerated drainage is altered hydroperiods for all natural systems on the site. The hydroperiod is the term for the combination of depth and duration of water presence in a given system. It can describe both inundation or standing water as well as saturation of soils in the root zone, both of which are driving forces in the occurrence and types of vegetation, both wetland and upland, that occur in a given system. The reduced hydroperiod from agricultural drainage (and in isolated cases increased hydroperiod from storage of irrigation water) has resulted in some degree of alteration to all of the wetlands and associated upland areas on the site. There is, however, a broad range of differences in observed effects. Generally, the areas within and in close proximity to ditched and drained fields show greater effects, but that is not always the case. The details specific to wetlands will be described in greater detail in subsequent sections of the Environmental Assessment.

Existing Vegetation Associations and Land Cover -

The predominant upland plant community on the Avenir property is improved pasture, which along with unimproved pasture and row crop land cover comprises over 35 percent of the site. These areas are generally dominated by invasive non-native species such as Brazilian pepper and West Indian dropseed (smut grass) as well as wax myrtle and some remaining planted pasture grasses. The predominant wetland community

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type on the site is wet prairie which, along with freshwater marsh wetlands comprises approximately 38% percent of the site. Detailed descriptions of each of the cover types categorized in accordance with the Florida Land Use Cover and Forms Classification System (FLUCFCS) follow. In the interest of continuity and developing an overall understanding of the site characteristics, the FLUCFCS descriptions below provide general summaries of vegetative associations that occur in the various land cover types. A FLUCFCS Map and tabular summary of the acreages and percentages of each cover type along with a detailed vegetation list including binomial genus and species descriptions is provided in the Appendix.

Improved Pasture - #211, 1,279 +/- acres, 27% -

The improved pasture classification describes the uplands generally found in the northern and eastern portions of the property. These areas have been cleared of most or all canopy trees and exhibit varying levels of shrubs reflecting differing levels of maintenance, however they remain predominantly a grassland association. The groundcover is overwhelmingly dominated by invasive non-native and other introduced grasses with interspersed sedges and rushes. A network of excavated swales and ditches occurs in these areas, some open ended and others with culvert and riser structures. Common plant species include West Indian dropseed (dominant), bahia grass, carpet grass, blanket crabgrass, panic grasses, broom grass, coinwort, dog fennel, flat sedges, umbrella grass, and yellow-eyed grass. Several areas exhibit localized concentrations of Brazilian pepper some of which have been removed under the existing cattle lease. Scattered trees occurring in this cover type are rare but include individuals or small groupings of slash pine, live oak, and cabbage palm.

Unimproved Pasture - #212, 176 +/- acres, 4% -

The unimproved pasture areas are distinguished from the improved pasture generally by less apparent maintenance and drainage improvements. These areas mostly occur in the central and eastern portion of the property. They have been cleared of most trees and have historically demonstrated markedly less maintenance as evidenced by heavier shrub invasion and less consistent occurrence of excavated swales, ditches, and control structures. However, recent improvements by the existing cattle lessee have increased the level of maintenance primarily through ditch cleaning and removal of exotic and nuisance vegetation. They remain grassland cover type because that is the predominant vegetative stratum. The groundcover is dominated by the non-native invasive West Indian dropseed with various sedges and rushes. Other common plant species include bahia grass, carpet grass, blanket crabgrass, panic grasses, broom grass, coinwort, dog fennel, flat sedges, umbrella grass, and yellow-eyed grass. There are areas of heavy concentration of Brazilian pepper that are nearly impenetrable. These shrubs aggressively gain cover area in the absence of normal agricultural controls. There are a few trees occurring in the unimproved pasture areas including occasional slash pine, Australian pine, and cabbage palm.

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Row Crops - #214, 252 +/- acres, 5% -

The row crop cover type occurs in one location in the south-central portion of the site. The most recent active farming of this area occurred more than 10 years ago and included tomatoes and other winter vegetables. This area has been ditched, drained, and raised furrows constructed to facilitate row crop production. Drainage and irrigation were historically provided through pumped storage in bermed wetland areas adjacent to the fields. This area has been overtaken by growth of West Indian dropseed and Brazilian pepper, although ongoing improvements by the cattle operations on site have removed significant areas of Brazilian pepper.

Shrubs and Brush - #329, 133 +/- acres, 3% -

This vegetative association differs from the pasture areas in that the predominant vegetative stratum is comprised of a high percentage of shrub cover, principally wax myrtle and to a lesser extent Brazilian pepper. There are occasional occurrences of saw palmetto and gallberry primarily in the central part of the site where this cover type occurs. It is likely that much of this area was pine flatwoods prior to agricultural alterations on the property. This is evidenced in part by the occurrence of occasional slash pine groupings as well as several snags and regeneration of pine saplings in some areas. The groundcover is varied and tends to be dominated by West Indian dropseed, broom grass, dog fennel, goldenrod, and yellow-eyed grass.

Pine Flatwoods - #411, 728 +/- acres, 15% -

The largest areas of pine flatwoods that occur on the property are located in the extreme north and southwest portions of the site with smaller associations in the central portion of the site as well as along the west and east boundaries. Consistent with the previously described agricultural and silvicultural activities on the subject site, pine trees have been periodically harvested for commercial purposes. Although tree cover in most areas is lower than typical pine flatwoods, this plant community is otherwise consistent with this vegetative association. The predominant vegetative associations include clumps of mature saw palmetto along with woody shrubs, including gallberry, fetterbush, rusty lyonia and wax myrtle. Relatively recent harvest (in the last 20 to 25 years) of slash pines has left few mature slash pines in many areas of the site, however, there are pine seedlings and saplings regenerating in the understory. Ground cover species include wire grass, fleabane, flat-topped goldenrod, panic grasses, yellow-eyed grass and green brier along with various grasses, sedges and herbaceous species. The area of pine flatwoods in the southwest portion of the site was harvested subsequent to a wildfire event, and it appears that seed dispersion by fire and logging operations along with the open canopy have resulted in significant recruitment of the invasive exotic melaleuca in the pine flatwoods areas.

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Brazilian Pepper - #422, 33 +/- acres, < 1% -

Brazilian pepper, an invasive non-native shrub occurs on uplands, wetland fringes, and disturbed areas throughout the property. Several areas have been mapped where it forms a dense monoculture to the exclusion of almost all other vegetation. Dense Brazilian pepper occurs at a former cattle pen site, other previously disturbed areas, along ditch banks, fence rows, and levees. Brazilian pepper also occurs in the periphery of many wetland systems and is often found in small shrub islands within marshes. This species is a noxious pest plant that tends to exclude native species wherever it forms dense cover.

Streams and Waterways (Canal and Levee) - #510, 158 +/- acres, 3% -

The main agricultural canals and their associated spoil/levee/road grade features are mapped together under this category. These features represent the "backbone" of the agricultural drainage system on the site along with the main passable vehicular trails that traverse the property. There are numerous other ditches of varying size throughout the site that have been included within other land cover types while only those areas that can be considered a true canal with an associated levee or road grade have been included in this classification.

Lakes <10 acres - #524, 8 +/- acres, <1% -

There is a relatively small, excavated surface water body at the southeast corner of the property. This lake is surrounded by melaleuca and cattails. In the open water area emergent and floating-leaved wetland plants are essentially absent.

Exotic Wetland Hardwoods – Melaleuca – #619, 65 +/- acres, 1% -

This forested wetland association is dominated by the non-native invasive melaleuca tree. Although melaleuca occurs throughout the site typically associated with wetlands and moist flatwoods, there are several areas where it is essentially a monotypic stand. Some native species are found in the understory, however, melaleuca is the dominant canopy. The invasive nature of this non-native tree is such that left unchecked it will continue toward domination of many of the wetland communities on the site.

Cypress - #621, 6 +/- acres, < 1% -

This cover type is typically associated with strands, tree islands and floodplain forests where cypress is the dominant canopy species. Although cypress trees are generally lacking from most wetlands on the site there are a number of marsh systems that have small or moderate-sized cypress sporadically scattered in them. In the small areas mapped as cypress, the canopy is dominated by cypress trees, although some melaleuca are also intermixed. The understory plants include Brazilian pepper, which precludes ground cover where it occurs, wax myrtle, fetterbush, and young cabbage palms. In

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some open areas there is ground cover that includes swamp fern, saw grass, maidencane, marsh pennywort, coinwort, marsh fern, beakrushes and fleabane. Old world climbing vine a non-native highly invasive species has become established and is spreading rapidly.

Hydric Pine Flatwoods - #625, 8 +/- acres, <1%

This wetland habitat type is distinguished from wet prairie and shallow wetlands by its apparent canopy of slash pines. In general, the hydroperiod is shorter often consisting of soil saturation and only patchy areas of standing water. The vegetation composition includes elements from wet prairie and pine flatwoods, intermingled so as to create a distinct cover type. The wetland delineation process through agency review has resulted in this habitat type being added when it was not previously distinguished. There remain locations where this transitional state is included within polygons of other predominant wetland types, thus the total acreage is likely higher but has not been distinguished at this level of analysis.

Wetland Shrub - #631, 80 +/- acres, 2% -

This land cover type includes small wetland depressions that include wetland tolerant woody plants typically including willow in association with wax myrtle, myrsine, dahoon holly, buttonbush, saltbush and often Brazilian pepper. Although there are "islands" that include these components within several wetlands classified as wet prairies or marshes, this category has been confined to overall wetland areas that are in a successional change resulting in a vegetative cover dominated by the shrub species described above.

Freshwater Marsh - #641, 538 +/- acres, 11% -

Freshwater marsh wetlands are often similar to wet prairies (the following category) but generally have a greater depth and duration of inundation, which tends to create a greater relative percentage of obligate wetland plant species. The typical vegetative cover in freshwater marshes includes emergent wetland plants such as St. Johns wort, cork wood, saw grass, beakrushes, pickerelweed, and arrowhead. Several of these marshes have deeper pockets with a discrete assemblage of broad-leaved wetland plants such as pickerelweed, arrowhead, spatterdock, fragrant water lily, and fire flag. Several of these wetlands include significant spike rush and maidencane components. Although not universally true throughout the site, these longer hydroperiod wetlands tend to have less invasion by non-native and nuisance vegetation species.

Wet Prairie - #643, 1,295 +/- acres, 27% -

The majority of wetlands on the site have been classified as wet prairies. Wet prairies can be similar to freshwater marshes but generally have a shorter hydroperiod. As a result most or all of these areas go dry in most years. Some of the areas mapped as wet prairies may have been freshwater marsh systems in the past, however, the agricultural

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drainage system has shortened the hydroperiod and lowered the average inundation level. The vegetation association in these wetlands includes many of the species described for freshwater marshes in the deeper areas along with beakrushes, blue maidencane, bog buttons, broom grass, coinwort, fringe-rushes, hatpins, meadow beauty, milkworts, panic grasses, redroot, spikerush, St. Johns wort, St. Andrew's-cross, marsh pennywort, star rush, and white-top sedge. In many cases, the wet prairies are grazed by cattle on site and reflect greatly reduced cover of native species to the point that they are nearly indistinguishable from surrounding improved pasture areas.

Disturbed Area - #740, 4 +/- acres, <1% -

These are areas used for access and/or travel through the site that do not specifically fit into one of the associated categories above.

Summary of Wildlife Observations -

Wildlife survey activity on the Avenir property has been ongoing at varying levels of intensity for over 10 years ranging from occasional site visits to intensive daily survey activities and species specific data collection. The seasonal coverage over this period has included the migratory and nesting periods for numerous avian species. It has also included sufficiently warm weather for observing reptile and amphibian species. The mammals encountered are active throughout the year. There was also an opportunity to encounter many site wetlands progressing through dry down, which facilitated sampling for representative fish species. There were no unexpected species encountered during the surveys, and the predictable suite of resident, seasonal and migratory wildlife appears to utilize the site. However, the overall diversity and abundance of wildlife was considerably less than expected for an undeveloped property of this size within the region, and possible explanations of this general observation are provided. A tabular summary of observed species as well as expected species that were not observed during field survey is provided in the Appendix.

Upwards of 75 species of birds were observed within the property and several others have been included in the table because they are likely to occur on a resident, seasonal or migratory basis. Although not a complete list of all possible species for the site, these birds can be considered typical and representative. The following species are those most commonly observed throughout the property and seen on most or all site visits: black vulture, boat-tailed grackle, cattle egret, eastern meadowlark, mourning dove, northern bobwhite, red-winged blackbird, and northern mockingbird. Wading birds that were also seen on most visits included great blue heron, little blue heron, green back heron, white ibis, tri-colored heron, glossy ibis and wood stork.

Other birds typically associated with wetland and aquatic habitats included American coot, anhinga, belted kingfisher, blue-winged teal, common moorhen, common snipe, hooded merganser, lesser yellowlegs, and mottled duck. Florida sandhill cranes are

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also dependent on wetlands for nesting and foraging opportunities, and it is estimated that as many as seven to eight pairs have been observed at any given time.

Raptors were not observed as frequently as anticipated, but a number of species were represented. The most often seen was the swallow-tailed kite, with sometimes as many as six or eight individuals coursing over the site at one time. Occasional northern harriers were observed hunting over the site using the same general aerial technique. A mature bald eagle was observed on several occasions perched in a pine snag in the northern portion of the site. Although there are several known bald eagle nests within the region, none are closer than one mile to this site. A single observation of an individual crested caracara roosted on a fence post occurred during wetland delineation and verification work during the winter of 2015. Red-shouldered and red-tailed hawks were also commonly observed birds of prey.

Songbirds were not particularly well represented, and other than the northern mockingbird, red-winged blackbird and eastern meadowlark, only the northern cardinal, Carolina wren and white-eyed vireo were observed or heard on most visits.

Woodpeckers were not commonly observed, but were represented by the red-bellied woodpecker, pileated woodpecker and northern flicker. Birds observed during migration included the American robin, blue-gray gnatcatcher, common snipe, palm warbler, white-throated sparrow and tree swallow. Other notable sightings included several observations of black necked stilts as well as several black-crowned night herons that were flushed from an evening roost in a small stand of Australian pines. Wild turkeys were observed on several occasions, and ospreys were observed soaring over the western portion of the site in association with the adjacent Mecca Farms reservoir.

Thirteen mammal species were observed or otherwise confirmed as occurring on-site. The paucity of direct observations and even of mammal signs other than raccoons was somewhat unexpected. All of the observed species were expected, as are others, particularly rodents. In addition to extensive pedestrian and vehicular surveys throughout the site, it was anticipated that wildlife might be readily observed from the height of a swamp buggy, which was used on a number of occasions and in all habitat types. However, this methodology was less successful than expected. There were a number of observations of river otters during pedestrian survey activity and numerous live sightings and observed “rooting” by feral hogs. Only one bobcat was observed, and scat evidence for this predator was encountered on rare occasions throughout the site. Both eastern cottontail and marsh rabbits were occasionally flushed during pedestrian and vehicular surveys. White-tailed deer were observed on several occasions and recorded on the basis of field indicators such as tracks and scat. Other observations included the cotton rat and the round-tailed muskrat. Presence of coyotes on the site was initially confirmed by track sign and regular group calls during crepuscular and nocturnal surveys. A live sighting of a single coyote during vehicular survey in 2014 further confirmed their presence on the site.

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In addition to pedestrian, vehicular, and stationary survey efforts, there were four locations at which motion sensor cameras were deployed over periods ranging from two nights to two weeks. Surprisingly, aside from cattle and humans, there was only one photo of native wildlife species (white tailed deer) captured during the entire effort. There were several instances of "camera triggers" during nighttime hours where no image was collected so more activity may be occurring that was not captured. However, this technique has been successful at capturing numerous wildlife photos on other sites in the region.

It appears from field observations including group calls, tracks, a live sighting during daytime vehicular survey, and carcasses observed on the site that the local coyote population is robust. It is reasonable to conclude that a thriving coyote population would have an adverse effect on the local wildlife populations, which may account for the relative lack of signs and sightings of small mammals as well as progressive reduction on the numbers of juvenile sandhill cranes observed through the progression of nesting and fledging seasons.

Nine amphibian species were confirmed on site and several others have been listed as expected. Florida cricket frogs, little grass frogs, southern leopard frogs and pig frogs were the only species that were seen or heard calling with regularity. Green tree frogs, pinewoods tree frogs and squirrel tree frogs were occasionally heard calling. One greater siren was encountered in an isolated wetland and one adult peninsular newt was captured during the dip net sampling of a ditch in the east-central portion of the property.

Thirteen reptile species were actually encountered, but more are expected to occur on-site, which have been listed as likely to occur. By far the most commonly observed species was the American alligator, which was present throughout the local canal system. Individuals were regularly encountered ranging in size from less than one foot to approximately eight feet in length. The next most commonly observed reptile was the peninsular cooter, which occurs in the same surface water habitats as the alligators. The only snake species seen with regularity was the southern black racer and several peninsular ribbon snakes, rough green snakes and an eastern garter snake were also observed. One cottonmouth and one Florida water snake and brown water snake were the only other snake species observed. The Florida soft shell turtle was observed on several occasions. Florida box turtles are known to occur, and green anoles were observed, but not the expected Cuban brown anole or any skinks. A single live sighting of a gopher tortoise occurred during pedestrian survey activity in the Spring of 2014. This was the first confirmation of the occurrence of gopher tortoises on the site over the 10 or more years of site observations.

Fish species on site were identified on the basis of dip net sampling and direct observation. Florida gar, largemouth bass and warmouth can be readily observed in the canal system. The mosquito fish, least killifish and flag fish are by far the most common species in both wetland and aquatic systems. Other fish identified during wetland sampling were the dollar sunfish, everglades pygmy sunfish and golden

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topminnow. Several species of non-native fish were collected, including the black acara (two-spot cichlid), brown haplo, and walking catfish. A total of 16 fish species were positively identified on the site and it is estimated that at least eight other species may occur.

Listed Species Inventory and Evaluation –

The survey methodologies used for determining the status of state and/or federally listed wildlife and plant species occurrence on the site followed generally accepted protocols as specified in state and Federal guidance documents. The geographic range of the property and its associated habitats, vegetative cover types, and natural or disturbed status were the primary considerations in assessing potential occurrence of listed species. The following efforts were undertaken in advance of and during site reconnaissance and field surveys.

- Collect and review available databases (South Florida Water Management District, National Wetland Inventory, Natural Resource Conservation Service, United States Geologic Survey, Florida Natural Areas Inventory, Palm Beach County Department of Environmental Resources Management, Florida Department of Agriculture and Consumer Services, Florida Fish and Wildlife Conservation Commission, and U.S. Fish and Wildlife Service)
- Review current and historic aerial photography (1940 – present; true color, color infrared and black-and-white)
- Develop GIS database overlays on aerials
- Conduct on-site field surveys by experienced ecologists
- Visit and document on site wetlands and habitat types for biotic inventory, photos, sampling, mapping, etc.
- Qualitatively assess upland and wetland habitat conditions

Pedestrian and vehicular surveys were employed to visit wetlands to assess their relative quality, jurisdictional status, seasonal high water and normal pool elevations, and wildlife utilization. The site investigations were conducted any time between before first light to after last light, under sunny, partly cloudy, and rainy conditions, before and after the passage of cold fronts, and during temperatures ranging from the low 50s to the low 90s Fahrenheit.

In addition, the protected species evaluations and survey methodologies have been, and will continue to be, addressed on a species-specific basis in accordance with FFWCC and USFWS requirements and techniques relative to the species under consideration. State and Federal guidelines for the field investigations for listed species, such as species-specific protocol and a minimum area of suitable habitat survey coverage, will be met where applicable and practical. As the project proceeds toward Environmental Resource Permit (ERP) application, additional field investigation is anticipated and thus the listed species evaluations and findings will continue to be updated beyond this

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submittal in order to take into account the most current seasonal surveys and other permitting requirements.

The state and/or Federally listed wildlife species known or expected to occur on the subject site are summarized in the following table. Likelihood of occurrence has been indicated based on species-specific evaluations and best professional judgment and noted as either observed during site review or likelihood of occurrence as high, medium or low.

Table 1 Known and Potentially Occurring Listed Faunal Species

Common Name	Scientific Name	Preferred Habitat	Sampling Method	Occurrence*	Listed Status**
					State/Federal
American alligator	*Alligator mississippiensis*	Wetland and aquatic habitat	Pedestrian and vehicular transects	O[2]	SSC/T/SA
Audubon's Crested Caracara	*Caracara cheriway*	Open prairies and rangeland	Pedestrian and vehicular transects	O[1]	T/T
Bald Eagle	*Haliaeetus leucocephalus*	Nest in tall trees (usually pine) near coasts, rivers, lakes and wetlands	Pedestrian and vehicular transects	O[1]	No longer listed.
Burrowing Owl	*Athene cunicularia*	Sandhills, ruderal communities, dry prairies	Pedestrian and vehicular transects	L	SSC/-
Eastern indigo snake	*Drymarchon corais couperi*	A diversity of upland/low land habitat	Pedestrian and vehicular transects	M	T/T
Florida black bear	*Ursus americanus floridanus*	Forested wetlands and uplands	Pedestrian and vehicular transects	L	T/-
Florida Grasshopper Sparrow	*Ammodramus savannarum floridanus*	Open prairies and rangeland	Pedestrian transects and playback tapes	L	E/E
Florida panther	*Felis concolor coryi*	Large wilderness areas	Pedestrian and vehicular transects	L	E/E
Florida Sandhill Crane	*Grus canadensis pratensis*	Breed in emergent palustrine wetlands; forage in pasture/prairie	Pedestrian and vehicular transects; aerial nest survey	O[2]	T/-

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Common Name	Scientific Name	Preferred Habitat	Sampling Method	Occurrence*	Listed Status**
Everglades Snail Kite	*Rostrhamus sociabilis plumbeus*	Long hydroperiod wetlands/aquatic systems with Pomacea snails	Pedestrian and vehicular transects	M	E/E
Gopher tortoise	*Gopherus polyphemus*	Sandhills, oak scrub, sand pine scrub, scrubby flatwoods	Burrow survey ≥ 15% of suitable habitat	O	T/-
Limpkin	*Aramus guarauna*	Nest in a variety of ground and tree locations, uses streams, swamps, and marshes with apple snails	Pedestrian and vehicular transects	O[1]	SSC/-
Little Blue Heron	*Egretta caerulea*	Breeding: marshes, swamps, ponds, estuaries, rivers; nest in shrubs and small trees	Pedestrian and vehicular transects	O[1]	SSC/-
Red-cockaded Woodpecker	*Picoides borealis*	Mature pine woodlands	Pedestrian and vehicular transects	L	T/T
Roseate Spoonbill	*Ajaia ajaja*	Breeding: marshes, swamps, ponds, estuaries, rivers; nest in shrubs and small trees	Pedestrian and vehicular transects	M	SSC/-
Snowy egret	*Egretta thula*	Breeding: marshes, swamps, ponds, estuaries, rivers; nest in shrubs and small trees	Pedestrian and vehicular transects	O[1]	SSC/-
Southeastern American Kestrel	*Falco sparverius paulus*	Sandhill and open rangeland nest in cavities of dead trees and abandoned woodpecker nests	Pedestrian and vehicular transects	M	T/-

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Common Name	Scientific Name	Preferred Habitat	Sampling Method	Occurrence*	Listed Status**
Tricolored Heron	*Egretta tricolor*	Breeding: marshes, swamps, ponds, estuaries, rivers; nest in shrubs and trees	Pedestrian and vehicular transects	O[1]	SSC/-
White Ibis	*Eduocimus albus*	Breeding: marshes, swamps, estuaries, rivers; nest in shrubs and small trees	Pedestrian and vehicular transects	O[1]	SSC/-
Whooping Crane	*Grus americana*	Breed in emergent palustrine wetlands; forage in pastures	Pedestrian and vehicular transects	L	"Experimental population"
Wood Stork	*Mycteria americana*	Estuarine or freshwater wetlands; nest in tops of trees in cypress or mangrove swamps	Pedestrian and vehicular transects	O[1]	E/E

[1] Observed transient
[2] Observed nesting and/or resident
*O= Observed; H= High probability; M= Medium; L= Low; **USFWS; 50 CFR 17; FFWCC: Chapter 68A-27.003 and .005 F.A.C.; E = Endangered; T = Threatened; T/SA = Threatened due to similarity of appearance; SSC = Species of Special Concern

Florida sandhill cranes were observed on the site during nearly every reconnaissance visit, usually in pairs often with young. This species is relatively common within the region and is confirmed to nest on the property and in the surrounding vicinity. Aerial and ground surveys identified sandhill crane nests in several marsh wetlands and subsequent ground surveys consistently identified crane nests in several different wetlands. It is estimated that at least six different pairs with one or two young had been observed on the site.

On several occasions adult pairs were observed foraging without young, indicating likelihood of predation or other mortality of the fledglings. It is likely that bobcats, coyotes, and/or alligators were the predators. This species is also known to nest in the Sweetbay Natural Area adjacent to the site on the east. Although some marshes are naturally better suited than others for sandhill crane nesting due to vegetative and hydrologic conditions, nesting sites typically vary between years. Sandhill crane nesting surveys will be conducted during future nesting seasons and during construction phases

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to determine the breeding sites in use at that time and take proper precautions for protection of the nesting habitat.

A mature bald eagle was observed on several occasions perched in a pine snag in the northwest corner of the property. There are no documented bald eagle nests within one mile of the site and no nests were observed during field reconnaissance, however transient foraging obviously occurs. The bald eagle is no longer listed as threatened or endangered, however, individuals and their nests are protected under the Bald and Golden Eagle Protection Act.

The wood stork is an endangered species that was occasionally observed foraging on site but not observed or known to be nesting on the site. The site is, however, within the 18.6-mile core forage area of wood stork rookeries as per USFWS. One to six wood storks were observed on several occasions foraging in several marshes and canals during wetland dry down and low water conditions. The occurrence of wood storks especially as “contact feeders”, as well as other wading birds, was tied to particular water levels that concentrate aquatic prey.

Six species of wading birds considered to be “species of special concern” by the FFWCC were observed on site under similar circumstances to wood storks, but considerably more often than wood storks. The species were the little blue heron (regular observations included several juvenile plumaged individuals), snowy egret, tri-colored heron and glossy and white ibis. The herons and egret were observed on the order of several per day, but the ibis species were sometimes observed foraging in wetlands in flocks of up to 25 individuals. In addition, there was a single observation of a limpkin, also designated as a species of special concern by FFWCC.

Several other listed avian species that were not observed but could potentially occur on the site warrant discussion. The endangered Everglades snail kite is known to forage and nest within the region (confirmed in Grassy Waters Preserve). Wildlife agency personnel report that the species has been observed foraging occasionally in the reservoir impoundment on the Mecca Farms site adjacent to the west. The snail kite relies almost exclusively on apple snails for food. Wetland habitats without apple snails are unlikely to attract this species, unless there are otherwise acceptable roosting or nesting opportunities. The apple snail and its distinctive shell and eggs were regularly searched for in the on site wetlands during all field survey efforts. Over the period of site observations, one apple snail shell was encountered. Observations of apple snail eggs included one clump of pickerelweed found in a ditch, in one wetland area along the south boundary of the site, as well as a group affixed to cattails in the pond along the east boundary.

The snail kite is known to occur further east in association with the Grassy Waters Preserve, and like the wood storks, their location varies based on seasonal conditions, however, there does not appear to be any significant foraging habitat currently on the subject site for the snail kite. Similarly the limpkin, and state listed species of special concern relies almost exclusively on apple snails for food. Despite a field observation of

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a limpkin in Spring 2014, this species is not likely to rely on the Avenir property for regular foraging.

Audubon's crested caracara typically forages in open prairies and rangelands similar to some on site habitat including potential nest trees, typically isolated individuals or small groups of cabbage palms. A site specific survey was conducted in 2013 relation to the Beeline Highway widening project, however, caracaras were not observed and have not been reported in the immediate area of the property. Close inspection of the few potential nest tree locations on the site did not reveal their presence. During wetland delineation activities in the winter of 2015, a single crested caracara was observed roosted on a fence post in the central portion of the property. This was the first observation of this species on the site in more than 10 years of field survey work. The caracara flew off to the west and none were observed subsequently during intensive field efforts. The crested caracara is considered a transient occurrence on the site.

Several other potentially occurring listed avian species were not observed during field studies. Red-cockaded woodpeckers are extremely habitat specific, and occur only in mature pinelands with suitable cavity trees and adjacent pine foraging area. This species does occur to the west in the J.W. Corbett Wildlife Management Area, however there is no potential habitat for this species present on the site. The southeastern American kestrel prefers open prairie and grasslands, similar to the preferred caracara habitat, but this state-threatened falcon subspecies was not observed during the studies. A single kestrel was observed on two occasions in early spring, which coincides with the end of the migration period for the unlisted American kestrel. During all subsequent field studies, no kestrels were observed, nor was their diagnostic call heard. Upon initial observation, site grassland habitats seem potentially suited to the occurrence of burrowing owls, however, the unmanaged height that the West Indian dropseed has reached lowers this potential and there were no observations or evidence of this species during extensive surveys in potential habitat.

The gopher tortoise is a Florida listed threatened species that was only recently observed on site, although there has been no evidence found of past or present burrows. Although there is a relatively high water table throughout the site uplands, this species has the potential to occur in sandy pine flatwoods habitat or establish burrows in spoil berms and levees. The sole live sighting of this species occurred during a pedestrian survey in spring 2014 along an existing embankment where Brazilian pepper had been recently removed. The absence of observed gopher tortoise burrows also would minimize or eliminate the likelihood of occurrence of the gopher frog.

The only other listed animal species observed was the American alligator, which is relatively common throughout the region in wetland and open water systems. During site surveys this species was observed with regularity in the canals.

A listed reptile species that was not observed but has potential to occur on the site is the threatened eastern indigo snake. The eastern indigo snake ranges widely over a diversity of upland and wetland habitats and is known to occur in the region. The extent and

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quality of natural habitats on adjacent lands is such that indigo snakes are likely to occur and may include the Avenir property in their overall home range. They are not likely to reside on site due to the disturbed habitat conditions of the site. Regardless, the eastern indigo snake may occur periodically on the site, thus standardized and specific construction awareness and notification procedures will be implemented for the protection of this species during site development.

With respect to listed mammals, neither the Florida panther nor Florida black bear are likely to occur on site. A black bear was known to occur a number of miles south of the site several years ago which was an unusual occurrence and the individual was trapped and released elsewhere. The proposed plan for the project will provide for habitat connectivity between public lands for these species should any such wildlife movement occur in the future.

The field observations included surveys for plant species listed as threatened or endangered in accordance with Chapter 5B-40.0055 F.A.C. and Section 4 of the Federal Endangered Species Act.

Surveys were conducted during the spring months (March through May) time frame during three separate years. During this time, biologists spent more than 500 hours on site evaluating the natural communities and vegetative associations. Special attention was paid to the species found in the following table. The likelihood of occurrence of each tabulated species was determined and is included in the table.

Two species of plants found on the Palm Beach County list were observed including the cypress-related bromeliads, inflated wild pine (*Tillandsia balbisiana*) and twisted wild pine air plant (*Tillandsia flexuosa*). These epiphytic air plants are generally common locally in appropriate habitats. Given that many plants are cryptic except during brief seasonal periods, typically when flowering, and that the surveys were conducted only during spring months, the applicant will continue to look for species on this list as part of continued site surveys conducted in association with environmental permitting.

Table 2 Known and Potentially Occurring Listed Floral Species

Common Name	Scientific Name	Occurrence Expectation*	Protective Status ** US/FL
Bahama brake fern	*Pteris bahamensis*	VL (pine rockland)	-/T
Beach jacquemontia	*Jacquemontia reclinata*	VL (coastal)	E/E
Beach star	*Remirea maritime*	VL (coastal)	-/E
Inkberry	*Scaevola plumieri*	VL (coastal)	-/T
Blue butterwort	*Pinguicula caerulea*	M (swamp)	-/T
Brown-hair combfern	*Ctenitis submarginalis*	M (swamps, hydric hammock)	-/E

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Common Name	Scientific Name	Occurrence Expectation*	Protective Status ** US/FL
Burrowing four-o'clock	*Okenia hypogaea*	VL (beach dunes)	-/E
Catesby's lily	*Lilium catesbaei*	M – H (flatwoods)	-/T
Celestial lily	*Nemastylis floridana*	M – H (flatwoods)	-/E
Climbing vine fern	*Microgramma heterophylla*	VL (rockland hammock)	-/E
Coastal vervian	*Verbena maritima*	VL (coastal)	-/E
Curtis' milkweed	*Ascelpias curtissii*	L (scrub)	-/E
Cutthroat grass	*Panicum abscissum*	M (swamp)	-/E
Dancing lady orchid	*Oncidium bahamense*	VL (scrub)	-/E
Delicate ionopsis	*Ionopsis utriculariodies*	VL (deep strand swamps)	-/E
Erect prickly-pear cactus	*Opuntia stricta*	VL (coastal scrub)	-/T
Florida jointtail	*Coelorachis tuberculosa*	M (marshes)	-/T
Florida Keys indigo	*Indigofera mucronata var keyensis*	VL (pine rockland)	-/E
Pineland lantana	*Lantana depressa*	VL (coastal)	-/E
Florida prarieclover	*Dalea carthagenesis var. floridana*	VL (Pine rockland)	-/E
Four-petal pawpaw	*Asimina tetramera*	L (scrub)	E/E
Giant swordfern	*Nephrolepis biserrata*	M (swamps)	-/T
Golden leather fern	*Acrostichum aureum*	VL (coastal)	-/T
Hand fern	*Ophioglossum palmatum*	L – M (cabbage palm)	-/E
Cuplet fern	*Dennstaedtia bipinnata*	L (hydric hammock)	-/E
Inflated wild-pine	*Tillandsia balbisiana*	O (cypress)	-/T
Large-flowered rosemary	*Conradina grandiflora*	VL (scrub)	-/T
Night-scented epidendrum	*Epidendrum nocturnum*	VL (deep strand swamps)	-/E
Nodding pinweed	*Lechea cernua*	VL (scrub)	-/T
Okeechobee gourd	*Cucurbita okeechobeensis*	M (swamps, floodplains)	E/E
Perforate lichen	*Cladonia perforata*	VL (scrub)	E/E
Ray fern	*Schizaea germanii*	L (hammock flatwoods)	-/E
Everglades poinsettia	*Poinsettia pinetorum*	VL (pine rockland)	-/E
Sand-dune spurge	*Chamaesyce cumulicola*	VL (coastal)	-/E
Satinleaf	*Chrysophyllum oliviforme*	L (rockland hammock)	-/T

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Common Name	Scientific Name	Occurrence Expectation*	Protective Status ** US/FL
Silver thatch palm	*Coccothrinax argentata*	VL (rockland hammock)	-/T
Simpson's rain lily	*Zephyranthes simpsonii*	M (savanna, flatwoods)	-/T
Southern ladies'-tresses	*Spiranthes torta*	M (pine rockland)	-/E
Spreading pinweed	*Lechea divaricata*	L – M (flatwoods)	-/E
Star-scale fern	*Pleopeltis astrolepis*	VL (hydric hammock slough)	-/E
Tina polygala	*Polygala smallii*	L (pine rockland)	E/E
Dentate lattice-vein fern	*Thelypteris serrata*	L – M (cypress swamp)	-/E
Slender spleenwort	*Asplenium dentatum*	L – M (rockland hammock)	-/E
Twisted airplant	*Tillandsia flexuosa*	O (cypress)	-/T
Yellow nicker	*Caesalpinia major*	VL (coastal)	-/E

*H=High; M=Medium; L=Low; VL= Very Low; O=Observed; **US=US Fish and Wildlife Service; FL= Florida Department Agriculture and Consumer Services; E=Endangered; T=Threatened.

The proposed Habitat Restoration and Management Area envisioned for the Avenir project will provide ample opportunity for the continued existence of the two species of *Tillandsia* confirmed to exist on the site. In the event that individual plants and/or host trees occur in areas proposed for development, the individual plants, and if appropriate the host trees will be relocated to an appropriate location within the Habitat Restoration and Management Area.

The long term agricultural modifications and uses of the property have significantly reduced the habitat value and opportunities on the site for pertinent listed plants and animals. Of the listed species confirmed to be present on the site, the alligator is listed only due to its similarity of appearance to the American crocodile, and the remaining species were wading birds. Of these wading birds, the sandhill crane was the most abundant and confirmed to nest on site. The Avenir Habitat Restoration and Management Area will preserve significant wetland areas documented to host nesting sandhill cranes, along with numerous other wetlands of the type and structure that is preferred by sandhill cranes for nesting. For the remaining listed wading birds from the heron guild as well as the wood stork, the proposed Habitat Restoration and Management Area will enhance feeding and forage opportunities for these species.

Considering the listed species confirmed to be present on the site, the development of the site as proposed is not expected to have detrimental effects on listed species. Currently, documented habitat used by these species including nesting sandhill cranes, will be preserved and enhanced in the Habitat Restoration and Management Area. In

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addition, the restoration and enhancement of wetland habitats along with restoration of integrated native upland habitats will increase the feeding, forage, nesting, roosting, and carrying capacity of the property for these species. Eradication of invasive non-native grasses (West Indian dropseed) in the uplands will create the opportunity for re-establishment of native grassland cover that will increase feeding and forage opportunities for upland related listed species.

Of broader scale importance is the provision of habitat connection corridors in planning the Habitat Restoration and Management Area. The design of the Conservation Area system is such that multiple wildlife corridor connections will be maintained and enhanced through the restoration and enhancement program. In the northern portion of the property, conservation and enhancement of cut over pine flatwoods habitat will provide for a natural area connection from the JW Corbett Wildlife Management Area, Unit 11 Regional Off Site Mitigation Area and Hungryland Slough to the west across to the Sweetbay Natural Area to the east. Through the central portion of the Avenir property, restoration of altered agricultural areas will create a conservation corridor that will connect Hungryland Slough and the Mecca Farms property in the west to the Sweetbay Natural Area and Grassy Waters to the east. The conservation corridor ranges in width from a minimum of approximately 1,000 feet to more than two miles in a north-south orientation and 1.5 to over two miles in width in an east-west orientation.

This conservation corridor will reduce potential effects of home range fragmentation and provide continued opportunities for genetic exchange between adjacent natural areas.

Wetlands Evaluation –

Agency jurisdictional verification (SFWMD and USACE) indicates that there are 1,993 +/- acres of wetlands identified within the 4,763 +/- acre Avenir property. This figure is based on a delineation of wetlands conducted with representatives of state and federal agencies during the late winter and spring of 2015. Final verification of the wetland limits by SFWMD and the U.S. Army Corps of Engineers has been completed. These wetlands represent approximately 42 percent of the site. In addition to the naturally occurring wetlands on the site, there are man-made excavations, primarily ditches along with an excavated lake that would be considered “Other Waters” for regulatory purposes. These areas have been mapped separately and their limits verified and quantified concurrently with the wetland delineation.

The identified wetland polygons are shown on the Wetland Map provided in the Appendix. Each of the wetland polygons is identified by an individual reference number. The wetland limits as shown were mapped in the field using aerial photography and hand held GPS, and have been field-verified by the South Florida Water Management District (SFWMD) and U.S. Army Corps of Engineers (USACE).

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Written verification from these agencies has been received and has been provided under separate cover.

The historic hydroperiod for the wetlands on this site was generally deeper and longer than that which occurs under current circumstances. Review of historic aerial photography indicates that the subject site and surrounding area were a mosaic of pine flatwoods interspersed with depressional and slough-type wetlands, which was typical for the region. The deeper sloughs under historic conditions were likely inundated for as much as 365 days in most years, while inundation of the depressional wetlands would have varied from six to twelve months per year at depths from a few inches to as much as two or three feet. The pine flatwoods would have been inundated in response to storm and wet season events and remained saturated for periods that may have covered a few weeks at a time on an annual basis. In some areas of the site this is still the case based on the observed ground cover vegetation.

The evolution of the current site conditions began in the early 1950s with construction of agricultural improvements for row crops and pasture on the site. In the early 1960s, the C-18 Canal was constructed to provide drainage and flood control for the northern Palm Beach County area including the subject property. With this drainage facility available, additional agricultural improvements for row crops and pasture were undertaken on the site in the late 1960s and early 1970s. By the mid 1990s, more than 3,500 acres or approximately 75 percent of the Avenir property was under intensive agricultural management, primarily as improved pasture. Based on observations in on-site canal systems, the water levels on the site are presently being maintained between three and six feet below the ground surface in the surrounding uplands. As a result the hydroperiod of the vast majority of the wetlands on the site has been significantly reduced in both depth and duration from the historic conditions. This reduction is most dramatic in the wetlands closest to the C-18 Canal and the on-site drainage network.

Wetland preservation is proposed throughout a 2,407 +/- acre Conservation Area along with habitat restoration and management. The Conservation Area encompasses approximately 1,068 acres of existing wetlands on the site, and includes many of the highest quality wetlands as they were avoided in the initial development envelope planning. These existing wetlands are integrated with proposed expanded wetland systems that will occur with hydrologic restoration as well as upland restoration areas that will provide wildlife habitat connection corridors across more than 50% of the project area. Please refer to the Ecological Restoration Framework map provided in the Appendix. The contiguous Conservation Area corridor location and orientation were chosen primarily because of the opportunity to provide functional habitat connections between the significant publicly owned and managed natural areas of Mecca Farms, Unit 11, and Hungryland Slough to the west and the Sweet Bay Preserve and Grassy Waters to the east. The wide conservation corridor (minimum 1,000 feet typically exceeding one mile) will facilitate re-establishing sheet flow patterns accommodating seasonal rainfall driven increases in surface and ground water levels. In addition, the strategic location of the Habitat Restoration and Management Area will enable flows from the proposed Mecca Farms water storage area to be moved

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by sheet flow eastward toward the Grassy Waters preserve should such flows be made available to benefit regional water management goals.

The land within the Habitat Restoration and Management Area is comprised of former pine flatwoods/depressional wetland mosaic. The total wetlands preserved within the Habitat Restoration and Management Area will comprise approximately 1,076 +/- acres as depicted on the Ecological Restoration Framework figure in the Appendix.

The design seasonal water elevations and methods for preservation will be developed in detail through the Environmental Resource Permitting process. The wetland delineation and verification effort has included establishment of existing seasonal high and normal pool water elevations in representative wetland groups throughout the property based on vegetative and other field indicators.

This site specific wetland elevation information will be taken into account in the design of the surface water management plan for the property as a whole in order to provide appropriate water depth and duration for restoration of the preserved and restored wetland habitats. An Avenir Habitat Restoration and Management Plan has been developed to address the needs of preserved and restored wetland systems, as well as restoration of native upland habitats to complement the wetland habitat functions and values.

The Avenir Habitat Restoration and Management Area will provide for the restoration, enhancement and preservation of 1,076 +/- acres of the existing wetlands on the subject site. Although the surface water management plan is in its early stages of design, it is anticipated that fully treated runoff from the proposed development areas will be routed, where possible and as permittable, to preserved wetland basins to help re-establish the natural hydroperiod of the wetlands. Consideration of water control elevations and design will be integrated with the wetland preservation and restoration so that excavated stormwater ponds are appropriately separated from wetlands to prevent drawdown effects. The resulting increase in the depth and duration of inundation and saturation, as appropriate, will re-create the diversity of natural zonation that occurs with different stage level regimes in wetlands of these types. The general increase in depth of inundation will result in the expansion of the wetlands to more closely reflect their historic limits within the preservation areas and increase the diversity of vegetative and hydrologic regimes available to wildlife utilizing the wetlands and associated upland systems. The details of the anticipated wetland restoration and increase in spatial extent are provided in the Habitat Restoration and Management Plan provided under separate cover.

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Wetland Management and Mitigation Approach –

The planning process for Avenir has involved multiple iterations and has had from the very start, an emphasis on identifying a proposed development envelope that minimizes impacts to the highest quality wetlands on the site. This approach has entailed developing an understanding of the locational context of the property primarily in relation to surrounding natural resource areas along with field data collection and evaluation to develop a summary map depicting the important natural features primarily in terms of relative quality of wetlands identified on the property. The wetlands were described and mapped as high, medium, or low quality based on observed hydrologic and vegetation conditions and effects. From this information a map of recommended conservation areas was developed to prioritize protection of the highest value areas. Opportunities for habitat restoration and rehabilitation were also integrated into the planning approach.

For the initial design, this map was provided to land planners who had the basic parameters for the proposed land use approach, and development envelopes of sufficient size to accommodate the various project elements were identified. Through several iterations including input from other professional disciplines such as civil engineers and transportation planners, as well as significant public input through multiple workshop sessions, a refined site plan development envelope was identified. In response to comments from the City of Palm Beach Gardens as well as Federal and state agencies, the development envelope and approach has been further refined in order to avoid significant areas (280 +/- acres) of high quality wetland systems identified in the southwest portion of the property.

One of the most significant actions taken to avoid and minimize impacts to wetlands is development of the overall project in a compact urban form allowing for restoration and protection of important ecological systems in the Habitat Restoration and Management Area. The hydroperiod of all wetlands will be enhanced and the wetland restoration and preservation components will include restoration of native upland habitats and landscape transition areas to provide meaningful buffers for preserved wetlands.

Approximately 917 acres of existing wetlands will be impacted by the proposed Avenir development. In order to accommodate the proposed compact urban form of development, all wetlands disturbed or altered by the development will be cleared and filled for construction of infrastructure and associated uses. The majority of the impacts will be to the lowest quality wetlands many of which have been previously drained and altered for agricultural purposes and are dominated by exotic non-native vegetation.

Because of the compact urban development form proposed for this project, potential secondary construction impacts to wetlands, buffers, and associated preserves can be more readily avoided. Rather than a plan that isolates small, disconnected preserves of wetland and/or upland habitats, the Habitat Restoration and Management Area provides for a large contiguous Conservation Area that can be successfully segregated from construction activities by physical barricading in order to prevent potential construction

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associated impacts as well as long term degradation from surrounding development. Particular attention will be necessary in the southwest portion of the site to ensure protection of preserved wetland areas from effects of adjacent construction.

The proposed approach will be to field locate the limits of the flowway and ecological enhancement areas and separate them from the proposed construction activities through installation of erosion control fencing, physical barricades, and signage in order to prevent incursion by equipment and/or construction activities, except where necessary for habitat enhancement activities. Erosion control best management practices will be implemented in the construction areas to prevent impacts from ongoing construction activities. The same precautions will be taken for relevant roadway construction. All construction activities will be in accordance with state and federal permit conditions.

The planning with regard to wetland enhancement and restoration will be governed by the Avenir Habitat Restoration and Management Plan which has been provided under separate cover. Wetland enhancement will be achieved through re-establishment of the maximum appropriate hydroperiod (consistent with wetland types and surrounding landscape characteristics) for the wetlands within the Conservation Area. Wetland restoration (re-establishment of wetlands in areas where drainage has reduced their natural areal extent) will be achieved through re-establishing more natural hydroperiod throughout the Habitat Restoration and Management Area so that wetland areas lost to historic agricultural drainage will be restored in their naturally occurring locations. Although lake littoral slopes may be vegetated for aesthetic, wildlife and water quality purposes, this is not considered part of the program for compensation of wetland impacts.

A governing criterion in the process of identifying the development envelope area was the requirement to achieve all required wetland compensation on the project site. This can be achieved through the implementation of the habitat restoration and management program within the Habitat Restoration and Management Area.

Detailed wetland and upland enhancement, restoration and creation plans for on-site purposes have not yet been specified pending permitting negotiations with the state and federal regulatory agencies. Many ecotypes within the Habitat Restoration and Management Area will develop enhanced ecological value over time through natural succession, native vegetative recruitment, and re-growth in association with correction of existing drainage patterns and designated management practices. The Avenir Habitat Restoration and Management Plan will provide the framework for the anticipated outcomes of the restoration program as well as incorporating adaptive management tools to address unanticipated changes or variation in the natural succession process.

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Soils –

A Custom Soil Resource Report for the subject property is provided in the Appendix. This report, prepared by the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) provides complete descriptions of all soil types within the Avenir property along with acreage summaries, soil limitation information and recommended soil treatments for various proposed land uses.

Historic and Archaeological Resources Summary –

A review of archival data including a search of the Florida Master Site File in Tallahassee indicated that no recorded historic or archaeological sites occur on the project parcel. However, given the potential for occurrence of archaeological sites on the subject property, a Phase 1 archaeological assessment of the subject property was appropriate.

A Phase 1 Historic and Archaeological Assessment was conducted by Archaeological and Historical Conservancy, Inc. in June and July 2005. At the time, the property was divided into two areas referred to as "Vavrus North" and "Vavrus South". Copies of the two separate reports along with the State of Florida concurrence letters are provided in the Appendix.

As a result of the survey, one prehistoric archaeological site was identified and has been assigned Site Number 8PB11489. Existing data suggests that the site is potentially eligible for listing on the National Register of Historic Places. In addition, a second location was determined to be a "potential" archaeological site, despite the fact that no artifacts were discovered in samples from that location. The location of the confirmed archaeological site as well as the potential site was considered in the design of the Avenir Habitat Restoration and Management Area. As such, these resources fall within the boundaries of the Conservation Area and will not be affected or disturbed by any proposed development activity.

Summary of Impacts, Restoration, and Preservation -

As described in the preceding environmental assessment, there are very few areas of upland that remain in a native or natural state, primarily as a result of long term agricultural operations and uncontrolled invasion by non-native species, predominantly Brazilian pepper and West Indian dropseed. The wetlands on the site provide a continuum of habitat quality ranging from very low quality monocultures of melaleuca up to areas that show very little effect of altered hydroperiod or invasion by non-native vegetation.

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Development Area Impacts -

The proposed development footprint includes impacts to habitats similar in nature to those described above. The prevailing approach in designating the proposed development area has been provision of a compact development form while allowing a large (>50% of the property) conservation and restoration area that is positioned between significant off site conservation lands already in public ownership and management. The majority of the development footprint is located in areas that have been severely altered and disturbed by decades of agricultural use, and similarly, the Conservation Area includes lands that have also been altered by agricultural use along with nearly intact native habitat systems. A Post Development FLUCFCS Map is provided in the Appendix.

The following table provides a summary of the proposed impacts from the development program based on the existing land cover and habitat types within the development footprint.

Current Land Cover Type	FLUCFCS Code	Development Impact Area	Percent of Development Area
Improved Pasture	211	544 acres	23%
Unimproved Pasture	212	77 acres	3%
Row Crops	214	249 acres	11%
Shrubs and Brush	329	72 acres	3%
Pine Flatwoods	411	378 acres	16%
Brazilian Pepper	422	17 acres	1%
Agricultural Ditches	510	86 acres	4%
Lakes < 10 Acres	524	7 acres	<1%
Melaleuca Wetlands	619	51 acres	2%
Shrub Wetlands	631	48 acres	2%
Marsh Wetlands	641	201 acres	9%
Wet Prairie	643	616 acres	26%
Disturbed Areas	740	4 acres	<1%

When compared to the previous version of the site plan, the current proposed plan achieves a net reduction of 219 acres in wetland impacts. Additionally, the impact to native upland habitat (pine flatwoods) has been reduced by 44 acres. These revisions have been made in order to address the City comments regarding reducing impacts to high quality wetlands and native upland habitats. The majority (260 of 263 acres) of this reduction in wetland and native upland habitat was achieved by shifting proposed development to disturbed agricultural areas.

The remaining 2,407 acres of the Avenir property will be a Conservation Area.

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Conservation Area -

The Conservation Area will we comprised of 2,407 acres or 51% of the Avenir property. It will be comprised of native habitat preservation, habitat restoration, and long term management which is detailed in the Habitat Restoration and Management Plan provided under separate cover.

Considering the current site conditions, the Habitat Restoration and Management Area program includes a significant habitat restoration component in order to regenerate upland habitats typical of the surrounding area as well as expansion, enhancement, and restoration of wetland systems as necessary in a contiguous corridor fashion linked with off site conservation lands. The following descriptions provide a framework summary of the proposed habitat restoration and preservation program within the 2,407 +/- acre Habitat Restoration and Management Area. The Avenir Habitat Restoration and Management Plan has been prepared to address the details of preserved and restored wetland systems, as well as restoration of native upland habitats to complement the wetland habitat functions and values.

211 Improved Pasture –

Restoration Goal - Pine Flatwoods, Dry Prairie, and Expanded Wetlands –

The Habitat Restoration and Management Area includes significant areas that are currently improved pasture dominated by West Indian dropseed as well as other pasture grasses and varying occurrences of Brazilian pepper and wax myrtle. The low vegetative diversity in these areas results in greatly reduced wildlife habitat opportunities. These areas will be restored to a mosaic of pine flatwoods, dry prairie, and expanded wetlands. The primary driver in the restoration will be hydrologic enhancement through increased water control levels achieved by reversing the effects of the existing agricultural drainage system. Active habitat restoration techniques will include herbicide treatment of invasive exotic vegetation, prescribed fire, replanting with native vegetation and long term management to create a more diverse upland and wetland ecosystem comprised of native canopy, understory, and ground cover vegetation.

212 Unimproved Pasture –

Restoration Goal - Pine Flatwoods and Expanded Wetlands -

The Habitat Restoration and Management Area also includes areas of unimproved pasture area. These areas are dominated by West Indian dropseed as well as other pasture grasses but differ from the improved pasture in that they have a considerably higher shrub level component of Brazilian pepper and wax myrtle. In addition, these

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areas include some of the shrub components of the desired pine flatwoods system such as saw palmetto, gallberry, and occasional dahoon holly. These areas will be restored to a mosaic of pine flatwoods, dry prairie, and expanded wetlands. The primary driver in the restoration will be hydrologic enhancement through increased water control levels achieved by reversing the effects of the existing agricultural drainage system. Active habitat restoration techniques will include herbicide treatment of invasive exotic vegetation, prescribed fire, replanting with native vegetation and long term management to create a more diverse upland and wetland ecosystem comprised of native canopy, understory, and ground cover vegetation. The restoration function of these areas is of particular importance because they occur primarily in the uplands surrounding many of the more diverse and higher quality wetland systems within the Habitat Restoration and Management Area.

214 Row Crops –

Restoration Goal - Pine Flatwoods -

There are areas within the Habitat Restoration and Management Area that are former row crop farm fields. These areas are so completely dominated by non-native vegetation as well as the furrow and ditch agricultural system that the restoration approach will entail mechanized land clearing followed by grading and replanting with native pine flatwoods species and management to prevent re-growth of non-native vegetation. These areas will be further restored to pine flatwoods habitat through replanting with native vegetation and long term management to create a more diverse upland ecosystem comprised of native canopy, understory, and ground cover vegetation.

329 Shrubs and Brush –

Restoration Goal - Pine Flatwoods -

The Habitat Restoration and Management Area includes additional shrub and brush areas. These areas are generally advanced stages of the unimproved pasture except that shrub cover exceeds the open grassy areas to the degree that it is dominant. As with the pasture designations, the primary shrub species are Brazilian pepper and wax myrtle, both of which will require control through herbicide treatment, prescribed fire, and roller chopping. These areas will be further restored to pine flatwoods habitat through replanting with native vegetation and long term management to create a more diverse upland ecosystem comprised of native canopy, understory, and ground cover vegetation.

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411 Pine Flatwoods –

Enhancement Goal - Mature Pine Flatwoods -

The Habitat Restoration and Management Area includes the areas of existing pine flatwoods habitat designated for upland preservation. Silvicultural activities in these areas have resulted in the removal of a significant portion of the mature slash pine canopy. As a result, there are some areas where germination and seedling growth of exotic species such as melaleuca is ongoing and will require active management for control. There are generally two sub groups of pine flatwoods habitat present on the site with the northern area best described as mesic pine flatwoods with some pine seedling recruitment and the southern portion more hydric in nature. Active habitat restoration techniques will include herbicide treatment of invasive exotic vegetation, prescribed fire, replanting with native vegetation and long term management to create a more diverse mix of mature pine flatwoods habitat. Differing management regimes will be necessary in the varying habitat sub-types in response to hydrologic conditions on the site.

422 Brazilian Pepper –

Restoration Goal - Pine Flatwoods -

There are several areas within the Habitat Restoration and Management Area that are dominated by the invasive exotic Brazilian pepper. These areas are so completely dominated by Brazilian pepper that the restoration approach will entail mechanized land clearing followed by replanting with native pine flatwoods species and management to prevent re-growth of non-native vegetation. These areas will be further restored to pine flatwoods habitat through replanting with native vegetation and long term management to create a more diverse upland ecosystem comprised of native canopy, understory, and ground cover vegetation.

510 Streams & Waterways (Canal/Levee) –

Restoration Goal - Surrounding Habitat -

The Habitat Restoration and Management Area includes existing agricultural ditches and associated levee roads. These remnant features will be restored through de-grading the fill roads and leveling off the excavated ditches to restore sheet flow and reverse the effects of the existing agricultural drainage system. Restoration will be conducted in a fashion that matches the adjacent habitat type as these linear man-made features currently traverse various wetland and upland areas. In some cases consideration may be given to maintaining some portions of ditches as deep water refugia if they can function in concert with surrounding habitats. Also, in those cases where conveyance

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function must be maintained, an enhanced waterway cross section will be developed to provide for littoral areas and central conveyance. Also, existing trail areas that can be integrated with the system of public access to the Habitat Restoration and Management Area will be maintained so that additional natural areas are not disturbed for the trail system.

619 Exotic Wetland Hardwoods (Melaleuca) –

Restoration Goal - Freshwater Marsh -

The Habitat Restoration and Management Area includes monotypic stands of the invasive exotic melaleuca. Field evaluations have indicated that these areas have a relatively deep and long hydroperiod and thus the restoration goal will be toward freshwater marsh. The density of melaleuca is such that mechanical removal will be employed in order to open the area up sufficiently to allow for recruitment and replanting with native wetland species followed by ongoing management to prevent re-growth of non-native vegetation. These areas will be further restored to freshwater marsh habitat through replanting with native vegetation and long term management to create a diverse wetland ecosystem.

621 Cypress Swamp –

Enhancement Goal – Cypress Swamp –

The Habitat Restoration and Management Area includes a small area of existing cypress swamp wetlands. In general, this area is in moderate ecological condition, with several areas that have been invaded by melaleuca and other non-native species. These areas will be enhanced through herbicide treatment of non-native species along with long term management. The hydrologic enhancement element of the habitat restoration program will likely result in increased hydroperiod for these wetlands, allowing for expansion of the areal extent of cypress swamp in the Habitat Restoration and Management Area.

631 Wetland Shrub –

Enhancement Goal – Wetland Shrub/Wet Prairie -

There are several areas of wetland shrub area within the Habitat Restoration and Management Area. These habitat areas are generally the result of successional vegetation changes from wet prairie or freshwater marsh systems toward a predominantly shrub component, often as the result of hydroperiod alteration. Many of the wetlands on the site include small areas of this cover type within them but not to the degree that separate mapping was conducted. These wetland types provide an

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important diversity component and so these areas will be enhanced through herbicide control of non-native species that occur in them. It is anticipated that hydrologic enhancement through increased water control levels achieved by reversing the effects of the existing agricultural drainage system will result in this cover type being reduced to inclusions within larger wet prairie and freshwater marsh wetland systems rather than predominant cover types.

641 Freshwater Marsh –

Enhancement Goal – Expanded Freshwater Marsh -

The Habitat Restoration and Management Area includes significant areas of existing freshwater marsh wetlands. In general, the freshwater marsh areas on the site are in good to excellent ecological condition. However, there are several areas that have been invaded by melaleuca and other non-native species. These areas will be enhanced through herbicide treatment of non-native species along with long term management. The hydrologic enhancement element of the habitat restoration program will likely result in some increase in hydroperiod for these wetlands, allowing for expansion of the areal extent of freshwater marsh wetlands throughout the Habitat Restoration and Management Area.

643 Wet Prairies –

Restoration Goal – Expanded Wet Prairie -

There are also significant areas of existing wet prairie wetland areas within the Habitat Restoration and Management Area. These wet prairie habitats range from relatively poor ecological health to high quality wetlands. There are numerous wetlands that have been mapped as wet prairies but show the effects of hydroperiod reduction by agricultural drainage from what may have previously been freshwater marsh wetlands. Field observations on site indicate that normal pool elevations have been reduced on the order of one to several feet in many of these wetlands resulting in a predominance of the transitional vegetative association components. The hydrologic enhancement through increased water control levels achieved by reversing the effects of the existing agricultural drainage system will likely result in several of the wet prairie areas transitioning to freshwater marsh components while the areal extent of wet prairie increases by expansion into areas of surrounding pasture. The result is anticipated to re-establish the concentric zonation typical of these systems whereby the outer portions of the wetlands are predominantly a wet prairie assemblage and the central zones are comprised of freshwater marsh.

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Habitat Restoration and Management Area Context -

The proposed Habitat Restoration and Management Area entails over 2,407 acres (51%) of the 4,763 acre site. It is helpful to understand the magnitude of this habitat restoration and preservation program by putting it into context with other better known or similar projects. For instance, the Palm Beach County Unit 11 Regional Off-Site Mitigation Area directly adjacent to the west is an area of approximately 1,700 acres and thus smaller than the proposed habitat restoration area proposed for Avenir. A Corps of Engineers Regional General Permit for The Acreage allows for impacts on up to 1,627 acres of wetlands in The Acreage to be offset by the acquisition, restoration, and management program in Unit 11 while the Avenir plan proposes impacts to approximately 917 acres of wetlands, or 710 less acres than what is mitigated by the 1,700 acre Unit 11 project.

Another example is the Loxahatchee Mitigation Bank which totals 1,250 +/- acres and is permitted to provide 641 wetland mitigation credits. This amount of mitigation credit could offset the entire wetland impact proposed by Avenir on nearly 1,000 acres less land than the proposed Habitat Restoration and Management Area. A third example is the Sandhill Crane restoration project just north of the Avenir property. It is comprised of 1,425 acres of wetland and upland habitat restoration of a very similar nature to that proposed for the Habitat Restoration and Management Area. Coincidentally, historic aerial photography indicates that the area of the Sandhill Crane restoration project was cleared ditched and drained for agriculture at the same time (early 1950s) as much of the Avenir property. At about two thirds the size of the Habitat Restoration and Management Area, the Sandhill Crane project is considered a critical element in the efforts to restore the Loxahatchee Slough. Clearly the size, location, and habitat restoration proposed for the Avenir Habitat Restoration and Management Area will provide an important additional contribution towards achieving this critical function.

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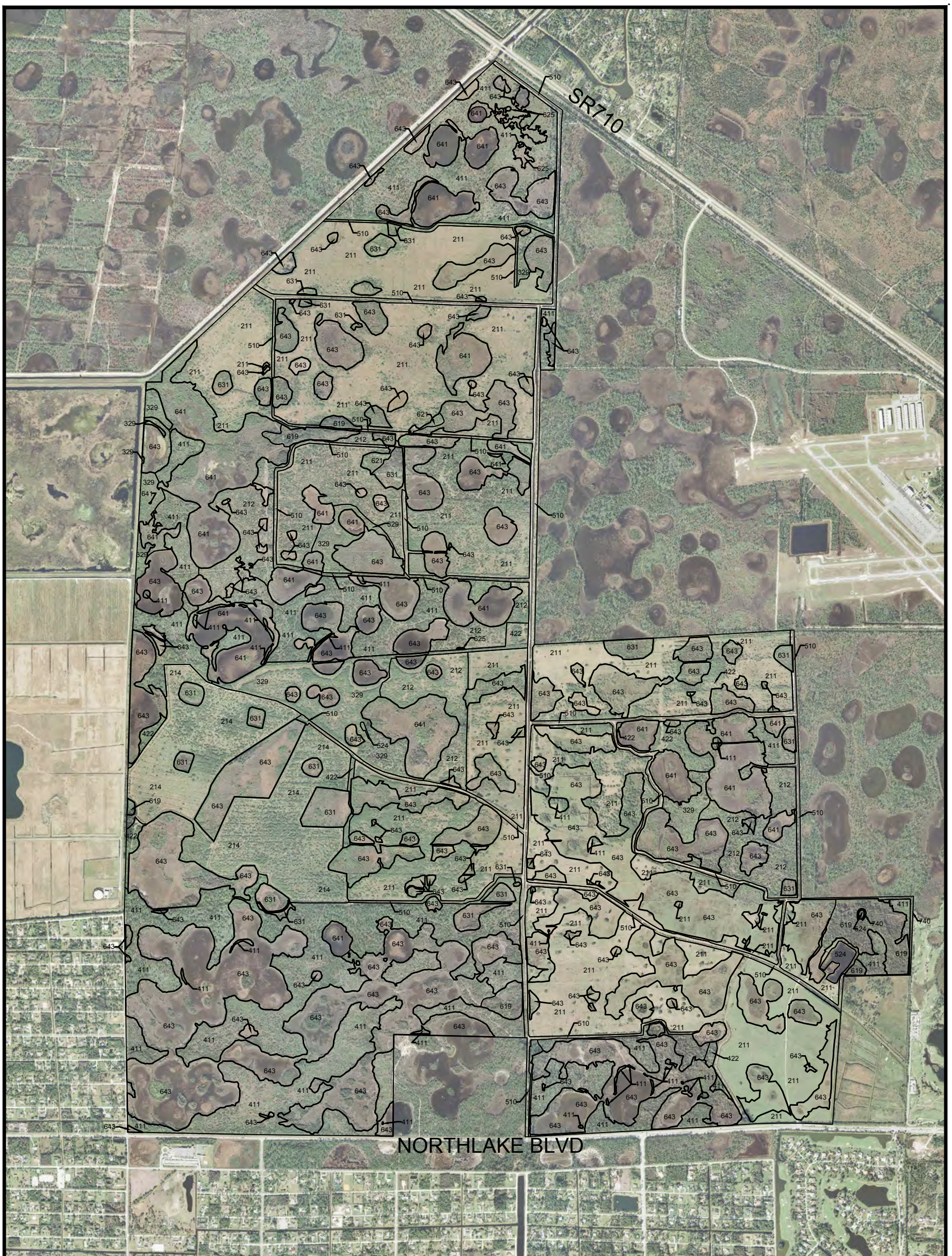
APPENDIX



PALM BEACH COUNTY AERIALS DATED 2013

LEGEND

211 - IMPROVED PASTURE (1,279 AC)
212 - UNIMPROVED PASTURE (176± AC)
214 - ROW CROPS (252± AC)
329 - OTHER SHRUBS AND BRUSH (133± AC)
411 - PINE FLATWOODS (728± AC)
422 - BRAZILIAN PEPPER (33± AC)
510 - STREAMS AND WATERWAYS (158± AC)
524 - LAKES <10 AC. (8± AC)
619 - EXOTIC WETLAND HARDWOODS (65± AC)
621 - CYPRESS (6± AC)
625 - HYDRIC PINE FLATWOODS (8± AC)
631 - WETLAND SHRUB (80± AC)
641 - FRESHWATER MARSHES (538± AC)
643 - WET PRAIRIES (1295± AC)
740 - DISTURBED LANDS (4± AC)
SITE TOTAL (4,763± AC)

0 2000
SCALE IN FEET

AVENIR

FLUCFCS MAP

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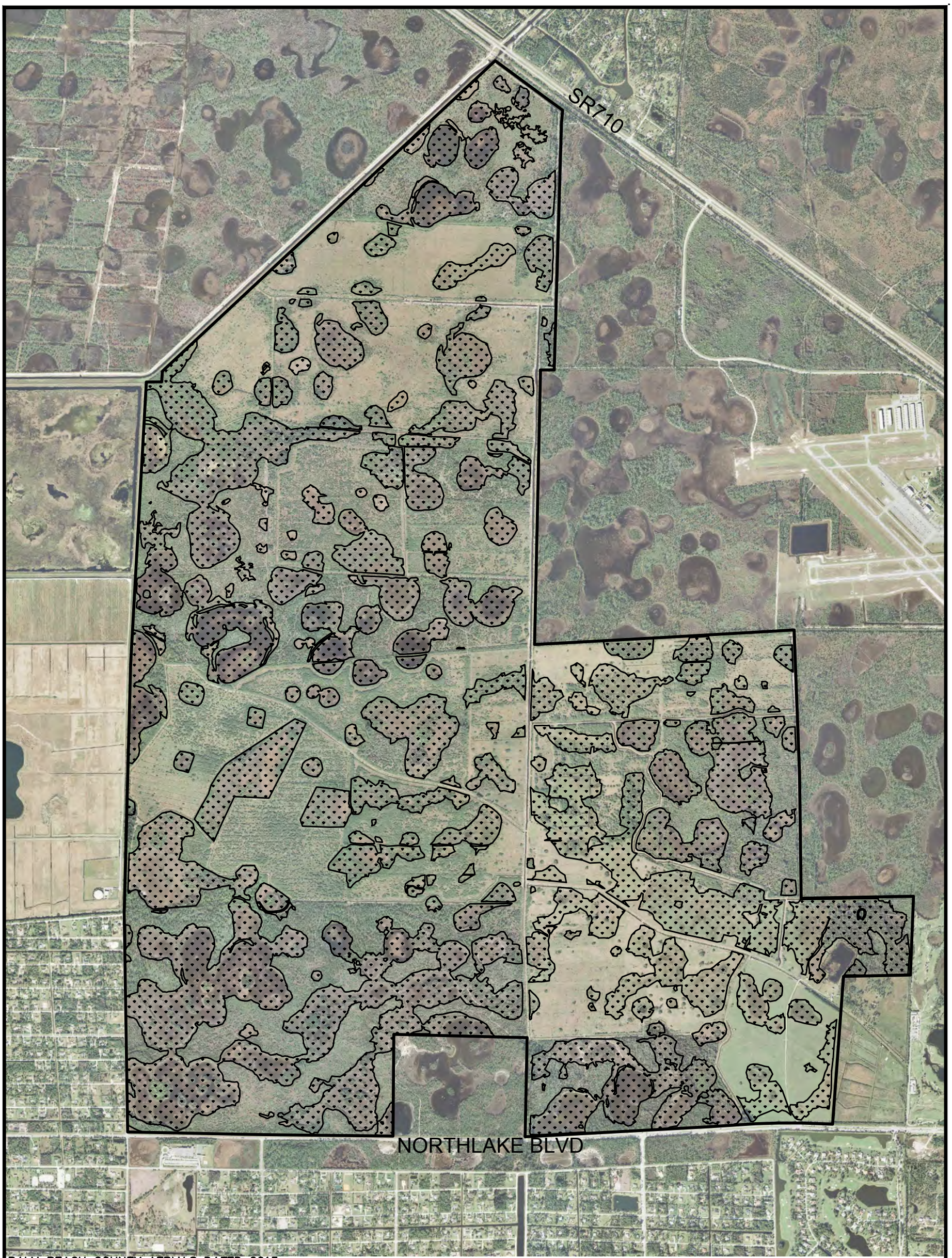
JULY 2015

FIGURE 3

Avenir PBG Response JULY 2015.dwg FLUCFCS



PALM BEACH COUNTY AERIALS DATED 2013

LEGEND

- WETLANDS (1,993± AC)

0 2000
SCALE IN FEET

AVENIR
WETLANDS

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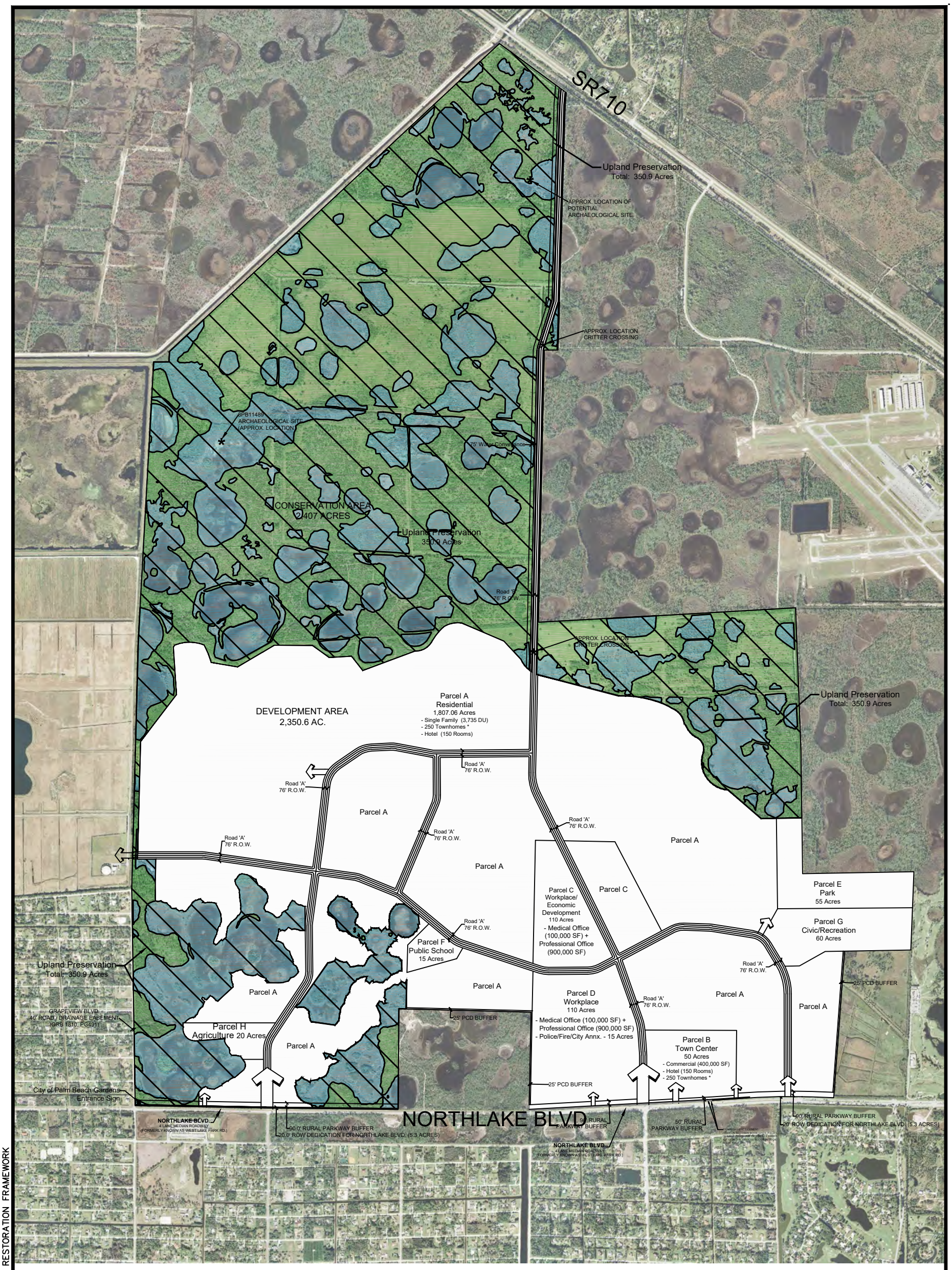
JULY 2015

FIGURE 4

Avenir PBG Response JULY 2015.dwg WETLAND



PALM BEACH COUNTY AERIALS DATED 2013

LEGEND

- CONSERVATION AREA (2,407± AC)
- ARCHAEOLOGICAL SITE
- AVENIR (2,350± AC)

0 2000
SCALE IN FEET

AVENIR

ECOLOGICAL RESTORATION FRAMEWORK

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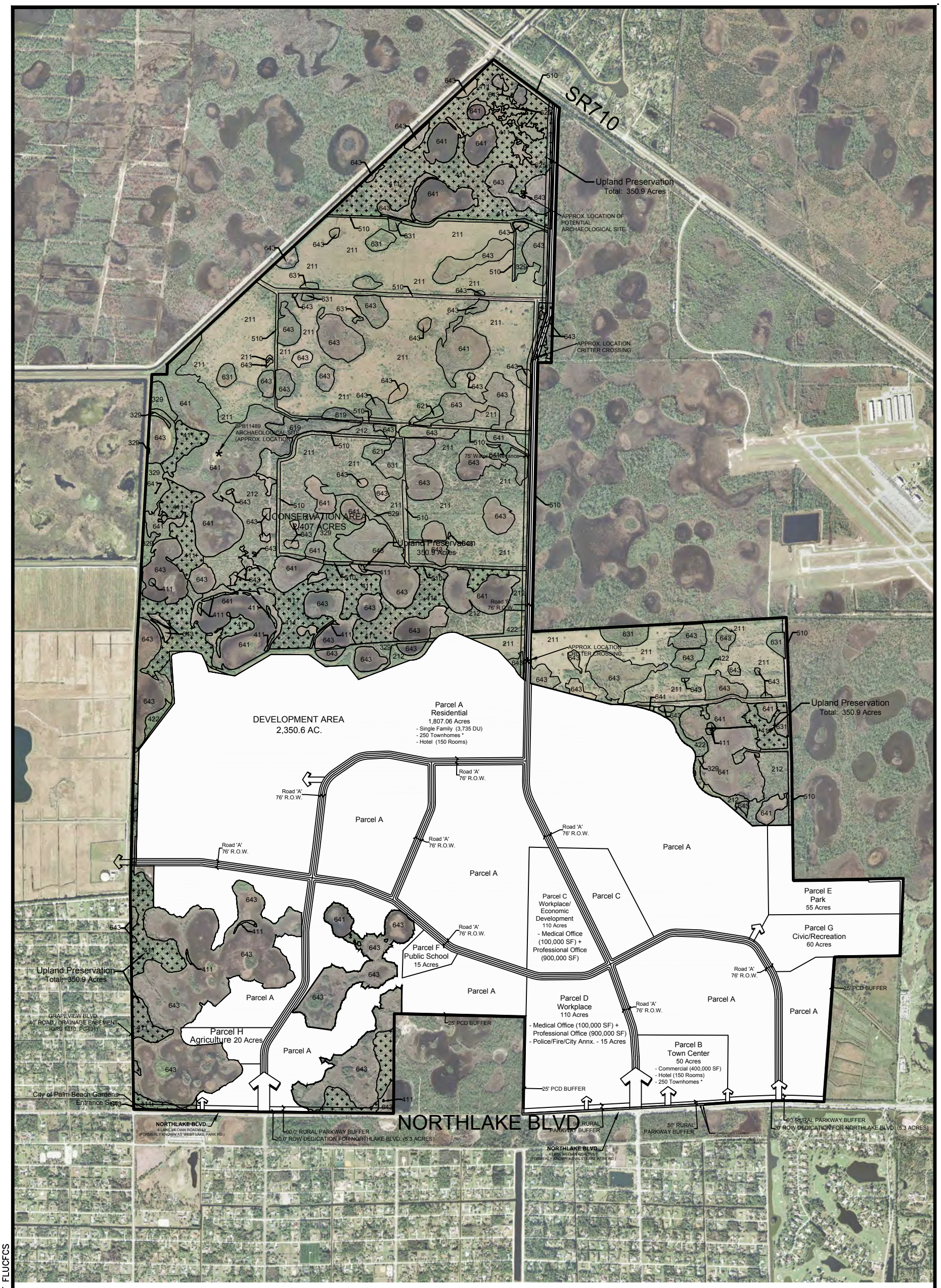
NOV 2015

FIGURE 5

Avenir PBG Response NOV 2015 POST FLUCFCS.dwg ECOLOGICAL RESTORATION FRAMEWORK



PALM BEACH COUNTY AERIALS DATED 2013

0 2000
SCALE IN FEET

AVENIR

POST DEVELOPMENT FLUCFCS MAP

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NOV 2015

FIGURE

Avenir PBG Response NOV 2015 POST FLUCFCS.dwg POST FLUCFCS

AVENIR

DEVELOPMENT STANDARDS

DRAFT December 1, 2015

Avenir Development Standards
Table of Contents

1
INTRO & ADMIN

Introduction | Vision

Vision

Avenir lies on the western border of the City of Palm Beach Gardens, bordered by existing development (the Acreage, Caloosa and North County Airport) and natural areas (JW Corbett Wildlife Management Area, Grassy Waters Preserve and North County Airport). The quality of this property's environmental features has been degraded over several decades, due to farming and ranching. The future settlement of the site creates a unique opportunity for a balance between the natural and built environments. Through restoration and preservation of over 2,408 acres of natural areas within Avenir, including grasslands, uplands and wetlands, many new and needed opportunities are available to enhance and connect the natural landscape, while also creating a quality mixed-use community that will benefit new residents as well as those of existing neighboring communities. Like a central and critical piece of a jigsaw puzzle, Avenir can provide a critical connection for the environment, traffic, economics, and other community benefits. It represents a place where a new community can be built with the vision and character of Palm Beach Gardens, including opportunities for economic and job growth, medical care facilities, entertainment, and public spaces for recreation.

Connecting the Environment

Restoration and conservation of the natural landscape at Avenir can ensure the long-term integrity of the environmental communities and landscapes; provide connectivity of the area's natural ecosystem while safeguarding the environment for wildlife habitat; improve the flow of water across the area by providing a Flow Way between properties to the east and west; provide for stormwater retention, which can help reduce area flooding; create opportunities for recreation including spaces for physical and social activity as well as a connection with nature; include meaningful environmental education opportunities; and, provide for permanent scenic views.

Connecting Transportation Systems

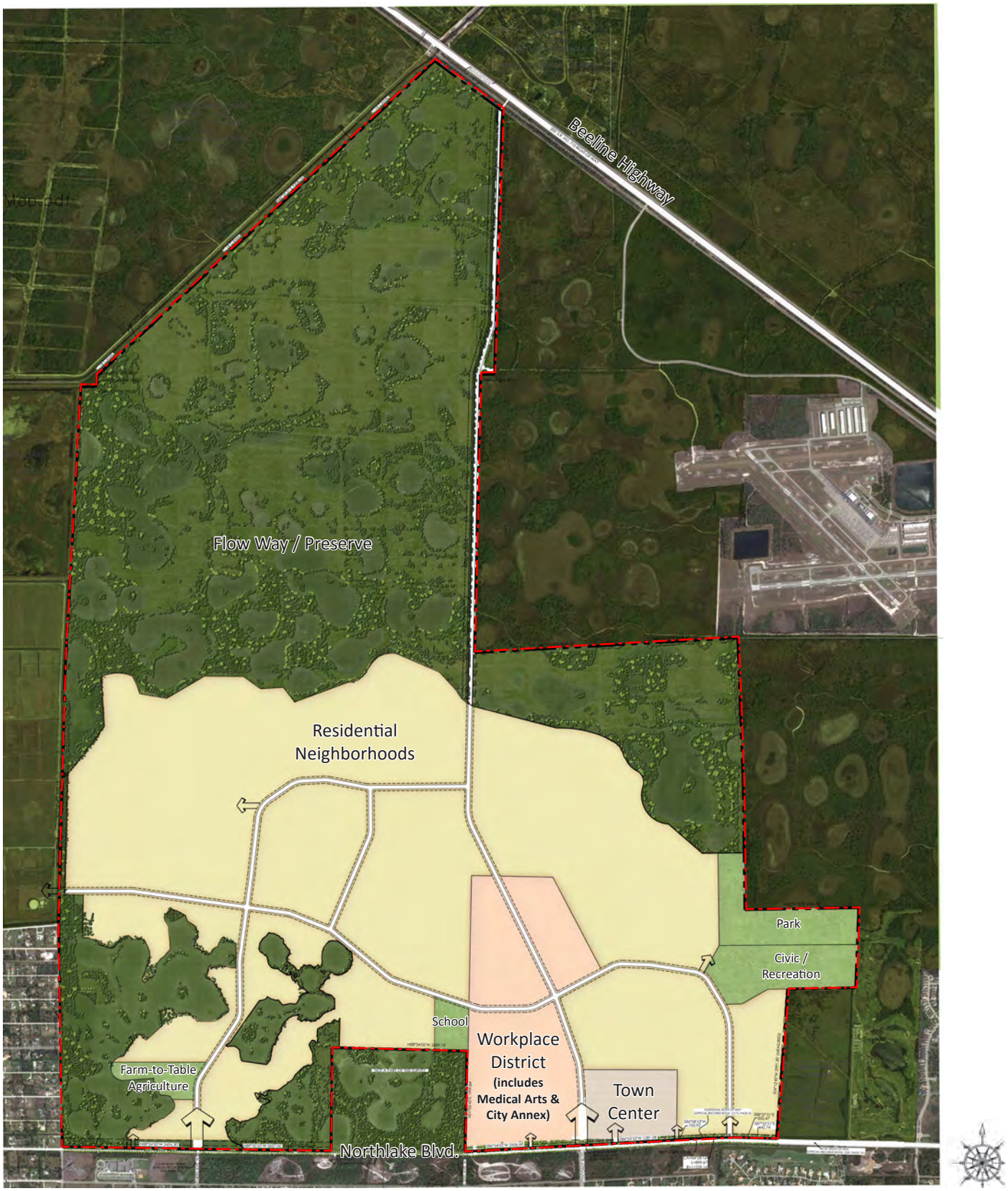
Avenir provides for important transportation connections in western Palm Beach County. A new street connection between Northlake Boulevard and the Beeline Highway will benefit the surrounding area by creating a north/south link that can minimize travel times while connecting people to local jobs and businesses. Furthermore, Avenir's Town Center and Workplace Districts will provide much needed services, entertainment destinations and jobs in proximity to the Western Communities, shortening travel times typically experienced to access such services.

Connecting Economic and Community Benefits

The plan for Avenir adapts best practices in urban design and environmentally sensitive planning to the unique Palm Beach Gardens context and the tradition of the City, with a walkable, mixed-use community that is nestled within a natural setting. The Avenir Town Center will be conected to neighborhoods by walkable and bikable streets, parks and usable public spaces. Residents can have the option to drive, kayak/boat, bike or walk through interconnected neighborhoods and local destinations such as schools, shopping, parks and preserve areas. Spaces for an environmental research and education center, medical facilities, office and retail centers and a city hall annex that can provide closer proximity for public and safety services.

The name Avenir means a bright future and sense of arrival. The plans for this property and benefits it can bring enable a bright future for the residents of Palm Beach Gardens, the surrounding areas and the county.

Introduction | Rendered Master Plan



1
INTRO & ADMIN

Administration | Purpose & Intent, Applicability and Waivers

Purpose and Intent

The purpose and intent of these development standards is to facilitate the implementation of the vision for Avenir, as described on the preceding pages.

Applicability

These Development Standards shall apply to the Avenir community and replace any applicable development regulations provided in the City's Land Development Regulations (LDRs). On issues where these Development Standards are silent, then City's LDRs shall prevail.

Waivers

Applicants seeking a development approval within Avenir may request a waiver from these Development Standards. Any waiver request and accompanying justification statement shall accompanying the Site Plan approval application. In addition, the applicant shall address all of the waiver criteria found within Section 78-158 (i) of the City's LDRs.

Administration | Definitions

Alley: A vehicular way located to the rear of lots providing a location for utility easements and access to service areas, parking, and outbuildings.

Awning: An architectural projection roofed with flexible material supported entirely from an exterior wall of a building.

Balcony: An open habitable portion of an upper floor extending beyond a building's exterior wall that is not supported from below by vertical columns or piers but is instead supported by either a cantilever or brackets.

Block: The aggregate of areas located beyond the street space. Blocks are circumscribed by streets.

Building Frontage: The side of a building which faces the front of the lot, or frontage street. The required building frontage is the percentage of lot width over which the principal building plane extends.

Build-To Zone: A build-to zone is a range of allowable distances from a street right-of-way that the building shall be built to in order to create a moderately uniform line of buildings along the street.

Colonnade: A roofed structure, extending over the sidewalk, open to the street except for supporting columns or piers.

Curb Radius: The curved edge of street paving at an intersection, measured at the inside travel edge of the travel lane.

Encroachment: Any structural element such as Galleries, fences, garden walls, Porches, Stoops, Balconies, bay windows, terraces or decks that break the plane of a vertical or horizontal regulatory limit extending into a Setback, into the Public Frontage, or above a height limit.

Gallery: A roofed promenade extending along the wall of a building and supported by arches or columns on the outer side

Habitable Space: Building space whose use involves human presence. Habitable space excludes parking garages, and display windows separated from retail activity.

Lot: A parcel of land accommodating a building or buildings of unified design. The size of a Lot is controlled by its width in order to determine the grain (i.e., fine grain or coarse grain) of the urban fabric.

Principal Building: The main building on a Lot, usually located toward the front of lot.

Principal Facade (For purposes of placing buildings along build-to lines or build-to zones): the front plane of a building not including Stoops, Porches, or other attached architectural features.

Setback: The area of a lot measured from the street right-of-way to a building façade or elevation. This area must be maintained clear of permanent structures with the exception of: fences, garden walls, arcades, porches, stoops, and balconies (that align with the first story level) which are permitted to encroach into the Setback.

Story: A habitable level within a building. Attics are not considered stories for the purposes of determining building height.

2
DISTRICT STANDARDS

District Standards

Purpose and Intent

The purpose and intent of the Districts is to provide a framework for organizing new neighborhoods. Towns are made up of groups of neighborhoods with physical forms that vary in character and intensity; the districts described in this section will prescribe these physical attributes to be applied to new development. The districts are:

Typical Building Types

Within the Neighborhood Center, Neighborhood, Town Center, and Workplace Districts, a range of typical building types which are suitable to the character of each zone shall be permitted. Refer to the Lot Compatibility Matrix in Article 4 (Building Type Standards) for the typical building types found within each district.

Permitted Uses

See pages 12 - 14.

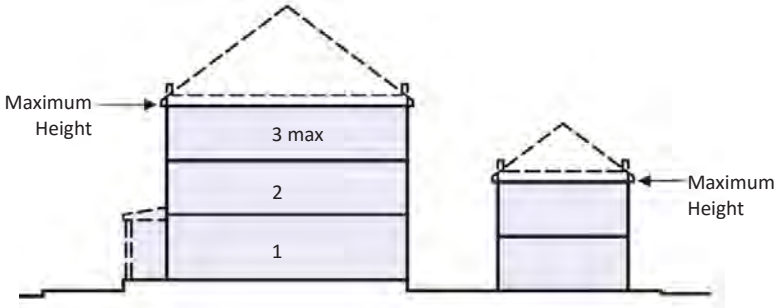
Neighborhood Center District

Intent

The Neighborhood Center District (Parcel A) permits a range of single-family house types. Buildings are set behind a small front yard which may contain a porch or stoop; lots typically have a private rear yard. Neighborhood Center is typically located in proximity to the Town Center and Workplace Districts or at the center of a neighborhood. Neighborhood Center and Neighborhood District areas will be designated on land within Parcel A at the time of Site Plan submittal for each neighborhood.

Building Height

Max. Principal Building Height:	3 stories
Min. Principal Building Height:	1 story
Max. Outbuilding Height:	2 stories



1. Building heights shall be measured in number of stories, excluding attics and raised basements.
2. Stories may not exceed 12 feet in height from finished floor to finished ceiling.
3. Heights shall be measured to the eave of the roof or roof deck (if flat).
4. The first finished floor shall be raised a minimum of 24" above the highest adjacent sidewalk grade.

Lot Standards

Minimum Lot Width:	24'
Maximum Lot Width:	75'
Maximum Lot Coverage:	75%

Setbacks

Front Build-to-Zone:	5'- 18'
Side Setback (midblock, attached):	0' min.
Side Setback (midblock, detached):	0' one side, 10' min. opposite side
Side Build-to-Zone (corner):	5'- 18'
Rear Setback:	5' min.*

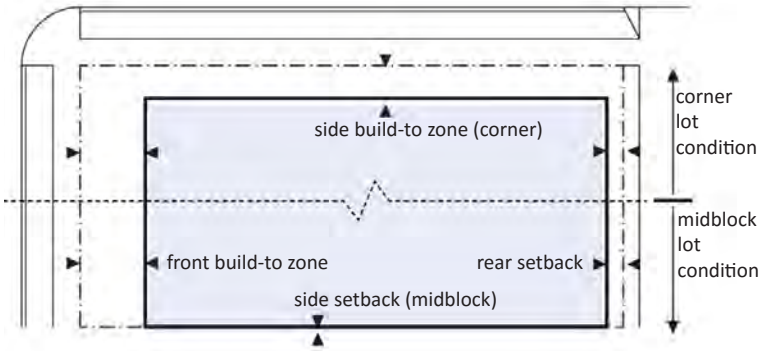
*Rear yards that face other rear yards shall be separated by a rear alley OR include a 5' min. privacy easement in addition to setback areas.

Permitted Encroachments

n/a

Parking Standards

See City LDRs for parking requirements. Applicants may submit an analysis supporting a reduced ratio using common industry standards at the time of Site Plan submittal. Off-street parking lots shall be set back a minimum of 20' from streets and public spaces. Front-loaded garages shall be setback a minimum of 10' from the principal facade of buildings. Parking may be accessed from rear alleys.



1. The facades and elevations of Principal Buildings shall be distanced from the lot lines as shown above.

Landscaping Standards

Landscaping shall comply with the applicable City landscaping regulations or seek the appropriate waiver during the site plan approval process.

2 DISTRICT STANDARDS

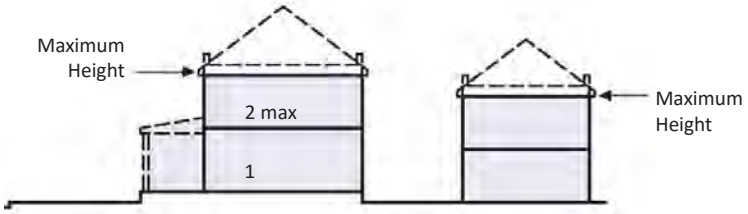
Neighborhood District

Intent

The Neighborhood District (Parcel A) has a single-family residential character. Buildings are detached, and may be set back farther from streets than in other districts; lots typically also have a private rear yard. A majority of units at Avenir will be in the Neighborhood District. Neighborhood Center and Neighborhood District areas will be designated on land within Parcel A at the time of Site Plan submittal for each neighborhood.

Building Height

Max. Principal Building Height:	2 stories
Min. Principal Building Height:	1 story
Max. Outbuilding Height:	2 stories



1. Building heights shall be measured in number of stories, excluding attics and raised basements.
2. Stories may not exceed 12 feet in height from finished floor to finished ceiling.
3. Heights shall be measured to the eave of the roof or roof deck (if flat).

Lot Standards

Minimum Lot Width:	50'
Maximum Lot Width:	n/a
Maximum Lot Coverage:	50%

Setbacks

Front Setback:	15' min.
Side Setback (midblock):	8' min.
Side Setback (corner):	15' min.
Rear Setback:	10' min.
Pool Side and Rear Setback:	5' min.
Enclosure Side and Rear Setback:	3' min.

Permitted Encroachments

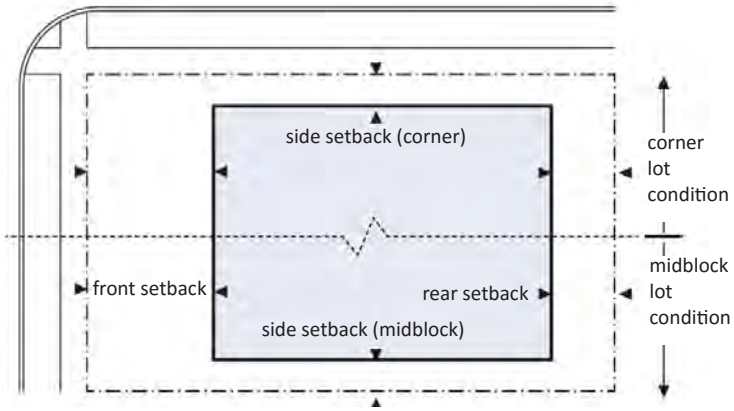
n/a

Parking Standards

See City LDRs for parking requirements. Front-loaded garages shall be setback a minimum of 10' from the principal facade of buildings. Parking may be accessed from rear alleys.

Landscaping Standards

Landscaping shall comply with the applicable City landscaping regulations or seek the appropriate waiver during the site plan approval process.



1. The facades and elevations of Principal Buildings shall be distanced from the lot lines as shown above.

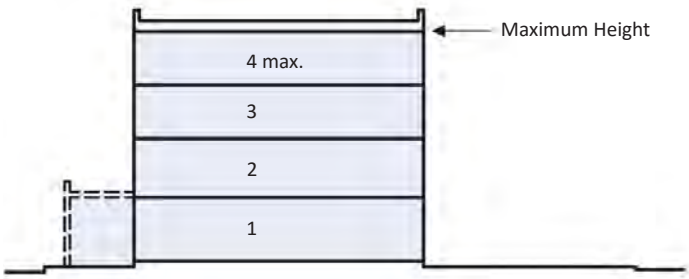
Town Center District

Intent

The Town Center District (Parcel B), located along Northlake Blvd. at the key intersection with Coconut Boulevard, will include a mix of commercial and civic uses to provide destinations and workplaces in a walkable urban environment. Residential units in the form of townhouses and/or apartments will also be included. Buildings are typically attached and built on or near the front property line, creating a continuous street façade along wide sidewalks, to enhance walkability.

Building Height

Maximum Building Height:	4 stories
Minimum Building Height:	1 story



Lot Standards

Minimum Lot Width:	18'
Maximum Lot Width:	300'
Maximum Lot Coverage:	90%

Setbacks

Front Build-to-Zone:	0'- 10'
Minimum Building Frontage:	80%
Side Setback (midblock):	0' min.
Side Build-to-Zone (corner):	0'- 10'
Rear Setback:	5' min.

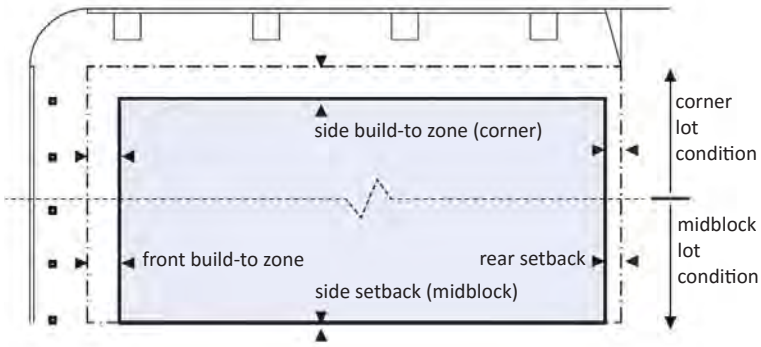
1. Building heights shall be measured in number of stories, excluding attics and raised basements.
2. Stories may not exceed 12 feet in height from finished floor to finished ceiling, except for a first floor commercial function which must be a minimum of 11 feet high, with a maximum of 30 feet.
3. Heights shall be measured to the eave of the roof or roof deck (if flat).

Permitted Encroachments

Awning, Canopies, Galleries, upper floor Balcony. See Architectural Standards.

Parking Standards

See City LDRs for parking requirements. The use of shared parking ratios is encouraged; applicants may submit an analysis supporting a reduced ratio using common industry standards at the time of site plan submittal. Off-street parking shall be set back a minimum of 20' from streets and public spaces. Parking may be accessed from rear alleys.



1. The facades and elevations of Principal Buildings shall be distanced from the lot lines as shown above.

Landscaping Standards

- On "A" streets, street trees shall be located every 30 to 40 feet on street frontage, with the exception of where arcades are provided. On the primary commercial “Main Street”, larger street trees and/or palms shall be provided. Street trees shall have a minimum height of 16 feet and palms shall have a minimum height of 18 feet at time of installation. Street trees within the identified pedestrian areas shall use tree grates. Where arcades are located, planters or pots are required to be provided at a ratio of one planter/pot per 60 feet of arcade frontage.
- For secondary or side "B" streets, street trees shall be located every 40 to 50 feet on street frontage, with the exception of where arcades are provided. Street trees and palms shall have a minimum height of 14 feet at time of installation. Where arcades are located, planters or pots are required to be provided at a ratio of one planter/pot per 60 feet of arcade frontage.
- For every 5 spaces of on-street parallel parking spaces or for every 9 spaces or angled parking or within a parking lot, a landscape island shall be provided with a minimum of 5 feet in width and a minimum landscape area of 45 feet.

2 DISTRICT STANDARDS

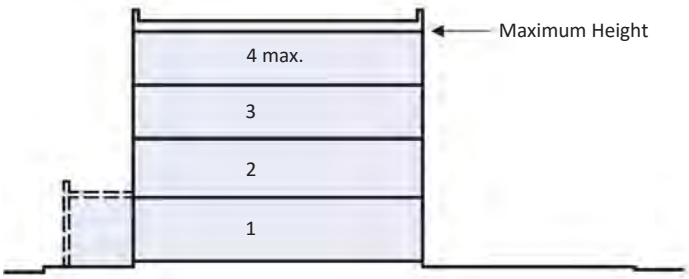
Workplace District

Intent

The Workplace District (Parcels C and D) will provide settings for a variety of jobs for residents of Avenir and surrounding settlements. Office buildings, medical buildings, and civic uses are all anticipated to be located here. Buildings will define the edges of streets and public spaces to continue pedestrian- and bike-friendly routes through town, but greater flexibility and variety in urban form is given to accommodate the diverse needs of potential workplace users.

Building Height

Maximum Building Height:	4 stories
Minimum Building Height:	1 story



1. Building heights shall be measured in number of stories, excluding attics and raised basements.
2. Stories may not exceed 12 feet in height from finished floor to finished ceiling, except for a first floor commercial function which must be a minimum of 11 feet high, with a maximum of 30 feet.
3. Heights shall be measured to the eave of the roof or roof deck (if flat).

Lot Standards

Minimum Lot Width:	n/a
Maximum Lot Width:	500'
Maximum Lot Coverage:	70%

Setbacks

Front Build-to-Zone:	0'- 30'
Minimum Building Frontage:	50%
Side Setback (midblock):	0' min.
Side Build-to-Zone (corner):	0'- 30'
Rear Setback:	10' min.

Permitted Encroachments

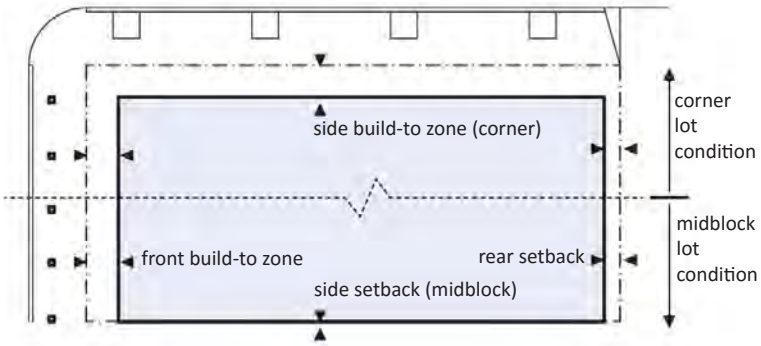
Galleries, upper floor Balcony. See Section 7 (Architectural Standards).

Parking Standards

See City LDRs for parking requirements. The use of shared parking ratios is encouraged; applicants may submit an analysis supporting a reduced ratio using common industry standards at the time of site plan submittal. Off-street parking shall be set back a minimum of 20' from streets and public spaces. Parking may be accessed from rear alleys.

Landscaping Standards

Landscaping shall comply with the applicable City landscaping regulations or seek the appropriate waiver during the site plan approval process.



1. The facades and elevations of Principal Buildings shall be distanced from the lot lines as shown above.

Note: Deviations from the above standards to accommodate a corporate user in a campus setting may be approved at the time of Site Plan submittal.

Public / Institutional District | Farm-to-Table Agriculture

Public / Institutional District - Intent and Standards

The Public/Institutional District applies to Parcels E, F and G, which is intended for use as schools, parks, recreation, and other civic purposes. Development and improvements in this district will adhere to the requirements of the City's P/I (Public/Institutional) zoning district (Section 78-142) or seek an appropriate waiver if needed. Landscaping shall comply with the applicable City landscaping regulations or seek the appropriate waiver during the site plan approval process.

Farm-to-Table Agriculture - Intent and Standards

The Farm-to-Table District (Parcel H) provides land intended for farming, producing locally-grown foods that can be an amenity for local residents and visitors to Avenir. The development regulations and requirements for the proposed field-to-table farm will be established and approved by the City Council during the site plan approval process. All future uses are considered a Major Conditional Use, and are subject to City Council approval.

2 DISTRICT STANDARDS

Permitted Uses

P = Permitted Use C = Minor Conditional Use C* = Major Conditional Use Blank = Prohibited

*All major conditional uses will require a traffic equivalency analysis.

PARCEL	A	B	C	D	E	F	G	H	Code Section or 78-159 (j) Note
Dwelling, Single-family	P								
Dwelling, Multi-family	P	P							
Dwelling, Two-Family	P								
Home Occupation	P	P							1
Hotel/Motel* *Hotel/Motel within Parcel A to follow City's CG-1 development standards and seek appropriate waivers	C*	C							
Antique Shop		P							7
Appliance and Electronics Store		P							
Bakery		P							
Barber/Beauty Supplies and Equipment Sales		P							
Bicycle Sales and Repair		P							
Bookstore		P							
Clothing and Accessory Store		P							
Consignment Shop		P							
Convenience Store w/o Gas Sales		P							14
Department Store		P							
Discount Department Store		P							15
Drugstore or Pharmacy, General		C*							
Drugstore or Pharmacy, Limited		C	P	P					
Field-To-Table Farm* *Final uses to be determined at Site Plan Approval/Major Conditional Use process.								C*	
Floral or Florist Shop		P							
Fruit and Vegetable market		C*							
Gift and Card Shop		P							
Grocery Store, Retail		C*							
Hardware, Paint, Glass, Wallpaper and Floor covering Store		C*							16
Hobby, Fabric, and Craft Shop		P							
Jewelry Store, including Repair of Jewelry and Clocks		P							
Landscape, Nursery, and Garden Supplies		P							
Medical and Dental supply Sales		P	C	C					
Nightclub, Bar, or Lounge		C*							
Outdoor Seating		P							Sec. 78-191
Pet Grooming Shop		P							

(continued on next page)

Permitted Uses (continued)

PARCEL	A	B	C	D	E	F	G	H	Code Section or 78-159 (j) Note
Pottery Shop		P							17
Restaurant, General		P							19
Restaurant, Fast Food (with or w/o Drive-through)		C*							20
Restaurant, Specialty		P							21
Restaurant, Quality		P							22
Restaurant, Take Out		P							23
Retail, General		P							24
Showroom, General		C							25
Bank/Financial Institution w/Drive Through		C*	C*						29
Bank/Financial Institution w/o Drive Through		P	C*						
Banquet Facility		C*	C*						30
Barber/Beauty Shops		P							
Blueprinting		P							
Catering Service			C*	C*					
Clinic, Medical or Dental			P	P					
Data Processing Service		P							34
Day Care, Child and Adult		C*	C*						35
Day Care, Family	P								36
Dry Cleaning		P							37
Electronic Repair		P							38
Emergency Health Care			C*						39
Express or Parcel Delivery Office		P	P	P					
Health, Physical Fitness, Weight Reduction, and Spa		C	C*	C*					
Housekeeping and Janitorial Services		P	C*	C*					
Laundry, Self Service		P	P	P					
Laundry and Dry-cleaning Pickup Station		P							
Locksmith		P							
Mail and Packing Store, Private		P							
Massage Therapist		P							41
Personal Services		P							
Picture Framing		P							
Photo Studio and Processing		C							
Print Shop		C	C	C					43
Shoe Repair		P							
Studio, Instructional		P							44.1
Studio, Professional		P	P	P					44.2
Tailor Shop		P							
Travel Agency		P	P	P					
Video Rental and Sales		P							
Business Incubator			P	P					

(continued on next page)

2 DISTRICT STANDARDS

Permitted Uses (continued)

PARCEL	A	B	C	D	E	F	G	H	Code Section or 78-159 (j) Note
Counseling Services		P	P	P					
Interior Design, including Sales		P	P	P					47
Office, Medical or Dental		C*	P	P					47.1
Office, Professional and Business		P[1]	P	P					
Optical, Optician or Optometrist Offices		P	P	P					
Veterinary Office and Clinic		P	P	P					48
Places of Assembly (100 seats or less)	C		C	C					49
Places of Assembly (101 to 500 seats)	C*		C*	C*					49
Places of Assembly (501 or more seats)	C*		C*	C*					49
College or University, Public or Private			C*	C*					
Governmental Uses				P					50
Hospital, Public or Private			C*	C*					51
Post Office		C*	C*	C*					52
Post Office, Accessory		P							53
Schools, Public and Private	C*					C*			54
Golf Course, Public or Private							P		
Park, Public	P	P	P	P	P		P		55
Recreation Center, Public	C*		C*	P	C				
Utilities, Minor	P	P	P	P	P	P	P	P	63
Wireless Telecommunication Facilities			P						64
Accessory Uses	P	P	P	P	P	P	P	P	78-181 (c)
Mobile Home, Temporary		C	C	C			C	C	67
Recreation, Accessory	C								68
Satellite Dishes, Accessory	P	P	P		P		P		69
Trailers, Construction	P	P	P	P	P	P	P	P	70
Trailers, Sales	P	P	P						70

[1] Limited to 15% of Commercial area

Specialty Building Types in the Town Center

Within the Town Center District, some automotive-oriented uses may be provided to serve the daily needs of residents of Avenir as well as surrounding settlements. The following criteria shall be used to ensure these uses do not detract from the overall walkability of the district.

Large Footprint Buildings

Large Footprint Buildings are those with footprints greater than 30,000 sq. ft. Examples may include a grocery store, large-format retailer or theater. Lots and buildings may vary from the dimensions set in the Town Center District standards, provided such buildings shall comply with the following provisions:

- A Large Footprint Building facing a park, green, square or plaza shall provide habitable space (whether part of the building or of a separate liner building) which provides doors and windows facing the public space.
- Parking may be located in an off-site location, either on-street or in a common parking lot.
- To encourage use by pedestrians and decrease the need for solely auto-oriented patronage, Large-Footprint Buildings must reinforce the urban character of the neighborhood and shall therefore continue a connected system of walkable blocks / street frontages (including sidewalks and street trees) through the site as part of the design of parking and drive aisles. Parking setbacks (20' min) are not required along streets that serve as parking lot drive aisles.
- Building footprints may not be larger than a single block.
- Loading docks, service areas and trash disposal facilities shall not face "A" streets or public open spaces.

Gas Stations

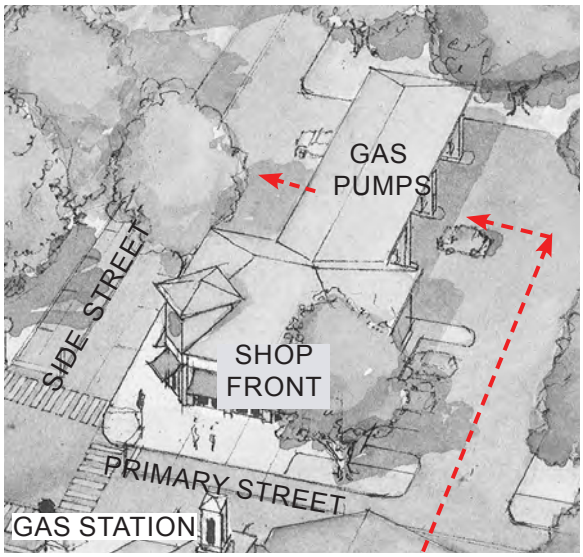
Gas stations shall comply with the following provisions:

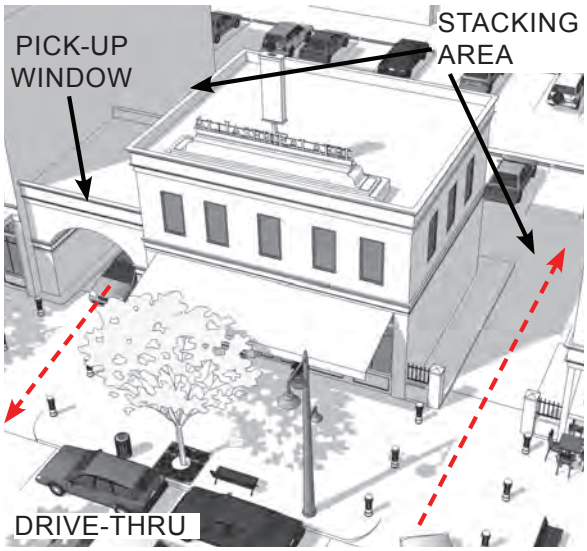
- A ground-floor shopfront shall face the street and define the front corner of the lot, and meet the requirements for Building Frontage on all "A" streets. All pumps, parking, and drive-through areas must be located behind the building, accessed from a secondary "B" street frontage. An example of an appropriate gas station configuration is shown below left.

Drive-Thrus

Drive-thrus shall comply with the following provisions:

- A ground-floor shopfront must face the street frontage. Drive-thru windows shall be located to the side or rear of the building. An example configuration of an appropriate building with a drive-thru is shown below right.





2 DISTRICT STANDARDS

Public Space Standards

District Public Space Standards

Public Space areas are intended to provide for active and passive recreation, site drainage and water retention, water Flow Way and vegetation. Within the districts, public spaces will be located and designed as described below and on the next page. Adjustments to the standards may be considered during the Site Plan review process.

- **Neighborhood Public Spaces**: At least one (1) neighborhood public space (Park, Green, or Square) that complies with the requirements below shall be located within one-quarter (¼) mile radius of each residential home within Parcel A. An adjacent Preserve Area, Lake, Canal, or Golf Course may be substituted for a required neighborhood public space if pedestrian access is provided. For each 300 acres of land area, at least one of these required open spaces shall be a Park (1 acre min.).

- The **Town Center District** (Parcel B) shall contain a public space (Green or Square) of at least 35,000 square feet in size.

- The **Workplace Districts** (Parcels C and D) shall contain 1 public space (Park, Green, Square, or Plaza) for each 50 acres of land area, meeting the requirements on the next page.

- All development adjacent to conservation areas shall have a ten (10)-foot wide safe zone that is not on private property. Landscaping, seawalls, plazas, sidewalks, trails and other pedestrian amenities shall be permitted within required Lake Maintenance Tracts if access for maintenance is also provided, as approved by the City Engineer.

- Additional public spaces may also be provided, following the requirements on the next page.

- Public space acreage may include open or enclosed civic / public structures such as clubhouses, pavilions, farmers markets and amphitheaters.

- Total site open space acreage shall meet the City's Parks and Recreation Level of Service requirements (estimated to be 46.82 acres); up to 15% of this required area may be in Preserve Areas, Lakes, or Canals.

Public Space Standards (continued)

Required Neighborhood Public Spaces			District		
	must front at least:	size	Neighbor-hoods	Town Center	Work-place
PARK A natural preserve available for unstructured recreation. A park does not need to be fronted by buildings. Its landscape shall consist of paths and trails, meadows, waterbodies, woodland and open shelters, all naturalistically disposed.	n/a	1 acre min.	x	x	x
GREEN An open space, available for unstructured recreation. A green may be spatially defined by landscaping rather than buildings fronting it along the edges. Its landscape shall consist of lawn and trees, naturalistically disposed.	2 streets	.5 to 5 acres	x	x	x
SQUARE An open space available for unstructured recreation and public gatherings. A square is spatially defined by building frontages. Its landscape shall consist of paths, lawns and trees, formally disposed.	3 streets	.5 to 2 acres	x	x	x
Other Permitted Public Spaces					
PLAZA An open space available for public gatherings and outdoor markets. A plaza shall be spatially defined by building frontages. Its landscape shall consist primarily of pavement; trees are optional. Plazas should use pervious pavers, where feasible.	1 street	.25 to 2 acres		x	x
PLAYGROUND An open space designed and equipped for the recreation of children. A playground should be fenced. Playgrounds may be interspersed within residential areas and may be placed within a block. Playgrounds may be included within parks and greens.	0 streets	.1 to 1 acre	x	x	
COMMUNITY GARDEN An open space designed and equipped for gardening. A community garden may be fenced. Gardens may be interspersed within residential areas and may be placed within a block, or included within parks and greens.	0 streets	.1 to 1 acre	x	x	x

3 STREETSCAPE STANDARDS Streetscape Standards

Purpose and Intent

The Purpose and Intent of the Streetscape Standards is to provide guidance to create an interconnected network of streets which can accommodate all modes of travel, including vehicular, pedestrian, and bicycle. The function of streets within Avenir is to handle traffic, but also to be memorable, pedestrian- and bike-friendly.

Main Thoroughfares

The Main Thoroughfares are those drawn and identified on the submitted Master Plan, which provide connectivity between neighborhoods. Street sections intended for Main Thoroughfares are contained in this chapter; the prescribed street sections may be interrupted for intersections, roundabouts, central medians/greens and other traffic-calming devices, depending on the context details of the final neighborhood designs. These refinements shall be approved at the time of Site Plan submittal.

District Streets

In addition to the Main Thoroughfares, District Streets will further subdivide Avenir's neighborhoods/districts. Typical street sections approved for use in each district are provided in this chapter. Additional street sections may be proposed provided they meet the following criteria:

- Streets shall be designed with slow design speeds to increase the safety of bicyclists and pedestrians.
- District streets shall be pedestrian-friendly, with sidewalks, on-street parking (where needed), and street trees.

Within the Town Center and Workplace Districts, a **hierarchy of streets** (A streets and B streets) shall be established at the time of Site Plan submittal. "A" streets provide the greatest pedestrian experience, and shall be lined by public open spaces or by the fronts of buildings that meet the Building Frontage requirements set in the District Standards. A primary commercial Main Street in the Town Center shall be designated as an "A" street frontage. "B" streets may be faced by the front or the side of lots. Whenever possible, vehicular access to lots shall be from B streets.

Block Structure

To facilitate connectivity and pedestrian accessibility, the layout of streets and alleys within the Avenir neighborhoods shall conform to the following standards:

- The maximum perimeter for blocks shall be 1800 linear feet. Blocks may exceed this limit up to 3400 linear feet, if the block is located in the Town Center or Workplace Districts (Parcels B, C, and D); the larger block size is intended to allow space for mid-block parking areas.
- Any block face which exceeds 600' shall have a mid-block pedestrian access of at least 10' in width.
- Neighborhoods will include large water management areas/lakes. Blocks that contain natural features (such as lakes, canals, or parks) shall not be subject to the above block perimeter size requirements.
- Each neighborhood shall demonstrate consideration for street connectivity and integration with adjoining neighborhoods. "Stub-outs", or rights-of-way which allow future connections to other areas of development, are encouraged for connections to future phases. When a Site Plan consisting of one or more neighborhoods is submitted for approval, the street network contained in those neighborhoods should connect to stub-outs of adjacent neighborhoods or other rights-of-way that form the edge of the neighborhood(s). Gated neighborhoods may be included; in such instances, additional pedestrian connections to surrounding neighborhoods should be provided.

Alleys

Alleys may be used for primary access to parking at the rear of residential and non-residential lots, and shall conform to the following standards. Where an alley provides access to a block with both residential and non-residential uses, the alley shall be built to the non-residential standard.

Alley Type	ROW	Pavement Width	Curb Radius
Residential	25'	10'-15'	9'-15'
Non-Residential	25'	20'-25'	9'-15'

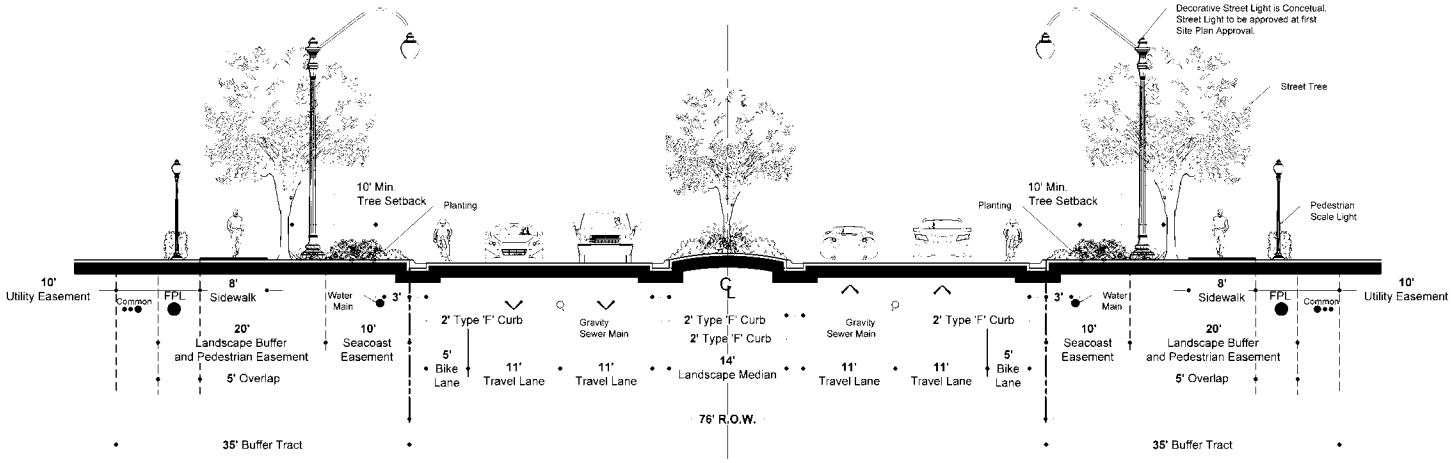
Main Thoroughfare Street Sections

Road A

This roadway contains four travel lanes, bike lanes, a landscaped median, and landscape buffers that include sidewalks and planting strips.

Note: The road and street cross-sections depicted here are conceptual in nature. The design of the roads and street, including the location of utility lines, turn lanes, lighting and other improvements, will be finalized with the approval of the engineering construction plans for the roadways.

Street Name	Road A
ROW	76 feet
Pavement width	31 feet to Face-of-Curb (each side)
Intended Movement	Free Movement
Lanes	4 Lanes (2 each side)
On-Street Parking	n/a
Travel Lane Width	11 feet
Curb Radius	15' - 25'
Walkway Type	8 foot min. Sidewalk
Planter Type	10 foot min. Planting Strip
Landscape Type	Trees at 30' to 40' o.c. Avg. Plantings as approved by the City of PBG



3 STREETSCAPE STANDARDS

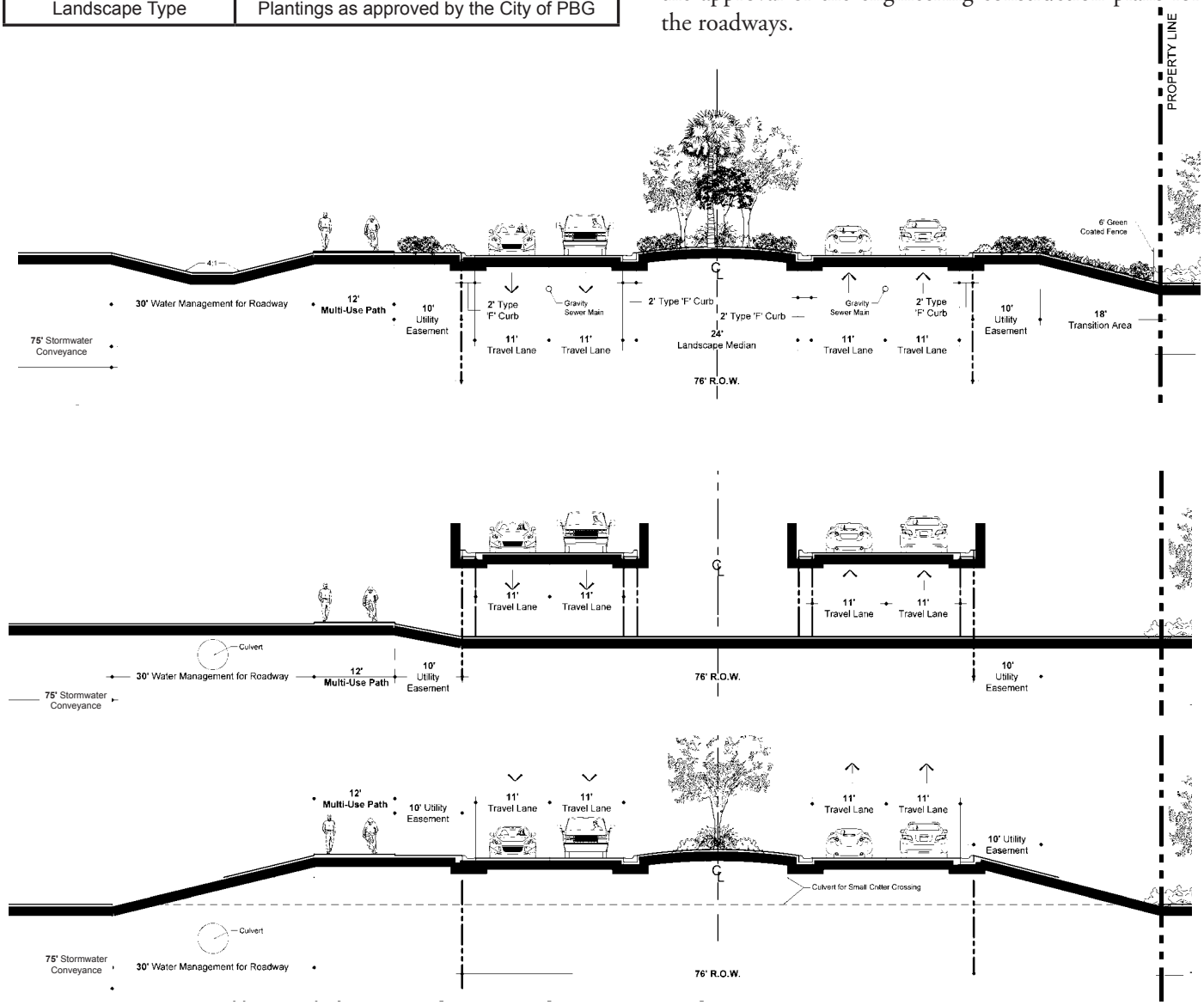
Main Thoroughfare Street Sections

Street Name	Road B
ROW	76 feet
Pavement width	25 feet to Face-of-Curb (each side)
Intended Movement	Free Movement
Lanes	4 Lanes (2 each side)
On-Street Parking	n/a
Travel Lane Width	11 feet
Curb Radius	15' - 25'
Walkway Type	12 foot Multi-use Path
Planter Type	10 foot min. Planting Strip
Landscape Type	Plantings as approved by the City of PBG

Road B

The street design includes four travel lanes, a seperated multi-use path, a center planted median, and adjacent easement for water management. It is intended for use through the Preserve. Segments of the roadway may be elevated as shown.

Note: The road and street cross-sections depicted here are conceptual in nature. The design of the roads and street, including the location of utility lines, turn lanes, lighting and other improvements, will be finalized with the approval of the engineering construction plans for the roadways.



District Street Sections

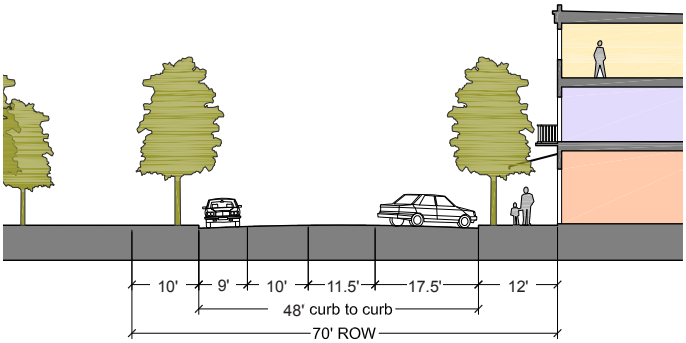
STREET 70-48

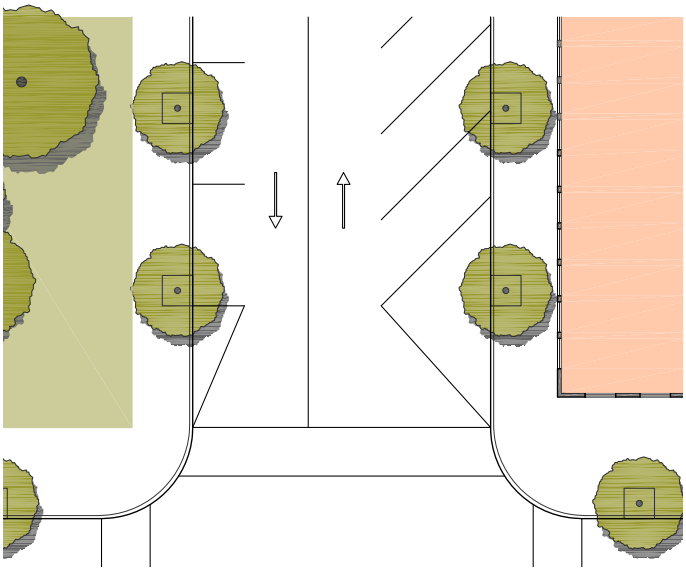
This design includes 2 traffic lanes, parallel parking on one side with a 10 foot travel lane, reverse diagonal parking on outside edge with 11 foot travel lane, and sidewalks lined with tree wells.

This section may be used in the Town Center District.

Note: The street cross-sections depicted here are conceptual in nature. The design of the street, including the location of utility lines, turn lanes, lighting, landscaping, and other improvements, will be finalized with the approval of the neighborhood site plan and engineering construction plans for the roadways. Curb Radii shall be approved by the City Engineer at the time of Site Plan review to meet minimum turning radii for emergency vehicles.

Street Name	STREET 70-48
ROW	70 feet
Pavement width	48 feet to Face-of-Curb
Intended Movement	Free Movement
Lanes	2 Lanes
On-Street Parking	9 feet Marked 1-Side; 17'6" Angled Marked
Travel Lane Width	10 or 11.5 feet
Curb Radius	15' - 20'
Walkway Type	10-12 foot Sidewalk
Planter Type	5 foot tree wells
Landscape Type	Trees at 30' to 40' o.c. Avg.

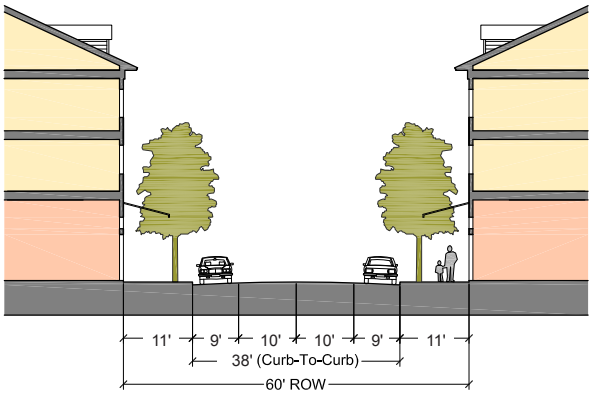


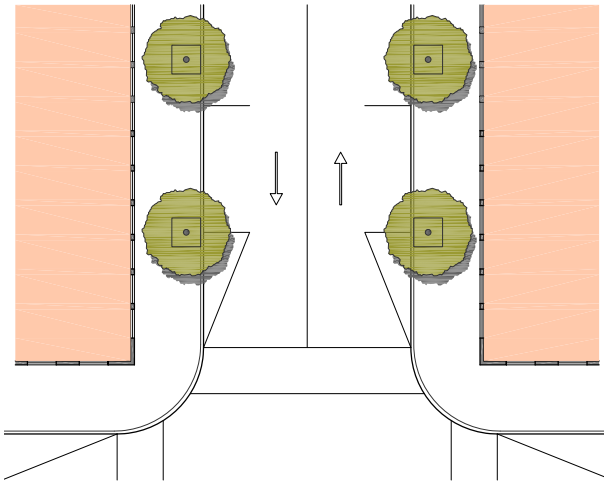


3 STREETSCAPE STANDARDS

District Street Sections

Street Name	STREET 60-38
ROW	60 feet
Pavement width	38 feet to Face-of-Curb
Intended Movement	Free Movement
Lanes	2 Lanes
On-Street Parking	9 foot Marked, On Both Sides
Travel Lane Width	10 feet
Curb Radius	15' - 20'
Walkway Type	11 foot Sidewalk
Planter Type	5 foot tree wells
Landscape Type	Trees at 30' to 40' o.c. Avg.





STREET 60-38

The street design includes two lanes of traffic, parallel parking on both sides, tree wells, and wide sidewalks.

This section may be used in the Town Center, Workplace, or Neighborhood Center Districts.

Note: The street cross-sections depicted here are conceptual in nature. The design of the street, including the location of utility lines, turn lanes, lighting, landscaping, and other improvements, will be finalized with the approval of the neighborhood site plan and engineering construction plans for the roadways. Curb Radii shall be approved by the City Engineer at the time of Site Plan review to meet minimum turning radii for emergency vehicles.

District Street Sections

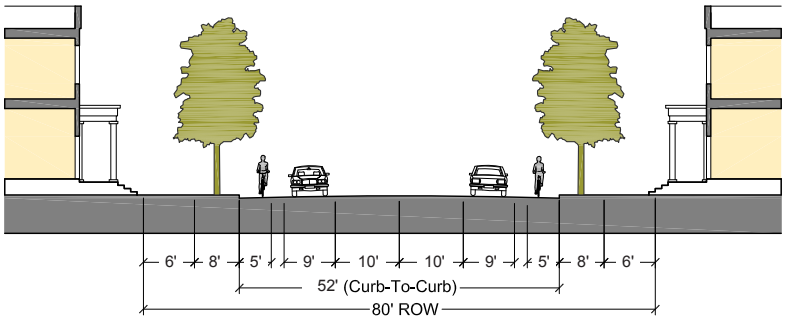
STREET 80-52

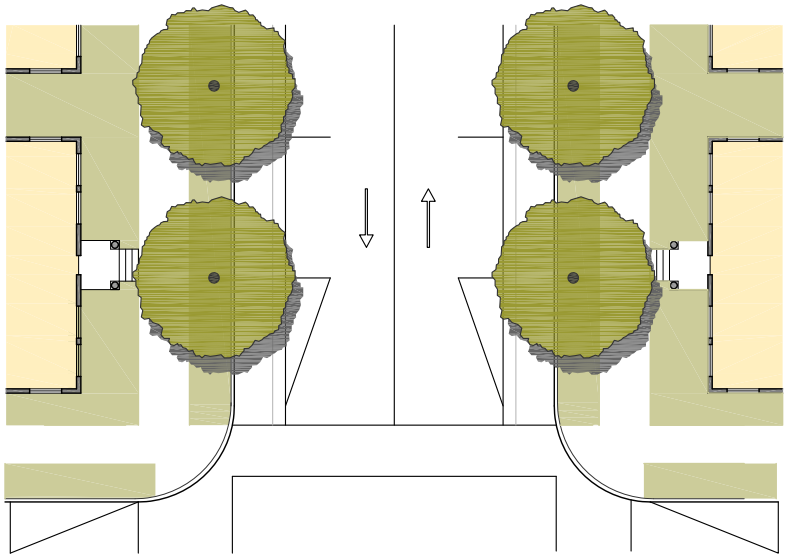
The road design includes 2 lanes of traffic, designated bike lanes with a 2 foot buffer, and sidewalks lined with a wide planting strip.

This section may be used in the Town Center, Workplace, or Neighborhood Center Districts.

Note: The street cross-sections depicted here (as well as page 23, next page) are conceptual in nature. The design of the street, including the location of utility lines, turn lanes, lighting, landscaping, and other improvements, will be finalized with the approval of the neighborhood site plan and engineering construction plans for the roadways. Curb Radii shall be approved by the City Engineer at the time of Site Plan review to meet minimum turning radii for emergency vehicles.

Street Name	STREET 80-52
ROW	80 feet
Pavement width	52 feet to Face-of-Curb
Intended Movement	Free Movement
Lanes	2 Lanes
On-Street Parking	9 feet Marked, on both sides
Travel Lane Width	10 feet
Curb Radius	15' - 20'
Walkway Type	8 foot Sidewalk
Planter Type	6 foot Planting Strip
Landscape Type	Trees at 40' to 50' o.c. Avg.





3
STREETSCAPE STANDARDS

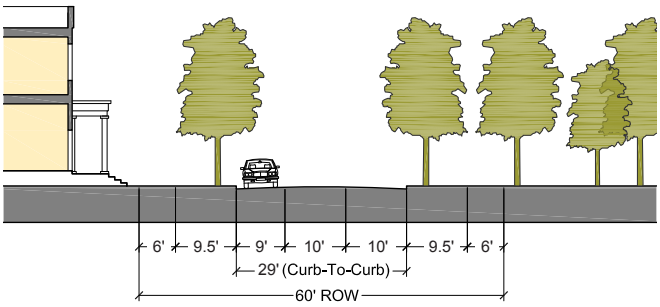
District Street Sections

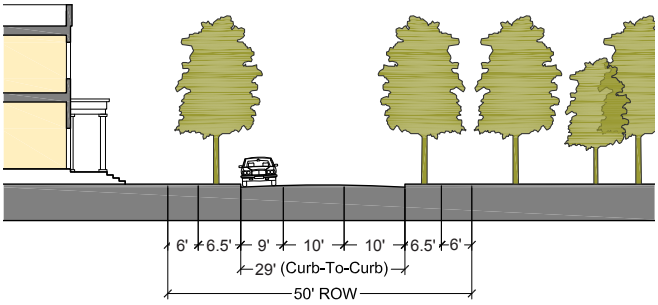
STREET 60-29 | STREET 50-29

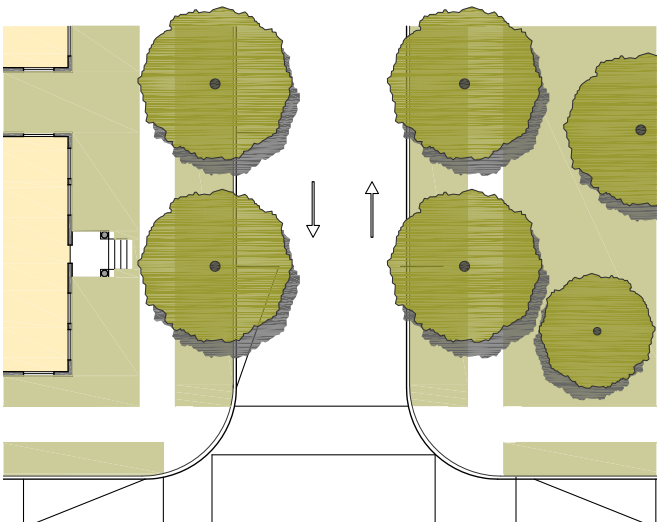
The street design includes two lanes of traffic, parking on one side, and sidewalks with planting strips. There are options for a 60' or 50' right-of-way. These sections may be used in the Town Center, Workplace, Neighborhood Center, Neighborhood, and Public/Institutional Districts.

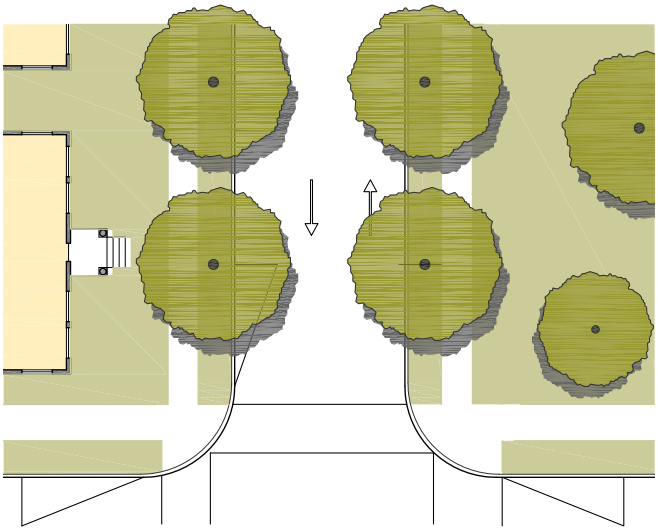
Street Name	STREET 60-29
ROW	60 feet
Pavement width	29 feet to Face-of-Curb
Intended Movement	Slow
Lanes	2 Lanes
On-Street Parking	9 foot Unmarked, On One Side
Travel Lane Width	10 feet
Curb Radius	15' - 20'
Walkway Type	6 foot Sidewalk
Planter Type	9.5 foot Planting Strip
Landscape Type	Trees at 40' to 50' o.c. Avg.

Street Name	STREET 50-29
ROW	50 feet
Pavement width	29 feet to Face-of-Curb
Intended Movement	Free Movement
Lanes	2 Lanes
On-Street Parking	9 foot Unmarked, On One Side
Travel Lane Width	10 feet
Curb Radius	15' - 20'
Walkway Type	5 foot Sidewalk
Planter Type	5-6 foot Planter Strips
Landscape Type	Trees at 40' to 50' o.c. Avg.









District Street Sections

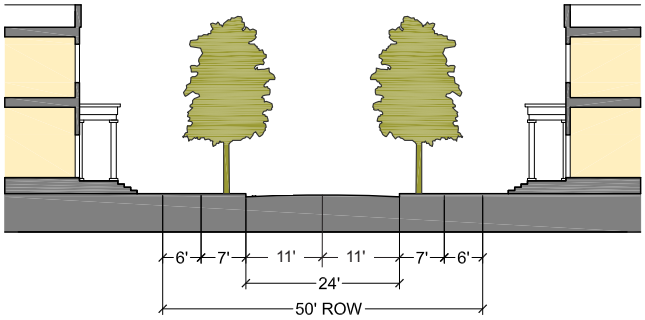
STREET 50-24

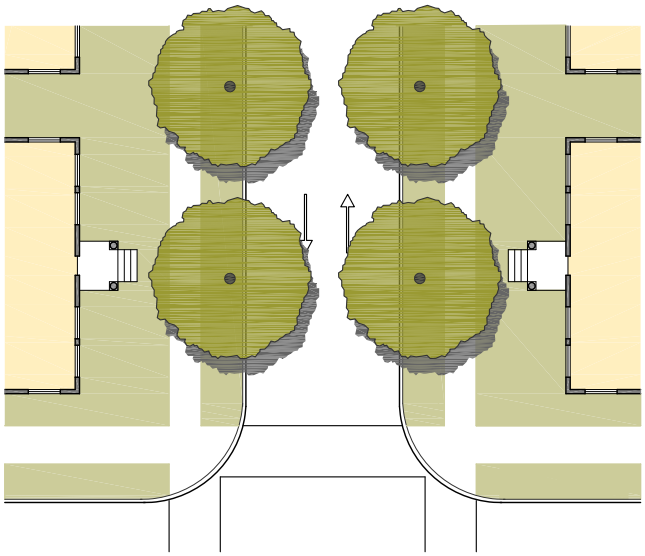
The street design has a narrower pavement width and no on-street parking; it should be selected for use based on the intended building use and associated parking demand of the surround blocks.

This section may be used in the Neighborhood, Public/Institutional, and Farm-to-Table Agriculture Districts.

Note: The street cross-sections depicted here are conceptual in nature. The design of the street, including the location of utility lines, turn lanes, lighting, landscaping, and other improvements, will be finalized

Street Name	STREET 50-24
ROW	50 feet
Pavement width	24 feet to Face-of-Curb
Intended Movement	Free Movement
Lanes	2 Lanes
On-Street Parking	N/A
Travel Lane Width	11'
Curb Radius	15' - 20'
Walkway Type	6 foot Sidewalk
Planter Type	7 foot Planting Strip
Landscape Type	Trees at 40' to 50' o.c. Avg.





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Building Type Standards

The Building Type Standards prescribe the rules related to building placement and massing (such as Setbacks, Build-to Lines or Zones, Building Frontage, and Building Height) for typical building types found within the Avenir neighborhoods. These standards supplement the District Standards by providing additional specificity regarding each building type.

Lot Compatibility Matrix

The lot compatibility matrix sets the typical allowable building types within the following districts:

		Town Center	Workplace	Neighborhood Center	Neighborhood
Retail Building	Page 28	■			
Mixed-Use Building	Page 29	■	■		
Office Building	Page 30		■		
Live-Work Townhouse	Page 31	■	■		
Townhouse	Page 32	■			
Neighborhood House (36' - 48' lot width)	Page 33			■	
Neighborhood House (50' - 75' lot width)	Page 34			■	■
Large House (76' - 150' lot width)	Page 35				■
Estate	Page 36				■

General Requirements

The following shall apply to all building types:

- "Build-to Line or Zone" refers to the line along which the front wall of the building shall be built.
- Porches and Stoops may occur forward of the build-to line or zone, but shall not encroach within the Right-of-Way.
- Awnings, Canopies, Galleries, Balconies, and other building Appurtenances (as described in the Architectural Standards) may occur forward of the Build-to-Line or Zone, and may encroach within the Right-of-Way to cover the sidewalk.

Specialty Building Types

In addition to the above listed typical building types, "specialty" building types may be approved by the City.
Examples of specialty building types include large-format retail, gas/service station, and hotel buildings. Specialty building types shall conform to the Town Center district standards within this document.

4
BUILDING TYPE

Retail Building

Intent

Retail Buildings define walkable streets providing shopfronts along wide sidewalks. Buildings are typically attached or have narrow setbacks to provide a continuous building wall along the street.

Building Height

Maximum: 2 stories
Minimum: 1 stories

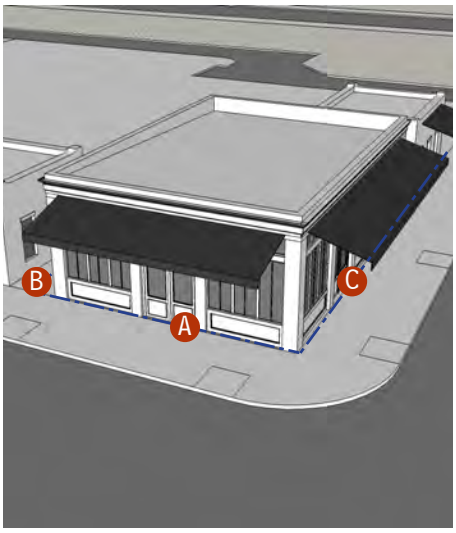
Setback Locations

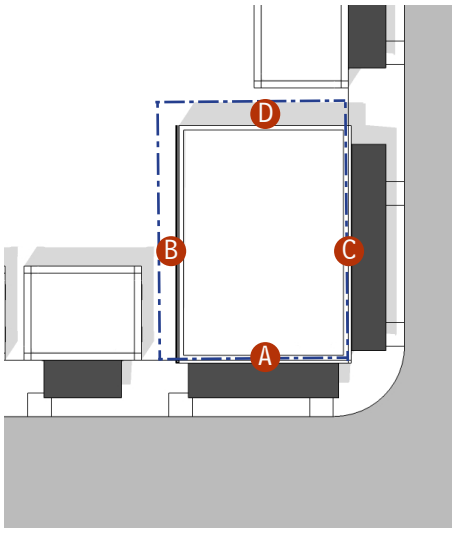
A Front Build-to Zone: 0' - 6'
(from front property line)

B Side Setback (midblock): 0' min.
(from side property line)

C Side Build-to Zone (corner): 0' - 6'
(from side property line)

D Rear Setback: 5' min.
(from rear property line)





Lot Size & Coverage

Minimum Lot Width: 18'
Maximum Lot Width: 200'
Minimum Building Frontage: 80%
Maximum Lot Coverage: 90%

Story Height

1st Floor: 14' min.
Upper Floors: 10' min.

Permitted Encroachments

An Awning, Canopy, Gallery, or second floor Balcony is required to provide shade along the sidewalk, and may occur forward of the build-to zone within the right-of-way. Refer to Architectural Standards for requirements.

Note: Required parking may be located on the building lot, in a common lot, or on-street.

Mixed-use Building

Intent

Mixed-use Buildings feature shopfronts along the sidewalk at the ground level, with office or residential spaces in the upper floors.

Building Height

Maximum: 4 stories
Minimum: 2 stories

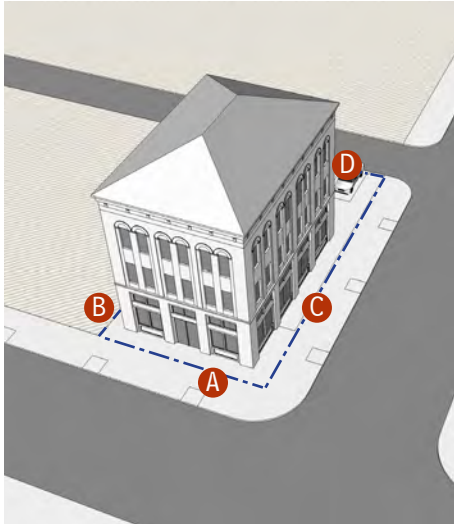
Setback Locations

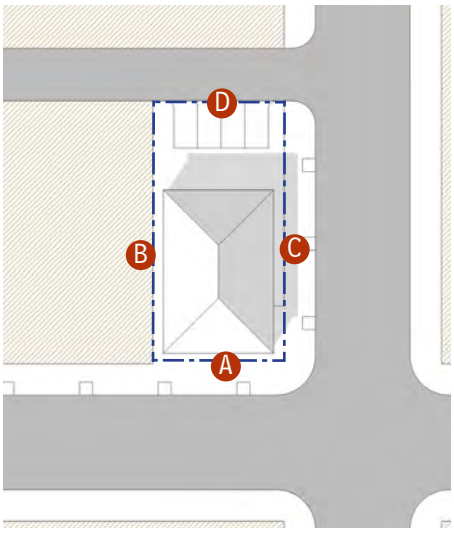
A Front Build-to Zone: 0' - 10'
(from front property line)

B Side Setback (midblock): 0' min.
(from side property line)

C Side Build-to Zone (corner): 0' - 10'
(from side property line)

D Rear Setback: per district standards
(from rear property line)





Lot Size & Coverage

Minimum Lot Width: n/a
Maximum Lot Width: 300'
Minimum Building Frontage: 80%
Maximum Lot Coverage: per District standards

Story Height

1st Floor: 14' min.
Upper Floors: 10' min.

Permitted Encroachments

An Awning, Canopy, Gallery, or second floor Balcony is required to provide shade along the sidewalk, and may occur forward of the build-to zone within the right-of-way. Refer to Architectural Standards for requirements.

Note: Required parking may be located on the building lot, in a common lot, or on-street.

4
BUILDING TYPE

Office Building

Intent

Office Buildings vary greatly in size and may house large corporations or smaller businesses. Office Buildings facing a street, park, or significant pedestrian space shall provide doors and windows facing the public space and must reinforce the urban character of the neighborhood with continuous walkable street frontages.

Building Height

Maximum: 4 stories (Workplace)
3 stories (Town Center)
Minimum: 1 stories

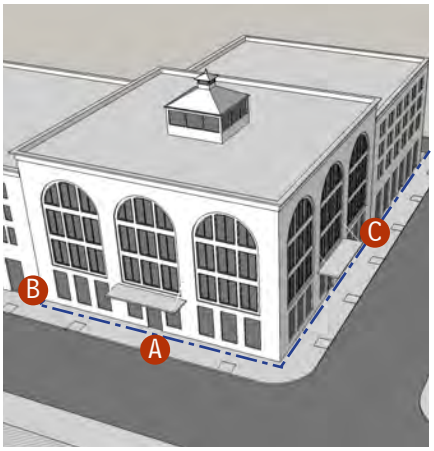
Setback Locations

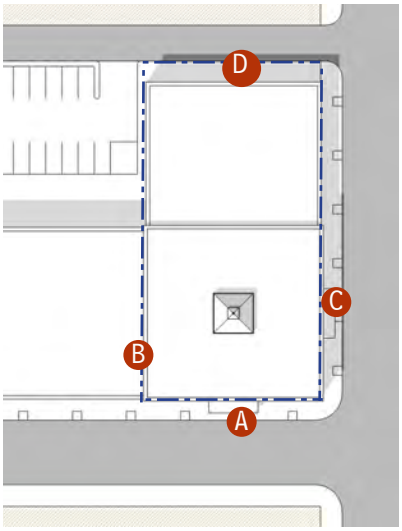
A Front Build-to Zone: 0' - 30' (Workplace)
0'- 10' (Town Center)
(from front property line)

B Side Setback (midblock): 0' min.
(from side property line)

C Side Build-to Zone (corner): 0' - 30' (Workplace)
0'- 10' (Town Center)
(from side property line)

D Rear Setback: per district standards
(from rear property line)





Note: Required parking may be located on the building lot, in a common lot, or on-street.

Lot Size & Coverage

Minimum Lot Width: n/a
Maximum Lot Width: per District standards
Minimum Building Frontage: 50% (Workplace)
80% (Town Center)
Maximum Lot Coverage: per District standards

Story Height

1st Floor: 14' min.
Upper Floors: 10' min.

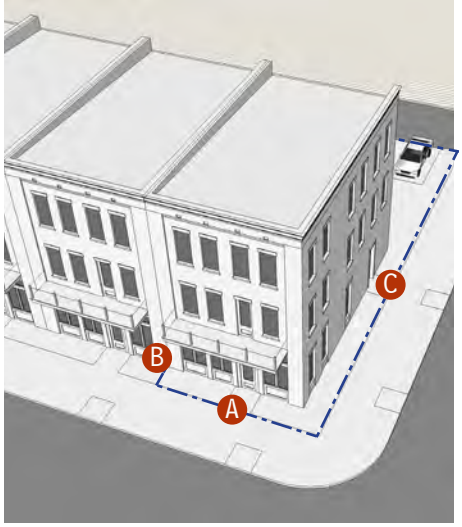
Permitted Encroachments

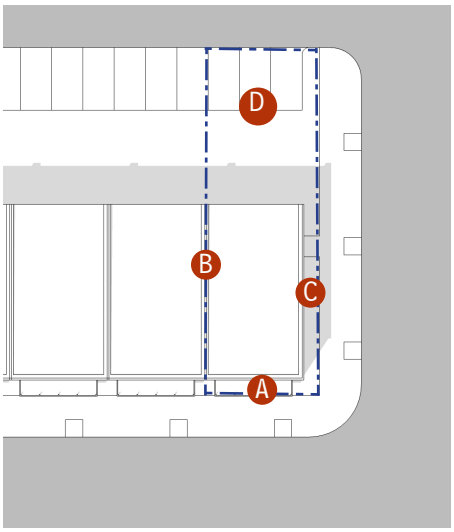
An Awning, Canopy, Gallery, or second floor Balcony may occur forward of the build-to zone within the right-of-way. Refer to Architectural Standards for requirements.

Live-Work Townhouse

Intent

The Live/Work Townhouse provides flexible space at the street level for retail or office, with a complete living unit above. The ground floor should be designed to accommodate changes in use.





Building Height

Maximum: 4 stories
Minimum: 2 stories

Setback Locations

A Front Build-to Zone: 0' - 10'
(from front property line)

B Side Setback (midblock): 0' min.
(from side property line)

C Side Build-to Zone (corner): 0' - 10'
(from side property line)

D Rear Setback: 5' min.
(from rear property line)

Lot Size & Coverage

Minimum Lot Width: 24'
Minimum Building Frontage: 90%
Maximum Lot Coverage: per District standards

Story Height

1st Floor: 14' min.
Upper Floors: 9' min.

Permitted Encroachments

An Awning, Canopy, Gallery, or second floor Balcony may occur forward of the build-to zone within the right-of-way. Refer to Architectural Standards for requirements.

Note: Required parking may be located on the building lot, in a common lot, or on-street.

4 BUILDING TYPE Townhouse

Intent

A Townhouse is a dwelling unit typically attached to abutting dwellings.

Building Height

Maximum: 4 stories
Minimum: 2 stories

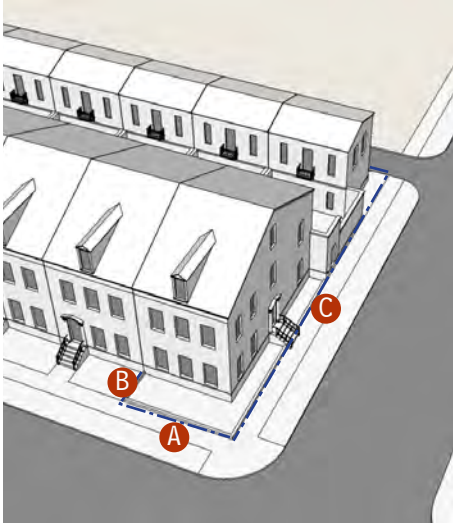
Setback Locations

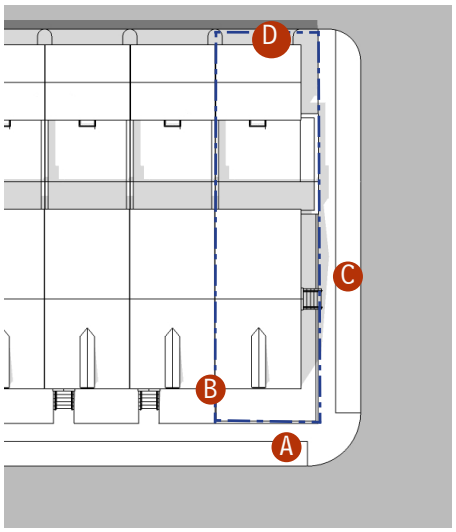
A Front Build-to Zone: 0' - 10'
(from front property line)

B Side Setback (midblock): 0' min.
(from side property line)

C Side Build-to Zone (corner): 0' - 10'
(from side property line)

D Rear Setback: 5' min.
(from rear property line)





Lot Size & Coverage

Minimum Lot Width: 24'
Minimum Building Frontage: 90%
Maximum Lot Coverage: per District standards

Story Height

1st Floor: 10' min.
Upper Floors: 9' min.

Permitted Encroachments

A front porch or stoop is required, which may occur forward of the Build-to Zone.

Neighborhood House (36' - 48')

Intent

The Neighborhood House is a detached single family dwelling, located within one of the residential neighborhood districts. On narrower lots (36' - 48') the house may occupy one side of the lot with a yard/open space on the other.

Building Height

Maximum: 3 stories
Minimum: 1 story

Setback Locations

A Front Build-to Zone: 5' - 18'
(from front property line)

B Side Setback (midblock):
0' min. (one side) and 8' min.
(from side property line)

C Side Build-to Zone (corner): 5' - 18'
(from side property line)

D Rear Setback: 5' min.
(from rear property line)

Front-loaded garages shall be setback a minimum of 10' from the principal building facade.

Lot Size & Coverage

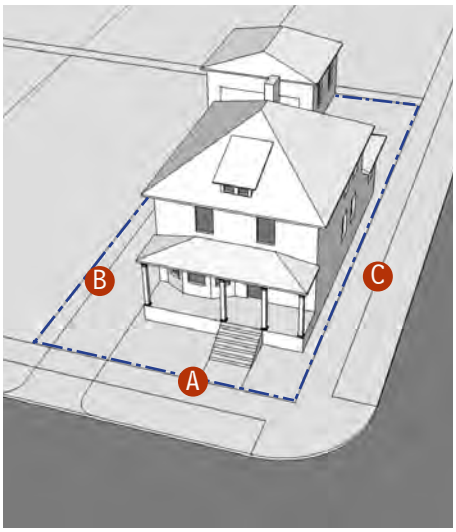
Minimum Lot Width: 36'
Maximum Lot Width: 48'
Maximum Lot Coverage: 75%

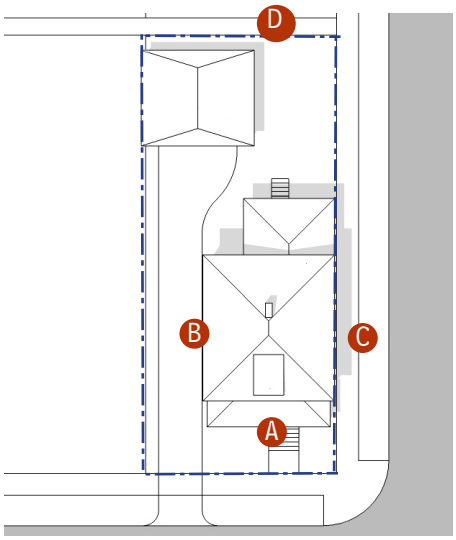
Story Height

1st Floor: 10' min.
Upper Floors: 9' min.

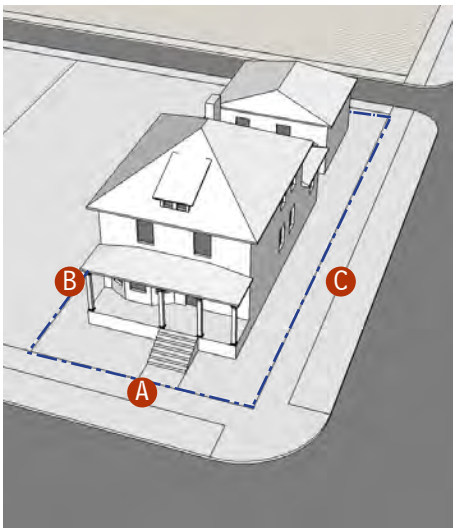
Permitted Encroachments

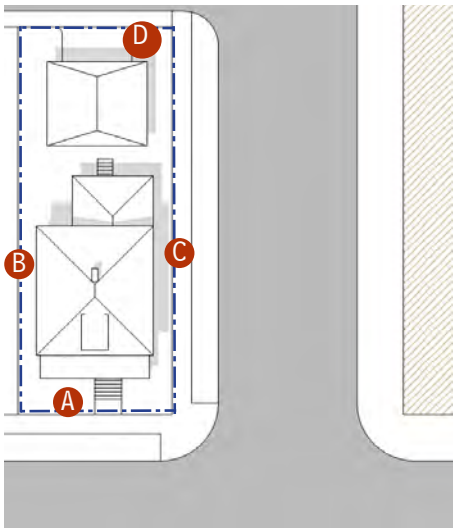
A front porch or stoop may occur forward of the Build-to Zone.





front-loaded Neighborhood House





rear-loaded Neighborhood House

4 BUILDING TYPE Neighborhood House (50' – 75')

Intent

The Neighborhood House is a detached single family dwelling, located within one of the residential neighborhood districts. Wider lots (60' - 75') typically have greater setbacks and larger yard areas.

Building Height

Maximum: per District standards
Minimum: 1 story

Setback Locations

A Front Build-to Zone:
10' - 18' (Neighborhood Center)
15' - 25' (Neighborhood)
(from front property line)

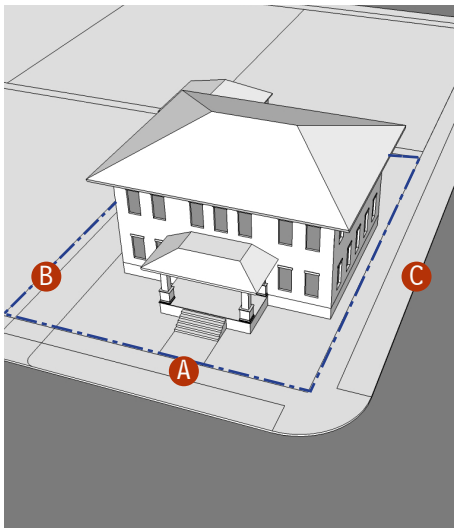
B Side Setback (midblock): 8' min.
(from side property line)

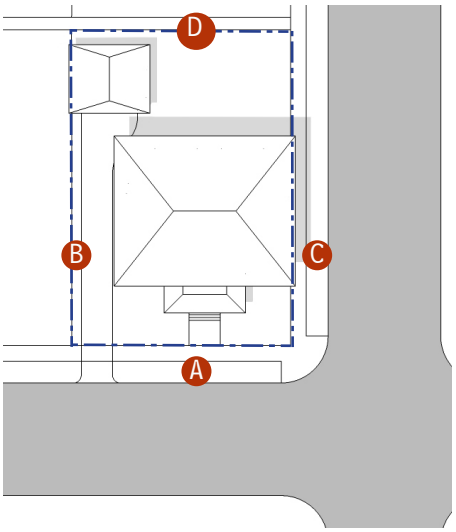
C Side Build-to Zone (corner):
10' - 18' (Neighborhood Center)
15' - 25' (Neighborhood)
(from side property line)

D Rear Setback: per District standards
(from rear property line)

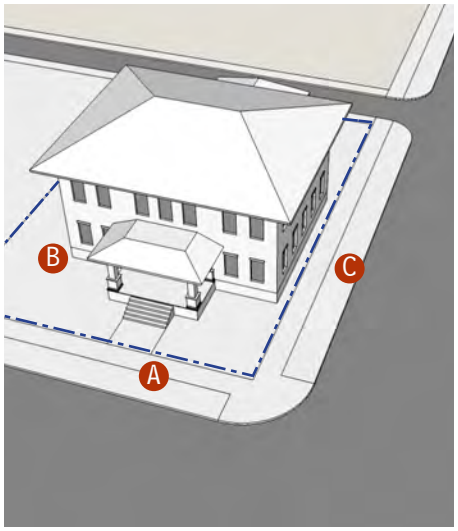
Pool Side and Rear Setback: 5' min.
Enclosures,
Side and Rear Setback: 3' min.

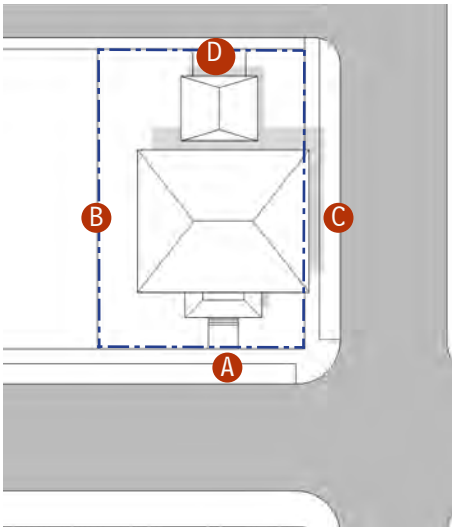
Front-loaded garages shall be setback a minimum of 10' from the principal building facade.





front-loaded Neighborhood House





rear-loaded Neighborhood House

Lot Size & Coverage

Minimum Lot Width: 50'
Maximum Lot Width: 75'
Maximum Lot Coverage: per District standards

Story Height

1st Floor: 10' min.
Upper Floors: 9' min.

Permitted Encroachments

A front porch or stoop may occur forward of the Build-to Zone.

Large House (76' – 150')

Intent

A Large House is a detached single family dwelling typically occupying a large lot found in the Neighborhood District.

Building Height

Maximum: 2 stories
Minimum: 1 story

Setback Locations

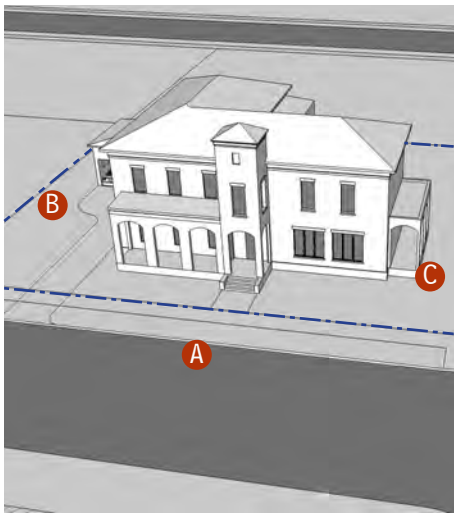
A Front Setback: 15'
(from front property line)

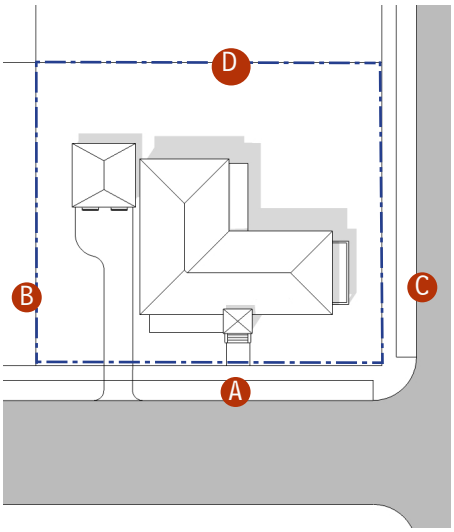
B Side Setback (midblock): 8' min.
(from side property line)

C Side Setback (corner): 15'
(from side property line)

D Rear Setback: 10' min.
(from rear property line)

Front-loaded garages shall be setback a minimum of 10' from the principal building facade.





front-loaded Edge House

Lot Size & Coverage

Minimum Lot Width: 76'
Maximum Lot Width: 150'
Maximum Lot Coverage: 50%

Story Height

1st Floor: 10' min.
Upper Floors: 9' min.

4 BUILDING TYPE Estate House

Intent

An Estate House is a large single family dwelling located on a large parcel of land, typically at the edge of the neighborhood.

Building Height

Maximum: 2 stories
Minimum: 1 story

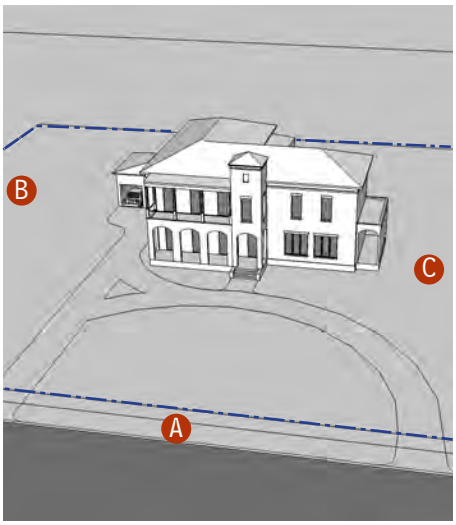
Setback Locations

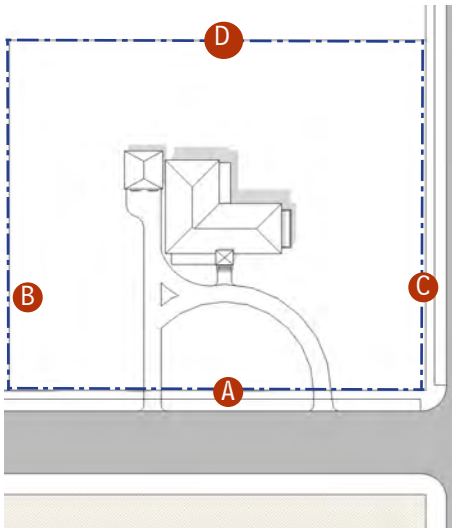
A Front Setback: 15' min.
(from front property line)

B Side Setback (midblock): 10' min.
(from side property line)

C Side Build-to Zone (corner):
15' setback
(from side property line)

D Rear Setback: 10' min.
(from rear property line)





Lot Size & Coverage

Minimum Lot Width: 120'
Maximum Lot Width: n/a
Maximum Lot Coverage: 50%

Story Height

1st Floor: 10' min.
Upper Floors: 9' min.

Architectural Standards

Intent

The Architectural Standards are intended to implement a cohesive character for development within Avenir. These standards address many components of architectural detailing and building design that relate to the public realm between buildings and the street.

The regulations in this section apply to all buildings that directly face streets. The regulations may be used as guidelines for any buildings internal to large parcels that are accessed through drive aisles or parking lots.

This article specifies building materials, details and configurations. Building designs which strictly comply with these standards are to be considered approved for matters of aesthetics and shall not require further discretionary review for architectural appropriateness.

If these standards conflict with ADA standards or the current building construction & life safety codes used by the City of Palm Beach Gardens and the State of Florida, those codes will supersede.

The requirements of the Architectural Standards are organized by topic or architectural detail. No buildings are intended to have all of the architectural details contained in this article. If a proposed building does not have contain a balcony in its design, for example, then that set of requirements can be ignored, since they do not apply.

Images contained in this code are meant to demonstrate character and configuration, and are for illustrative purposes only. The accompanying text and dimensional requirements are rules that govern permitted development.

5
ARCHITECTURAL STANDARDS

Awnings, Canopies & Galleries

Awnings

Minimum Awning Depth = 4 feet (measured perpendicular to the wall face)
Minimum Underside Clearance = 8 feet

The above requirements apply to first-floor awnings that are installed above a sidewalk or walkway. There are no minimum requirements for awnings above the first floor.

Awnings may occur forward of the build-to-line, setback, and/or build-to-zone, and may encroach within the sidewalk, but shall not extend closer than two feet to the any curb line. Awnings shall be made of commercial grade canvas and shall be either fixed or retractable. Plasticized, and/or vinyl fabrics are prohibited. Back-lit awnings are prohibited. Awnings, canopies, and galleries, where applicable, shall require fire sprinklers.

Canopies

Minimum Canopy Depth = 6 feet (measured perpendicular to the wall face)
Minimum Underside Clearance = 8 feet

The above requirements apply to first floor canopies. Canopies above the first floor are not permitted, except if they are covering a recessed terrace and thus behind the plane of the principal building's facade.

Ground floor canopies may occur forward of the build-to-line, setback, and/or build-to-zone, and may encroach within the sidewalk, but shall not extend closer than two feet to the any curb line. Canopies shall be either supported from below by brackets, or from above by suspension cables or chains. Awnings, canopies, and galleries, where applicable, shall require fire sprinklers.

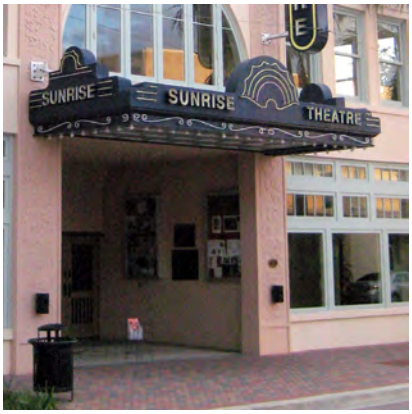
Galleries

Minimum Gallery Depth = 8 feet (measured from face of building to outside column face)
Minimum Underside Clearance = 9 feet
Length = If a building façade has a first-floor Gallery it shall occur along at least 80% of that façade.

First floor Galleries may occur forward of the build-to-line, setback, and/or build-to-zone, and may encroach within the sidewalk, but shall not extend closer than two feet from the curb line, nor farther than five feet from the curb line.

Galleries shall be only one or two stories in height and shall have flat or pitched roofs, up to 8:12. On corners, galleries shall be permitted to wrap around the side of the building.

Open balconies are permitted on galleries above the sidewalk level and may be used to cover terraces or portions of terraces on upper floors. Awnings, canopies, and galleries, where applicable, shall require fire sprinklers.



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5
ARCHITECTURAL STANDARDS

Porches, Balconies & Stoops

Porches

Minimum Porch Depth = 7 feet (measured from face of building to outside column face)
Minimum Underside Clearance = 8 feet floor to ceiling

Front porches may occur forward of the build-to-line, setback, and/or build-to-zone.

Front, side, and rear porches may be screened; however, if screened, all architectural expression (columns, railings, etc.) shall occur on the outside of the screen.

Porches shall match the architectural language of the primary building and use similar materials and details. Multi-story porches and upper floor porches are permitted.

Balconies

Minimum Balcony Depth = 2 feet
Minimum Underside Clearance = 9 feet

Balconies may occur forward of the build-to-line, setback, and/or build-to-zone, but shall not extend closer than two feet from the curb line.

Balconies shall be permitted to have roofs, but are required to be open, un-airconditioned parts of buildings. On corners, Balconies shall be permitted to wrap around the side of the building. All balconies shall be visually supported, either from below by brackets, or from above by cables.

Stoops

Minimum Stoop Depth = 2 feet (measured from face of building to outside column face or top of highest riser)
Minimum Underside Clearance = 8 feet

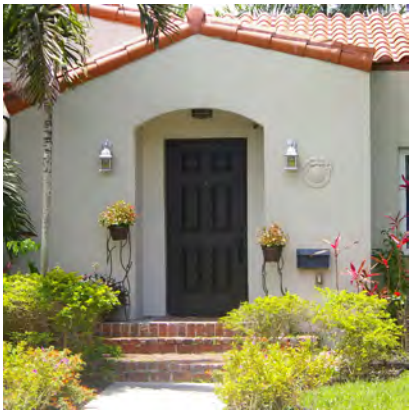
Stoops may occur forward of the build-to-line, setback, and/or build-to-zone, but shall not cross into any sidewalk or public right-of-way.

Stoop stairs may run to the front or to the side. Stoops shall be covered, either with a roof, or area inset into the main body of the building. Stoops shall match the architectural language of the primary building and use similar materials and details.





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5
ARCHITECTURAL STANDARDS

Doors, Windows & Porte-cochères

Doors

Entrances along a street shall conform to any predominant positioning, scale, and rhythm of existing doorways. All doorways shall be vertically proportioned.

When an alley or rear lane is present, garage doors must face towards the alley.

Windows

All windows shall be vertically proportioned and composed of individual elements which are also vertically proportioned. Several vertically proportioned windows may be combined together within an overall opening which is horizontally proportioned.

Permitted window types include single-, double-, and triple-hung, casement, and in applications such as shopfronts or small (less than 20 square feet) accent windows, fixed glass.

When used, decorative shutters shall be appropriately sized to cover the window opening.

Porte-cochère *or* Carriage Porch

Minimum Width = 10 feet (corresponding to the width of the parking space/drive aisle)
Maximum Width = 14 feet, for single family house; 30 feet for other buildings
Minimum Length = 10 feet (corresponding to the length of the parking space/drive aisle)
Maximum Length = 22 feet, for single family house; 66 feet for other buildings
Garden walls extending from the columns of a porte-cochère do not count toward maximum widths or depths.
Maximum Width = 22 feet, for single family house; 30 feet for other buildings

Underside Clearance = 13'6" minimum (commercial); 10' minimum (residential)
Columns and supports are inclusive of the dimensions above.

For single-family houses or mixed-use buildings, a porte-cochère may only occur on one side of the principal structure. For multi-family buildings, hotels, or other single-use buildings, a porte-cochère may occur on either the front, side or rear of the principal building, provided there is space inside the setbacks. If located in the front, the porte-cochère shall not extend into public rights-of-way.









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5
ARCHITECTURAL STANDARDS

Columns, Railings & Parapets

Columns

Columns shall be arranged such that they appear to support the weight of the building above. Openings created between columns shall always be vertically proportioned. Use spans of a width that is appropriate for the materials used (wood spans farther than stone). Columns must always support a structural spanning element, such as a beam or arch. The outside edge of the beam or arch must align with the neck of the column below, not the edge of the capital.

Columns may be round or square in section, and may vary greatly in detailing, from very formal turned columns, to abstracted and simplified wooden posts. Columns shall be four inches minimum in width and depth (four inch outer diameter for round columns), with or without capitals and bases.

Railings

Minimum Railing Height = 36 inches, or as required by local building codes for upper level railings.

Railings are supported primarily at the ends by columns or posts, but may have small supporting members under longer stretches.

Railings shall match the architectural character and detailing of the primary structure, and shall be compatible with other trim elements, such as door/window frames.

Parapets

Parapets are required around the entire perimeter of flat roofs and shall be a minimum of two feet in height above the roof. When used on the end walls of a gabled roof, parapets shall extend a minimum of 12 inches above the adjacent roof plane.

Parapet walls may also be used on balconies or along stairways in place of a railing. They shall be a minimum of 36 inches in height, or higher if required by local building codes, and 4 inches in thickness when used in this manner.









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5
ARCHITECTURAL STANDARDS

Roofs, Chimneys & Cornices

Roofs

Permitted roof types include gables, hipped, and flat. For circular towers or semi-circular rooms /wings, a cone or semi-coned shaped roof is permitted. Applied mansard roofs are not permitted. Pitched roofs shall have no less than a 5:12 slope, except that porches, galleries and stoops may be no less than 2:12. Roofs shall be symmetrically sloped where visible from streets and public spaces. Flat roofs shall be enclosed by parapets and may be used as terraces if accessed from an upper level.

Approved roof materials on pitched roofs are preferred to be terra-cotta or concrete roof tiles. Other permitted roofs may be finished with metal standing seam, slate, and synthetic slate. Tiles with a core color of blue or green shades are not permitted.

Chimneys

Chimneys shall be vertically proportioned and constructed of materials consistent with the building façade. The construction material generally matches that of the exposed foundation in the case of wood construction. Brick, stone and stuccoed structures shall have chimneys of the same material. When located on an exterior wall, chimneys shall be built as an integral part of the wall and flush with it.

Chimneys clad in any type of siding are not permitted.

Cornices

All buildings with flat roofs are required to have a cornice along the top of the front façade which faces a street.

Cornices shall extend a minimum of 6 inches from the building wall. A cornice line is recommended between the first and second floors of commercial buildings, mixed-use buildings, and apartment/condo buildings.









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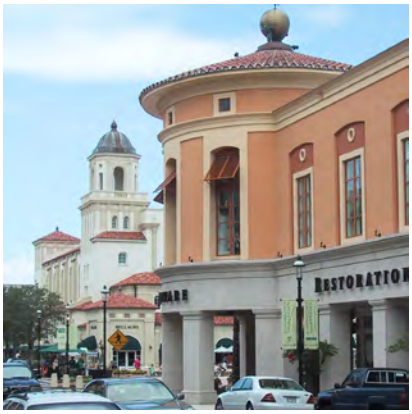
5
ARCHITECTURAL STANDARDS

Towers, Cupolas & Dormers



Towers

Towers with a footprint smaller than 30 feet x 30 feet may extend up to one story above the designated height limit. Towers with a footprint smaller than 20 feet x 20 feet may extend up to twenty five feet above the designated height limit.

Towers are permitted on all Civic Buildings or any building which is located on a corner.

Cupolas / Lanterns

Maximum Cupola/Lantern Height = 6 feet (from ridge of roof upon which it sits, excluding pinnacles)
Maximum Cupola/Lantern Area = 10 square feet

Cupolas/Lanterns shall be either square, round, rectangular or octagonal in plan. Their overall proportion shall be vertical. They are generally small in size and occur either at the intersection of two roofs, or at the center of a long uninterrupted roof ridge. Cupolas/Lanterns may extend above the designated height limit.

Cupolas shall complement the architectural style of the primary building roof and use similar materials and detailing.

Dormers

Permitted dormer types include gable, hipped, shed, and eyebrow (curved). When comprised of a single window, dormers shall not be wider than the width of the opening plus the width of the two corresponding walls on each side. Dormers may be used for roof ventilation.









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5
ARCHITECTURAL STANDARDS

Garden Walls, Fences & Hedges

Garden Walls

Minimum Garden Wall Height = 2 feet (above adjacent sidewalk grade)
Maximum Garden Wall Height = 4 feet (above adjacent sidewalk grade along street frontages and 8 feet above adjacent grade along interior side or rear property lines)

Garden walls shall be constructed of masonry and may be finished with stucco.

Garden walls may include panels of wood or iron between piers. Where garden walls occur along street frontages, they shall be located parallel to adjacent sidewalks, and typically within 2 feet of the property line. Garden Walls may also act as low retaining walls along a property's edge. Garden walls and fences shall not obscure the view of fire hydrants from the street, nor shall they block access from the road.

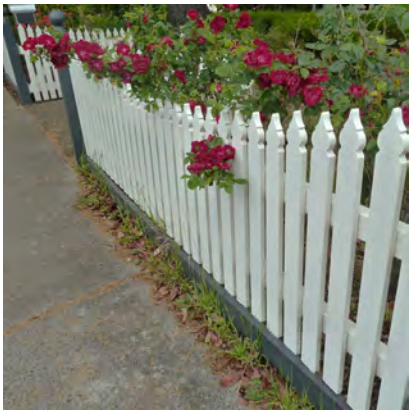
Fences

Minimum Fence Height = 2 feet (above adjacent sidewalk grade)
Maximum Fence Height = 4 feet (above adjacent sidewalk grade along street frontages and 7 feet above adjacent grade along interior side or rear property lines when not adjacent to a street frontage

Where fences occur along street frontages, they shall be located parallel to adjacent sidewalks, and typically within 2 feet of the property line.

Fences shall be constructed of a single material and may be either wood, vinyl, or wrought iron. All wood fences shall be stained or painted. Chain link fences are prohibited.

Garden walls and fences shall not obscure the view of fire hydrants from the street, nor shall they block access from the road.



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5
ARCHITECTURAL STANDARDS

Siding, Stucco and Masonry

Siding

Permitted siding types include:

- horizontal lap siding siding, of wood or composition board (such Hardiplank)
- vertical board and batten, of wood or composition board (such Hardiplank)
- shingles, of wood or composition board (such Hardiplank)

All siding types must incorporate vertical corner boards on outside building corners. Corner boards shall be a minimum of 3 inches in width.
Vinyl and aluminum siding are not permitted.

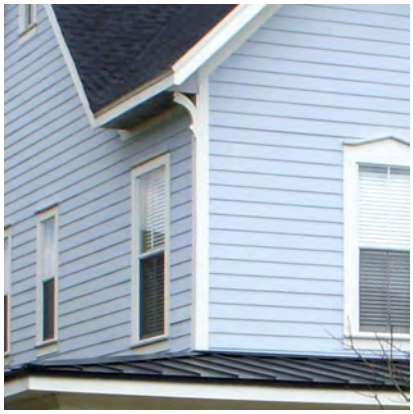
Stucco

Surfaces finished in stucco shall be smooth or hand trowelled in texture and painted.

Sprayed-on stucco finishes and stucco panels are prohibited.

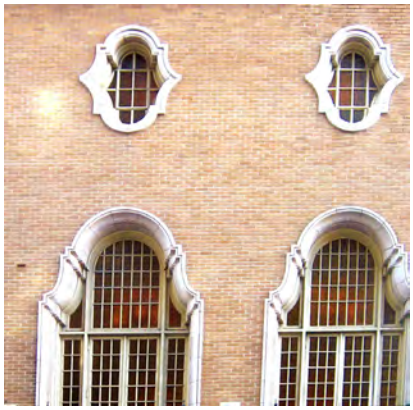
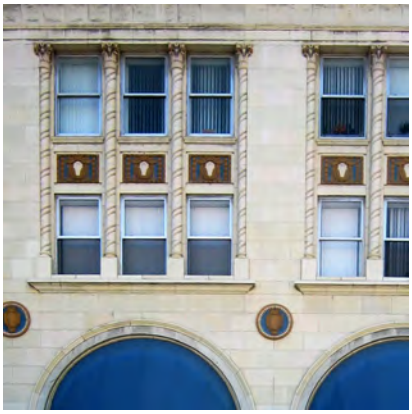
Masonry

Masonry walls, whether load-bearing or veneer, shall be of brick, natural stone, manufactured or cultured stone, cast stone, decorative CMU, or products of similar quality of manufacture.







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Traffic Engineering, Transportation Planning

Avenir
Concurrency Traffic Study

Prepared for:
Avenir Holdings, LLC.

Prepared by:

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Final November 18, 2015
November 15, 2015
November 8, 2015
Updated September 1, 2015
Revised July 1, 2015
Revised April 23, 2015
Revised September 2014
December 2013
Project # PR15021.0

Prepared by:	Professional Engineer
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1.0 INTRODUCTION

1.1 Project Description

Avenir is located north side of Northlake Boulevard, east of Grapeview Boulevard, south of the Beeline Highway and just east of Stonewall Drive in the western border of the city of Palm Beach Gardens, Florida. **Figure 1** shows the project location. The site is approximately 4,700 acres of which 1,700 acres will be restored and preserved as natural areas, including grasslands, uplands and wetlands. Avenir is bordered by existing development (the Acreage, Caloosa, and North County Airport) and natural areas (JW Corbett Wildlife Management Area and Grassy Waters Preserve).

Avenir is a community that is well placed and thoughtfully designed, with new development of an innovative form and cohesive mix of uses in balance with conservation and restoration of the natural systems. Avenir provides for important transportation connections in western Palm Beach County. A new street connection between Northlake Boulevard and the Beeline Highway will benefit the surrounding area by creating a north/south link that can minimize travel times while connecting people to local jobs and businesses. Furthermore, Avenir's Town Center will provide much needed services, entertainment destinations and jobs in proximity to the Western Communities.

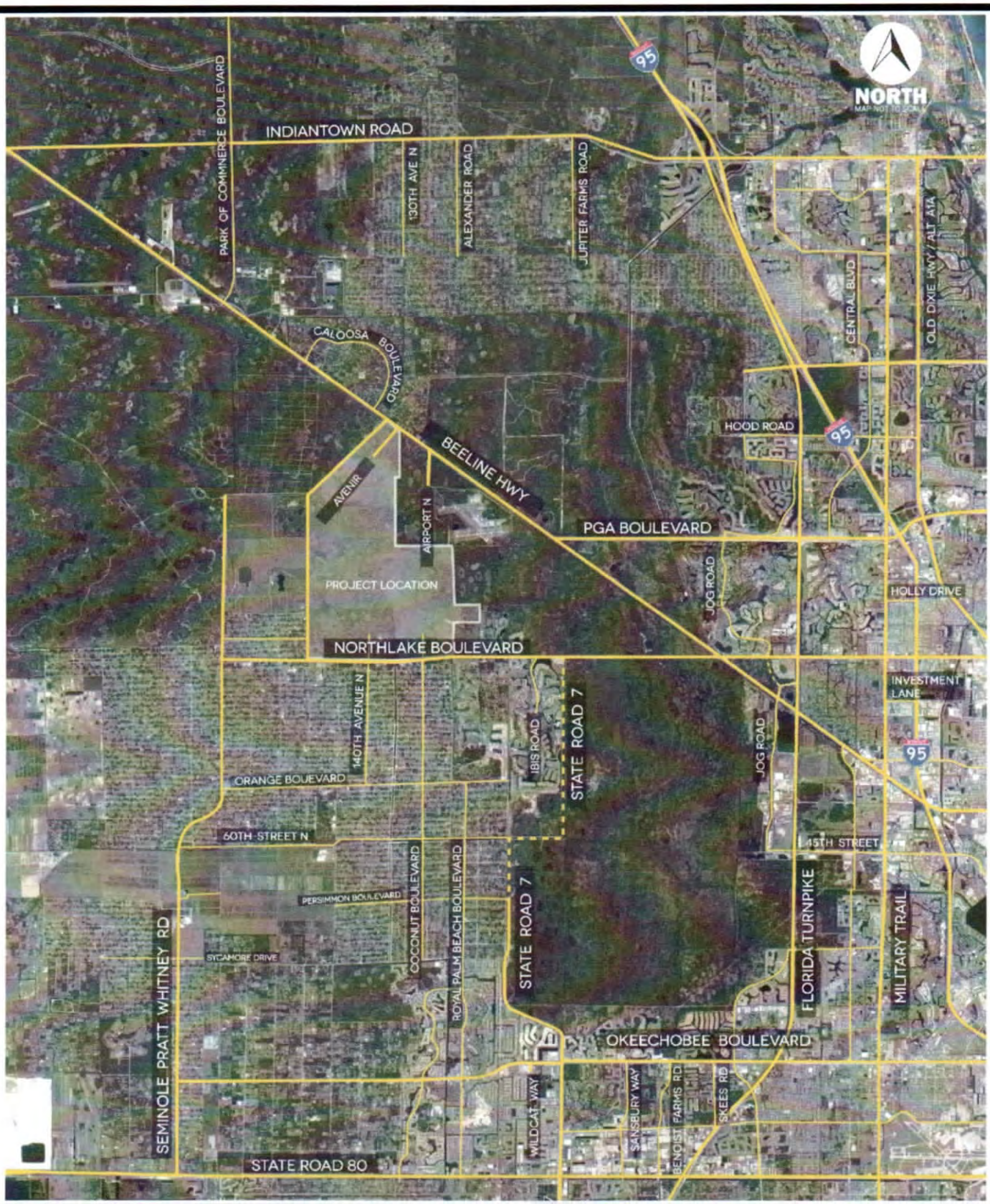

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FIGURE - 1

LOCATION

AVENIR

APRIL 16, 2015

2.0 TRAFFIC PROJECTIONS

This traffic study is consistent with the Palm Beach County Traffic Performance Standards (TPS), Article 12 of the Palm Beach County Land Development Code. The study is also consistent with the methodology approved by the reviewing agencies. The Methodology letter is included in **Appendix A**. Project build-out is anticipated in 2035. A site plan for the project is also included in **Appendix A.**

2.1 Existing Traffic (2014)

The 2014 peak season, peak-hour directional traffic volumes were obtained from the Palm Beach County Traffic Division database. When necessary, older counts were updated to 2014 conditions using the historical background growth rate for this area. In addition, if necessary, turning movement counts were collected from 7:00 – 9:00 am and from 4:00 – 6:00 pm. The turning movement counts were adjusted using FDOT's peak season adjustment factors. Existing traffic data is provided in **Appendix B**.

2.2 Project Traffic

Avenir is a proposed, mixed-use development to be developed in phases over a 21 year period. Project buildout is anticipated for the year 2035. The proposed development program is shown in Table 1.

Table 1
Proposed Development Program

Land Use	Units	Intensity
Residential Single Family	Dwelling Units	3,735
Residential Multi-family (Townhomes)	Dwelling Units	250
Hotel	Rooms	300
Retail / Commercial	Square Feet	400,000
Office	Square Feet	1,800,000
Medical Office	Square Feet	200,000
Elementary School	Students	600
Golf Course	Holes	9
Regional Park	Acres	55
Equestrian Facilities	Stalls	80

2.2.1 Trip Generation

Project trip generation was based on the rates published in the Palm Beach County Traffic Performance Standards (TPS). Rates from the Institute of Transportation Engineers (ITE), Trip Generation, 9th Edition were used when TPS rates were not available.

2.2.2 Internal Capture

In terms capture refers to the satisfaction of trips within the project. In other words, some trips generated by mixed-use projects do not exit the project or enter the major roadway system. Internal traffic was estimated based on the methodology of the Transportation Research Board (TRB) National Cooperative Highway Research Program (NCHRP) Report 684. This methodology estimates morning and afternoon peak–period trips to and from six specific land use categories.

2.2.3 Pass-by Trips

Some trips generated by the non-residential uses are from existing traffic passing the proposed project and are not newly generated trips. Credit against the trip generation of the proposed project was taken for these trips up to the percentage shown in Article 13, Impact Fees, or the ITE Manual. Pass-by traffic does not exceed 25% of the adjacent street traffic.

A summary of the project trip generation analysis including internal capture and pass-by trips is shown in **Table 2**. Detailed analysis and a summary table are provided in **Appendix C**. Based on the project, net, new external trips the Radius of Development Influence (RDI) for this analysis is five miles.

Table 2
Project Trip Generation Summary

Scenario	Daily		AM Peak Hour				PM Peak Hour			
			In	Out	Total	% Internal	In	Out	Total	% Internal
ITE Trip Generation	78,697		3,304	2,866	6,170		3,425	4,693	8,118	
NCHRP Internal	-16,185	-20.8%	-587	-588	-1,175	-19.0%	-897	-896	-1,793	-22.1%
Pass-by	-4,341	-5.3%	-226	-36	-262	-4.2%	-185	-366	-551	-6.8%
Net New External Trip Difference	**58,171**		**2,491**	**2,242**	**4,733**		**2,343**	**3,431**	**5,774**	

2.2.4 Project Traffic Distribution and Assignment

A directional project trip distribution was based on discussions with representatives from Palm Beach County, the Florida Department of Transportation (FDOT) and the City of Palm Beach Gardens. **Figure 2** shows the project distribution on the roadway network. **Table 3** shows the assignment of the AM and PM peak hour project traffic on the external roadway network, as well as the project significance based on the peak hour directional service volume of each roadway.

2.3 Future Traffic Conditions (2035)

2.3.1 Programmed Roadway Improvements

The Palm Beach County Five Year Road Program, the FDOT Five Year Work Program and the Palm Beach MPO Transportation Improvement Program were reviewed to identify roadway improvements within the study area. **Table 4** shows the planned and programmed roadway improvements within the project area. Excerpts from the programs are included in **Appendix D**. Since new roads are proposed in the study area, a shift in the area traffic patterns is anticipated. Diversions taken to account for these new roadways are documented in **Appendix E**.

Table 4
Programmed Roadway Improvements

Roadway	Improvement	Construction Schedule
Northlake Blvd - Seminole Pratt Whitney Rd to Hall Blvd	2L to 4L	FY 2015
Northlake Blvd – Hall Blvd to Coconut Blvd	2L to 4L	FY 2017
Seminole Pratt Whitney Rd - Southern Blvd. to Sycamore Dr.	2L to 4L	Under Construction
Seminole Pratt Whitney Rd - M Canal to Orange Blvd	2L to 4L	Under Construction
Seminole Pratt Whitney Rd – Orange Blvd to Northlake Blvd	2L to 4L	Under Construction
SR 7 Extension – Persimmon Blvd to 60th St	0L to 2L	Under Construction
SR 7 Extension – Okeechobee Blvd to 60th St	2L to 4L	FY 2016
SR 7 Extension - 60th St to Northlake Blvd	0L to 4L	FY 2017 & 2018
Roebuck Rd - SR 7 to Jog Rd	0L to 4L	FY 2018
Jog Rd – Roebuck Rd to - S of 45th St	0L to 4L	FY 2018
Beeline Highway – Indiantown Rd to Pratt Whitney Rd	2L to 4L	Under Construction
Beeline Highway – Northlake Blvd to Blue Heron Blvd *	4L to 6L	FY 2023

* not included as assured construction

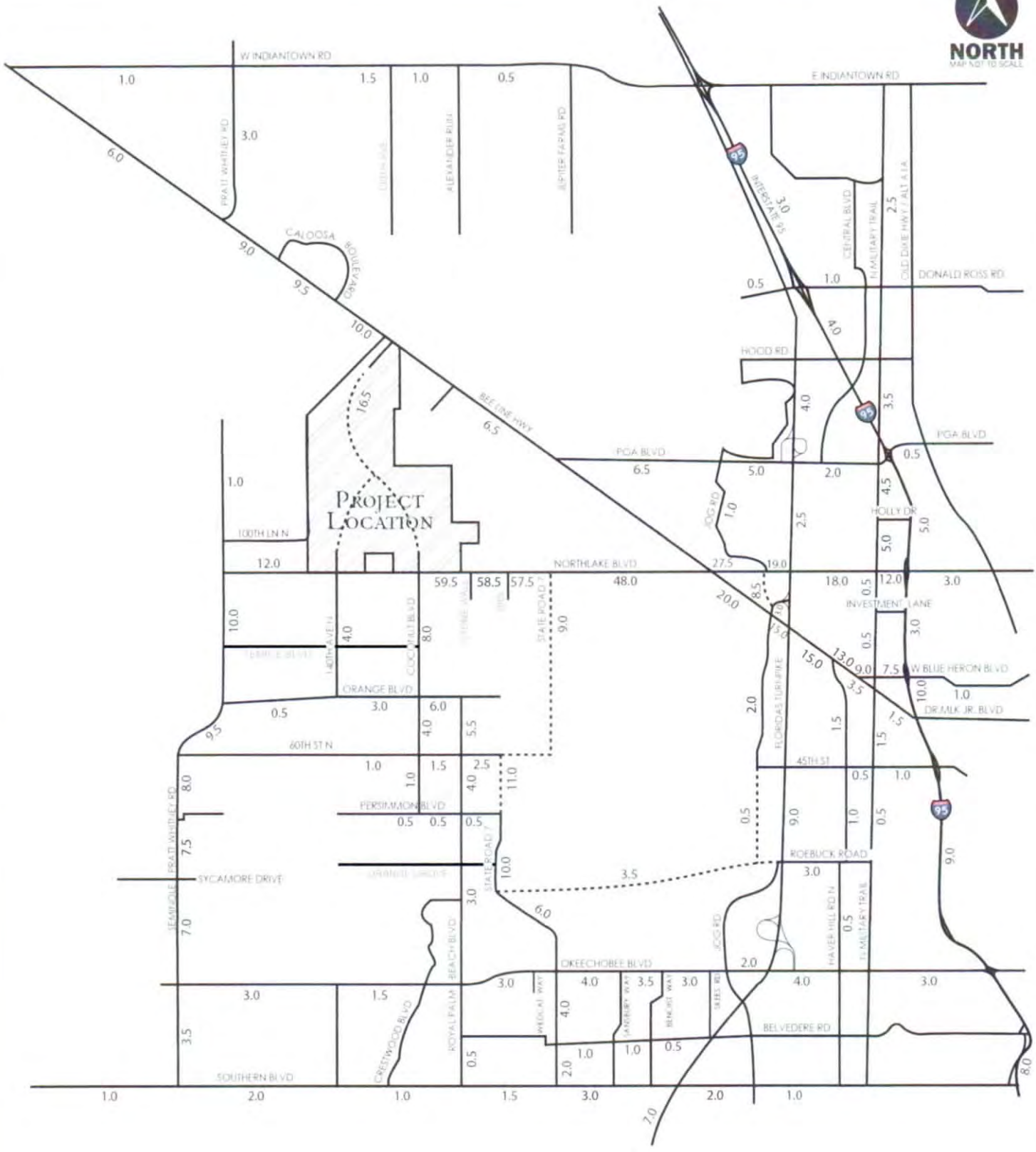

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FIGURE - 2

TRIP DISTRIBUTION

AVENIR

APRIL 16, 2015

Table 3

Avenir Trip Assignment & Significance Analysis

Roadway	Segment		Existing + Committed Lanes	Class	LOS D Service Volume (1)	Direction	% Distribution		Within 5 mi radius?	% Project Distribution	AM PEAK HOUR			PM PEAK HOUR		
	From	To					OUT	IN			Peak Hour Trips	Project % Impact	Significant Impact?	Peak Hour Trips	Project % Impact	Significant Impact?
60th Street	140th Av	Coconut Blvd	2L	I	880	EB	0.0%	1.0%	Yes	1.0%	25	2.8%	Yes	23	2.7%	Yes
					880	WB	1.0%	0.0%	Yes	1.0%	22	2.5%	Yes	34	3.9%	Yes
	Coconut Blvd	Royal PB Blvd	2L	I	880	EB	1.5%	0.0%	Yes	1.5%	34	3.8%	Yes	51	5.8%	Yes
					880	WB	0.0%	1.5%	Yes	1.5%	37	4.2%	Yes	35	4.0%	Yes
	Royal PB Blvd	SR 7	2L	I	880	EB	2.5%	0.0%	Yes	2.5%	56	6.4%	Yes	86	9.7%	Yes
					880	WB	0.0%	2.5%	Yes	2.5%	62	7.1%	Yes	59	6.7%	Yes
140 Avenue N	Orange Blvd	Temple Blvd	2L	I	880	NB	0.0%	4.0%	Yes	4.0%	100	11.3%	Yes	94	10.7%	Yes
					880	SB	4.0%	0.0%	Yes	4.0%	90	10.2%	Yes	137	15.6%	Yes
	Temple Blvd	Northlake Blvd	2L	I	880	NB	0.0%	4.0%	Yes	4.0%	100	11.3%	Yes	94	10.7%	Yes
					880	SB	4.0%	0.0%	Yes	4.0%	90	10.2%	Yes	137	15.6%	Yes
Beeline Highway (2)	Indiantown Rd *2L to 4L Under Const.	Pratt Whitney Rd	4LD	Unint.	3,320	EB (SB)	0.0%	6.0%	Yes	6.0%	149	4.5%	Yes	141	4.2%	Yes
					3,320	WB (NB)	6.0%	0.0%	Yes	6.0%	135	4.1%	Yes	206	6.2%	Yes
	Pratt Whitney Rd	Caloosa Blvd	4LD	Unint.	3,320	EB (SB)	0.0%	9.0%	Yes	9.0%	224	6.8%	Yes	211	6.4%	Yes
					3,320	WB (NB)	9.0%	0.0%	Yes	9.0%	202	6.1%	Yes	309	9.3%	Yes
	Caloosa Boulevard	Project Entrance	4LD	Unint.	3,320	EB (SB)	0.0%	10.0%	Yes	10.0%	249	7.5%	Yes	234	7.1%	Yes
					3,320	WB (NB)	10.0%	0.0%	Yes	10.0%	224	6.8%	Yes	343	10.3%	Yes
	Project Entrance	N. County Airport	4LD	Unint.	3,320	EB (SB)	6.5%	0.0%	Yes	6.5%	147	4.4%	Yes	224	6.8%	Yes
					3,320	WB (NB)	0.0%	6.5%	Yes	6.5%	163	4.9%	Yes	153	4.6%	Yes
	N. Country Airport	PGA Blvd	4LD	Unint.	3,320	EB (SB)	6.5%	0.0%	Yes	6.5%	147	4.4%	Yes	224	6.8%	Yes
					3,320	WB (NB)	0.0%	6.5%	Yes	6.5%	163	4.9%	Yes	153	4.6%	Yes
	PGA Blvd	NorthlakeBlvd	4LD	Unint.	3,320	EB (SB)	0.0%	0.0%	Yes	0.0%	0	0.0%	No	0	0.0%	No
					3,320	WB (NB)	0.0%	0.0%	Yes	0.0%	0	0.0%	No	0	0.0%	No
	NorthlakeBlvd	Jog Rd	4LD	I	1,960	EB (SB)	20.0%	0.0%	No	20.0%	448	22.9%	Yes	686	35.0%	Yes
					1,960	WB (NB)	0.0%	20.0%	No	20.0%	498	25.4%	Yes	469	23.9%	Yes
	Jog Rd	Haverhill Rd	4LD	I	1,960	EB (SB)	15.0%	0.0%	No	15.0%	336	17.2%	Yes	515	26.3%	Yes
					1,960	WB (NB)	0.0%	15.0%	No	15.0%	374	19.1%	Yes	351	17.9%	Yes
	Haverhill Rd	Blue Heron Dr	4LD	I	1,960	EB (SB)	13.0%	0.0%	No	13.0%	291	14.9%	Yes	446	22.8%	Yes
					1,960	WB (NB)	0.0%	13.0%	No	13.0%	324	16.5%	Yes	305	15.5%	Yes
	Blue Heron Dr	Military Trail	4LD	I	1,960	EB (SB)	3.5%	0.0%	No	3.5%	78	4.0%	No	120	6.1%	Yes
					1,960	WB(NB)	0.0%	3.5%	No	3.5%	87	4.4%	No	82	4.2%	No
Blue Heron Blvd (2)	Beeline Hwy	Military Trail	4LD	I	1,960	EB	9.0%	0.0%	No	9.0%	202	10.3%	Yes	309	15.8%	Yes
					1,960	WB	0.0%	9.0%	No	9.0%	224	11.4%	Yes	211	10.8%	Yes
	Military Trail	I-95	6LD	I	2,940	EB	7.5%	0.0%	No	7.5%	168	5.7%	Yes	257	8.8%	Yes
					2,940	WB	0.0%	7.5%	No	7.5%	187	6.4%	Yes	176	6.0%	Yes
	I-95	Congress Av	6LD	I	2,940	EB	1.0%	0.0%	No	1.0%	22	0.8%	No	34	1.2%	No
					2,940	WB	0.0%	1.0%	No	1.0%	25	0.8%	No	23	0.8%	No
Coconut Boulevard	Persimmon Blvd	60th St	2L	I	880	NB	0.0%	1.0%	Yes	1.0%	25	2.8%	Yes	23	2.7%	Yes
					880	SB	1.0%	0.0%	Yes	1.0%	22	2.5%	Yes	34	3.9%	Yes
	60th St	Orange Blvd	2L	I	880	NB	0.0%	4.0%	Yes	4.0%	100	11.3%	Yes	94	10.7%	Yes
					880	SB	4.0%	0.0%	Yes	4.0%	90	10.2%	Yes	137	15.6%	Yes
	Orange Blvd	Temple Blvd	2L	I	880	NB	0.0%	7.5%	Yes	7.5%	187	21.2%	Yes	176	20.0%	Yes
					880	SB	7.5%	0.0%	Yes	7.5%	168	19.1%	Yes	257	29.2%	Yes
	Temple Blvd	Northlake Blvd	2L	I	880	NB	0.0%	8.0%	Yes	8.0%	199	22.6%	Yes	187	21.3%	Yes
					880	SB	8.0%	0.0%	Yes	8.0%	179	20.4%	Yes	274	31.2%	Yes

Table 3 Cont.

Avenir Trip Assignment & Significance Analysis

Roadway	Segment		Existing + Committed Lanes	Class	LOS D Service Volume (1)	Direction	% Distribution		Within 5 mi radius?	% Project Distribution	AM PEAK HOUR			PM PEAK HOUR		
	From	To					OUT	IN			Peak Hour Trips	Project % Impact	Significant Impact?	Peak Hour Trips	Project % Impact	Significant Impact?
Donald Ross Road	Jog Road	I-95	4LD	I	1,960	EB	0.0%	0.5%	No	0.5%	12	0.6%	No	12	0.6%	No
					1,960	WB	0.5%	0.0%	No	0.5%	11	0.6%	No	17	0.9%	No
	I-95	Parkside Dr	6LD	I	2,940	EB	1.0%	0.0%	No	1.0%	22	0.8%	No	34	1.2%	No
					2,940	WB	0.0%	1.0%	No	1.0%	25	0.8%	No	23	0.8%	No
Florida's Turnpike (2)	South	Okeechobee Blvd	4LX	EXP	3,720	NB	0.0%	7.0%	No	7.0%	174	4.7%	No	164	4.4%	No
					3,720	SB	7.0%	0.0%	No	7.0%	157	4.2%	No	240	6.5%	Yes
	Okeechobee Blvd	Beeline Hwy	4LX	EXP	3,720	NB	0.0%	9.0%	No	9.0%	224	6.0%	Yes	211	5.7%	Yes
					3,720	SB	9.0%	0.0%	No	9.0%	202	5.4%	Yes	309	8.3%	Yes
	Beeline Hwy	PGA Blvd	4LX	EXP	3,720	NB	2.5%	0.0%	No	2.5%	56	1.5%	No	86	2.3%	No
					3,720	SB	0.0%	2.5%	No	2.5%	62	1.7%	No	59	1.6%	No
I 95 (2)	E Indiantown	Donald Ross Rd	10LX	EXP	9,320	NB	3.0%	0.0%	No	3.0%	67	0.7%	No	103	1.1%	No
					9,320	SB	0.0%	3.0%	No	3.0%	75	0.8%	No	70	0.8%	No
	Donald Ross Rd	PGA Blvd	10LX	EXP	9,320	NB	4.0%	0.0%	No	4.0%	90	1.0%	No	137	1.5%	No
					9,320	SB	0.0%	4.0%	No	4.0%	100	1.1%	No	94	1.0%	No
	PGA Blvd	Northlake Blvd	10LX	EXP	9,320	NB	5.0%	0.0%	No	5.0%	112	1.2%	No	172	1.8%	No
					9,320	SB	0.0%	5.0%	No	5.0%	125	1.3%	No	117	1.3%	No
	Northlake Blvd *Note PBC Does not have 12LX LOS	Blue Heron Blvd	12LX	EXP	12,060	NB	0.0%	3.0%	No	3.0%	75	0.6%	No	70	0.6%	No
					12,060	SB	3.0%	0.0%	No	3.0%	67	0.6%	No	103	0.9%	No
	Blue Heron Blvd *Note PBC Does not have 12LX LOS	45th Street	12LX	EXP	12,060	NB	0.0%	10.0%	No	10.0%	249	2.1%	No	234	1.9%	No
					12,060	SB	10.0%	0.0%	No	10.0%	224	1.9%	No	343	2.8%	No
Indiantown Road	Beeline Highway	Pratt Whitney Rd	2L	Unint.	1,140	EB	1.0%	0.0%	No	1.0%	22	2.0%	No	34	3.0%	No
					1,140	WB	0.0%	1.0%	No	1.0%	25	2.2%	No	23	2.1%	No
	Pratt Whitney Road	130th Avenue N	2L	Unint.	1,140	EB	1.5%	0.0%	No	1.5%	34	3.0%	No	51	4.5%	No
					1,140	WB	0.0%	1.5%	No	1.5%	37	3.3%	No	35	3.1%	No
Jog Road	45 Street	Beeline Hwy	2L	Unint.	1,140	NB	0.0%	2.0%	No	2.0%	50	4.4%	No	47	4.1%	No
					1,140	SB	2.0%	0.0%	No	2.0%	45	3.9%	No	69	6.0%	Yes
	Beeline Highway	FL Tpk Ent	4LD	II	1,770	NB	3.0%	0.0%	No	3.0%	67	3.8%	No	103	5.8%	Yes
					1,770	SB	0.0%	3.0%	No	3.0%	75	4.2%	No	70	4.0%	No
	FL Tpk Ent	Northlake Blvd	4LD	II	1,770	NB	0.0%	8.5%	No	8.5%	212	12.0%	Yes	199	11.3%	Yes
					1,770	SB	8.5%	0.0%	No	8.5%	191	10.8%	Yes	292	16.5%	Yes
	Northlake Boulevard	PGA Blvd	2L	I	880	NB	0.0%	1.0%	No	1.0%	25	2.8%	No	23	2.7%	No
					880	SB	1.0%	0.0%	No	1.0%	22	2.5%	No	34	3.9%	No
Martin Luther King Jr Boulevard	Military Trail	Congress Av	4LD	I	1,960	EB	1.5%	0.0%	No	1.5%	34	1.7%	No	51	2.6%	No
					1,960	WB	0.0%	1.5%	No	1.5%	37	1.9%	No	35	1.8%	No
Military Trail	45 St	Beeline Hwy	6LD	II	2,680	NB	0.0%	1.5%	No	1.5%	37	1.4%	No	35	1.3%	No
					2,680	SB	1.5%	0.0%	No	1.5%	34	1.3%	No	51	1.9%	No
	Beeline Highway	Blue Heron Blvd	6LD	II	2,680	NB	0.0%	0.5%	No	0.5%	12	0.5%	No	12	0.4%	No
					2,680	SB	0.5%	0.0%	No	0.5%	11	0.4%	No	17	0.6%	No
	Blue Heron Boulevard	Investment Ln	6LD	II	2,680	NB	0.0%	0.5%	No	0.5%	12	0.5%	No	12	0.4%	No
					2,680	SB	0.5%	0.0%	No	0.5%	11	0.4%	No	17	0.6%	No
	Investment Ln	Northlake Blvd	6LD	I	2,940	NB	0.0%	0.5%	No	0.5%	12	0.4%	No	12	0.4%	No
					2,940	SB	0.5%	0.0%	No	0.5%	11	0.4%	No	17	0.6%	No
	Northlake Blvd	Holly Dr	6LD	II	2,680	NB	5.0%	0.0%	No	5.0%	112	4.2%	No	172	6.4%	Yes
					2,680	SB	0.0%	5.0%	No	5.0%	125	4.6%	No	117	4.4%	No
	Holly Dr	PGA Blvd	6LD	II	2,680	NB	4.5%	0.0%	No	4.5%	101	3.8%	No	154	5.8%	Yes
					2,680	SB	0.0%	4.5%	No	4.5%	112	4.2%	No	105	3.9%	No
	PGA Blvd	I-95	6LD	II	2,680	NB	3.5%	0.0%	No	3.5%	78	2.9%	No	120	4.5%	No
					2,680	SB	0.0%	3.5%	No	3.5%	87	3.3%	No	82	3.1%	No

Table 3 Cont.

Avenir Trip Assignment & Significance Analysis

Roadway	Segment		Existing + Committed Lanes	Class	LOS D Service Volume (1)	Direction	% Distribution		Within 5 mi radius?	% Project Distribution	AM PEAK HOUR			PM PEAK HOUR		
	From	To					OUT	IN			Peak Hour Trips	Project % Impact	Significant Impact?	Peak Hour Trips	Project % Impact	Significant Impact?
Northlake Boulevard	Pratt Whitney Road *2L to 4LD FY 2015/2017	140 Av N	4LD	I	1,960	EB	0.0%	12.0%	Yes	12.0%	299	15.3%	Yes	281	14.3%	Yes
					1,960	WB	12.0%	0.0%	Yes	12.0%	269	13.7%	Yes	412	21.0%	Yes
	140 Av N *2L to 4LD FY 2015/2017	Coconut Blvd	4LD	I	1,960	EB	9.5%	8.0%	Yes	9.5%/ 8.0%	412	21.0%	Yes	513	26.2%	Yes
					1,960	WB	8.0%	12.0%	Yes	8%/ 12%	478	24.4%	Yes	555	28.3%	Yes
	Coconut Blvd	Ibis Rd	4LD	II	1,770	EB	59.5%	0.0%	Yes	59.5%	1,334	75.4%	Yes	2,041	115.3%	Yes
					1,770	WB	0.0%	59.5%	Yes	59.5%	1,482	83.7%	Yes	1,394	78.8%	Yes
	Ibis Rd	SR 7	4LD	II	1,770	EB	57.5%	0.0%	Yes	57.5%	1,289	72.8%	Yes	1,973	111.5%	Yes
					1,770	WB	0.0%	57.5%	Yes	57.5%	1,432	80.9%	Yes	1,347	76.1%	Yes
	SR 7	Beeline Hwy	4LD	Unint.	3,320	EB	48.0%	0.0%	Yes	48.0%	1,075	32.4%	Yes	1,645	49.6%	Yes
					3,320	WB	0.0%	48.0%	Yes	48.0%	1,194	36.0%	Yes	1,123	33.8%	Yes
	Beeline Hwy	Ryder Cup Blvd/Jog	6LD	I	2,940	EB	27.5%	0.0%	No	27.5%	617	21.0%	Yes	944	32.1%	Yes
					2,940	WB	0.0%	27.5%	No	27.5%	685	23.3%	Yes	644	21.9%	Yes
	Ryder Cup Blvd/Jog	Steeplechase Dr	6LD	II	2,680	EB	19.0%	0.0%	No	19.0%	426	15.9%	Yes	652	24.3%	Yes
					2,680	WB	0.0%	19.0%	No	19.0%	473	17.7%	Yes	445	16.6%	Yes
	Steeplechase Dr	Military Tr	6LD	I	2,940	EB	18.0%	0.0%	No	18.0%	404	13.7%	Yes	618	21.0%	Yes
					2,940	WB	0.0%	18.0%	No	18.0%	448	15.3%	Yes	422	14.3%	Yes
	Military Tr	I-95	6LD	CRALLS	3,890	EB	12.0%	0.0%	No	12.0%	269	6.9%	Yes	412	10.6%	Yes
					3,890	WB	0.0%	12.0%	No	12.0%	299	7.7%	Yes	281	7.2%	Yes
	I-95	Congress Av	6LD	CRALLS	3,890	EB	3.0%	0.0%	No	3.0%	67	1.7%	No	103	2.6%	No
					3,890	WB	0.0%	3.0%	No	3.0%	75	1.9%	No	70	1.8%	No
Okeechobee Boulevard	Seminole Pratt Whitney	E Road	2LU	Unint.	1,140	EB	3.0%	0.0%	No	3.0%	67	5.9%	Yes	103	9.0%	Yes
					1,140	WB	0.0%	3.0%	No	3.0%	75	6.6%	Yes	70	6.2%	Yes
	E Road	Folsum	2L	I	880	EB	2.0%	0.0%	No	2.0%	45	5.1%	Yes	69	7.8%	Yes
					880	WB	0.0%	2.0%	No	2.0%	50	5.7%	Yes	47	5.3%	Yes
	Folsum	Crestwood	4LD	II	1,770	EB	1.5%	0.0%	No	1.5%	34	1.9%	No	51	2.9%	No
					1,770	WB	0.0%	1.5%	No	1.5%	37	2.1%	No	35	2.0%	No
Orange Boulevard	Pratt Whitney Road	140th Av N	2L	I	880	EB	0.0%	0.5%	Yes	0.5%	12	1.4%	Yes	12	1.3%	Yes
					880	WB	0.5%	0.0%	Yes	0.5%	11	1.3%	Yes	17	1.9%	Yes
	140th Av N	Coconut Blvd	2L	I	880	EB	3.0%	0.0%	Yes	3.0%	67	7.6%	Yes	103	11.7%	Yes
					880	WB	0.0%	3.0%	Yes	3.0%	75	8.5%	Yes	70	8.0%	Yes
	Coconut Blvd	Royal PB Blvd	2L	I	880	EB	6.0%	0.0%	Yes	6.0%	135	15.3%	Yes	206	23.4%	Yes
					880	WB	0.0%	6.0%	Yes	6.0%	149	17.0%	Yes	141	16.0%	Yes
Persimmon Boulevard	140 Avenue N	Coconut Blvd	2L	I	880	EB	0.0%	0.5%	Yes	0.5%	12	1.4%	Yes	12	1.3%	Yes
					880	WB	0.5%	0.0%	Yes	0.5%	11	1.3%	Yes	17	1.9%	Yes
	Coconut Boulevard	Royal PB Blvd	2L	I	880	EB	0.5%	0.0%	Yes	0.5%	11	1.3%	Yes	17	1.9%	Yes
					880	WB	0.0%	0.5%	Yes	0.5%	12	1.4%	Yes	12	1.3%	Yes
	Royal Palm Beach Boulevard	SR-7	2L	I	880	EB	0.5%	0.0%	Yes	0.5%	11	1.3%	Yes	17	1.9%	Yes
					880	WB	0.0%	0.5%	Yes	0.5%	12	1.4%	Yes	12	1.3%	Yes
PGA Boulevard	Beeline Hwy	Ryder Cup Blvd/Jog	2L	Unint.	1,140	EB	6.5%	0.0%	Yes	6.5%	147	12.9%	Yes	224	19.7%	Yes
					1,140	WB	0.0%	6.5%	Yes	6.5%	163	14.3%	Yes	153	13.4%	Yes
	Ryder Cup Boulevard (Jog)	FL Tpk	4LD	I	1,960	EB	5.0%	0.0%	No	5.0%	112	5.7%	Yes	172	8.8%	Yes
					1,960	WB	0.0%	5.0%	No	5.0%	125	6.4%	Yes	117	6.0%	Yes
	FL Tpk	Central Blvd	6LD	II	2,680	EB	2.0%	0.0%	No	2.0%	45	1.7%	No	69	2.6%	No
					2,680	WB	0.0%	2.0%	No	2.0%	50	1.9%	No	47	1.7%	No

Table 3 Cont.

Avenir Trip Assignment & Significance Analysis

Roadway	Segment		Existing + Committed Lanes	Class	LOS D Service Volume (1)	Direction	% Distribution		Within 5 mi radius?	% Project Distribution	AM PEAK HOUR			PM PEAK HOUR		
	From	To					OUT	IN			Peak Hour Trips	Project % Impact	Significant Impact?	Peak Hour Trips	Project % Impact	Significant Impact?
Pratt Whitney	Coporate Rd N	Indiantown Rd	2L	Unint.	1,140	NB	1.0%	0.0%	No	1.0%	22	2.0%	No	34	3.0%	No
					1,140	SB	0.0%	1.0%	No	1.0%	25	2.2%	No	23	2.1%	No
	Indiantown Rd	Beeline Hwy	2L	Unint.	1,140	NB	3.0%	0.0%	Yes	3.0%	67	5.9%	Yes	103	9.0%	Yes
					1,140	SB	0.0%	3.0%	Yes	3.0%	75	6.6%	Yes	70	6.2%	Yes
Roebuck Road	SR 7	Jog Rd	4LD	Unint.	3,320	EB	3.5%	0.0%	No	3.5%	78	2.4%	No	120	3.6%	No
	*0L to 4LD FY 2018				3,320	WB	0.0%	3.5%	No	3.5%	87	2.6%	No	82	2.5%	No
	Jog Rd	Haverhill Rd	4LD	I	1,960	EB	3.0%	0.0%	No	3.0%	67	3.4%	No	103	5.3%	Yes
					1,960	WB	0.0%	3.0%	No	3.0%	75	3.8%	No	70	3.6%	No
Royal Palm Beach Boulevard	40th St	Persimmon Blvd	4LD	I	1,960	NB	0.0%	3.5%	Yes	3.5%	87	4.4%	Yes	82	4.2%	Yes
					1,960	SB	3.5%	0.0%	Yes	3.5%	78	4.0%	Yes	120	6.1%	Yes
	Persimmon Blvd	60th St	2L	I	880	NB	0.0%	4.0%	Yes	4.0%	100	11.3%	Yes	94	10.7%	Yes
					880	SB	4.0%	0.0%	Yes	4.0%	90	10.2%	Yes	137	15.6%	Yes
	60th St	Orange Blvd	2L	I	880	NB	0.0%	5.5%	Yes	5.5%	137	15.6%	Yes	129	14.6%	Yes
					880	SB	5.5%	0.0%	Yes	5.5%	123	14.0%	Yes	189	21.4%	Yes
Seminole Pratt Whitney Road	Southern Blvd	Okeechobee Blvd	4LD	I	1,960	NB	0.0%	3.5%	No	3.5%	87	4.4%	No	82	4.2%	No
	*2L to 4LD Under Const.				1,960	SB	3.5%	0.0%	No	3.5%	78	4.0%	No	120	6.1%	Yes
	Okeechobee Blvd	Sycamore Dr E	4LD	Unint/ I	2,700	NB	0.0%	7.0%	No	7.0%	174	6.5%	Yes	164	6.1%	Yes
	*2L to 4LD Under Const.				2,700	SB	7.0%	0.0%	No	7.0%	157	5.8%	Yes	240	8.9%	Yes
	Sycamore Dr E	Persimmon Blvd	4LD	I	1,960	NB	0.0%	7.5%	No	7.5%	187	9.5%	Yes	176	9.0%	Yes
	*2L to 4LD Under Const.				1,960	SB	7.5%	0.0%	No	7.5%	168	8.6%	Yes	257	13.1%	Yes
	Persimmon Blvd	60th St N	2L	I	880	NB	0.0%	8.0%	No	8.0%	199	22.6%	Yes	187	21.3%	Yes
					880	SB	8.0%	0.0%	No	8.0%	179	20.4%	Yes	274	31.2%	Yes
	60th St N	Orange Blvd	4LD	I	1,960	NB	0.0%	9.5%	Yes	9.5%	237	12.1%	Yes	223	11.4%	Yes
	*2L to 4LD Under Const.				1,960	SB	9.5%	0.0%	Yes	9.5%	213	10.9%	Yes	326	16.6%	Yes
	Orange Blvd	Northlake Blvd	4LD	I	1,960	NB	0.0%	10.0%	Yes	10.0%	249	12.7%	Yes	234	12.0%	Yes
	*2L to 4LD Under Const.				1,960	SB	10.0%	0.0%	Yes	10.0%	224	11.4%	Yes	343	17.5%	Yes
	Northlake Blvd	North	2L	Unint.	1,140	NB	1.0%	0.0%	Yes	1.0%	22	2.0%	Yes	34	3.0%	Yes
					1,140	SB	0.0%	1.0%	Yes	1.0%	25	2.2%	Yes	23	2.1%	Yes
SR 7	Belvedere Rd	Okeechobee Blvd	6LD	II	2,680	NB	0.0%	4.0%	No	4.0%	100	3.7%	No	94	3.5%	No
					2,680	SB	4.0%	0.0%	No	4.0%	90	3.3%	No	137	5.1%	Yes
	Okeechobee Blvd	Roebuck Rd	4LD	I	1,960	NB	0.0%	6.0%	No	6.0%	149	7.6%	Yes	141	7.2%	Yes
	*2L to 4LD FY 2016				1,960	SB	6.0%	0.0%	No	6.0%	135	6.9%	Yes	206	10.5%	Yes
	Roebuck Rd	Orange Grove Blvd	4LD	Unint	3,320	NB	0.0%	10.0%	No	10.0%	249	7.5%	Yes	234	7.1%	Yes
	*2L to 4LD FY 2016				3,320	SB	10.0%	0.0%	No	10.0%	224	6.8%	Yes	343	10.3%	Yes
	Orange Grove Blvd	Persimmon Blvd	4LD	I	1,960	NB	0.0%	10.0%	No	10.0%	249	12.7%	Yes	234	12.0%	Yes
	*2L to 4LD FY 2016				1,960	SB	10.0%	0.0%	No	10.0%	224	11.4%	Yes	343	17.5%	Yes
	Persimmon Blvd	60th St N	4LD	I	1,960	NB	0.0%	11.0%	Yes	11.0%	274	14.0%	Yes	258	13.1%	Yes
	*2L to 4LD FY 2016				1,960	SB	11.0%	0.0%	Yes	11.0%	247	12.6%	Yes	377	19.3%	Yes
	60th St N	Northlake Blvd	4LD	Unint	3,320	NB	0.0%	9.0%	Yes	9.0%	224	6.8%	Yes	211	6.4%	Yes
	*0L to 4LD FY 2018				3,320	SB	9.0%	0.0%	Yes	9.0%	202	6.1%	Yes	309	9.3%	Yes

(1) Source PBC Table 12.B.2 Unless Otherwise noted (I-95 12LX)
(2) SIS or SIS Connector- Using Table 21.B.2 as directed

2.3.2 Background Traffic

Background traffic was estimated based on a half percent (0.5%) compounded annual growth rate applied to the existing (2014) volumes plus the addition of committed development traffic obtained from the Palm Beach County TPS database. Because the project proposes a new roadway connecting Northlake Boulevard and the Beeline Highway; committed development trips from Pratt Whitney, Florida Research Park, and North County Airport were re-assigned along Northlake Boulevard, Beeline Highway and the roadway connection. Details of the re-assignment and committed development data from the TPS are provided in **Appendix E.**

2.3.3 Total Traffic

Avenir will provide a new roadway connection between Northlake Boulevard and the Beeline Highway. The project will also provide essential non-residential services to surrounding communities. These two factors will have an effect on the travel patterns in the area. To account for this redistribution of trips, traffic projections of major projects along the Beeline Highway were redistributed to this connection. In addition, the construction of additional segments of SR 7 and Roebuck Road in the study area will result in additional shifts in travel patterns. These shifts were accounted for and documented in **Appendix F**.

The total 2035 traffic was developed by adding the adjusted 2035 background traffic, committed development traffic and the project traffic.

3.0 TRAFFIC PERFORMANCE STANDARDS ANALYSIS

3.1 Test 1 Part One – Intersections

Part One of Test 1 requires the analysis of major intersections where the project is significant on a link and the project traffic comprises 10 percent or more of the total traffic on any approach. Intersections capacity analysis was performed using the Highway Capacity Software or Critical Movement Analysis (CMA) for all intersections. A total of 37 intersections were analyzed. The results of the analysis including all improvement are shown in **Table 5a**. For each of the intersections analyzed, existing, programmed and additional improvements (as applicable) are graphically portrayed in **Figure 3.** The intersections are numbered in the table. This numerical order is maintained for the data in **Appendix G**. Capacity analyses worksheets along with the turning movement counts, signal timing and other intersection data are provided in **Appendix G**.

The improvements to obtain level of service D that are in addition to programmed or "link" improvements are included in **Table 5b**. These costs will be used to evaluate the proportionate share payments discussed in Section 3.5.

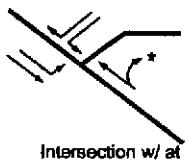
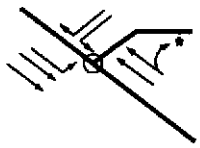
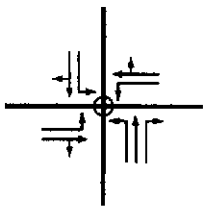
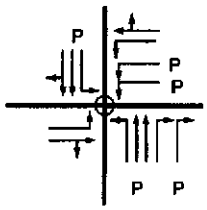
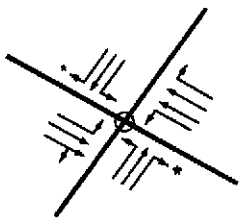
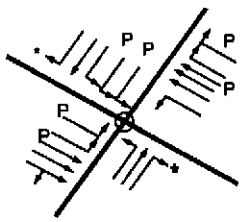
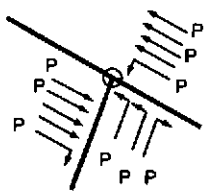
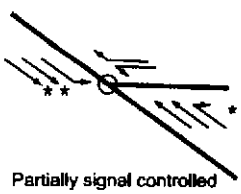
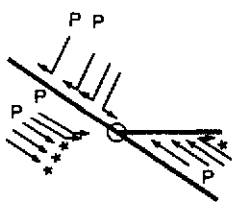
As shown, with the proposed improvements, all intersections will operate at LOS D or better.

Table 5A

Intersection Capacity Analysis Results

Intersections	2035 AM Peak Hour		2035 PM Peak Hour	
	Delay	v/C	Delay	v/C
1. Beeline Highway (EW) & Indiantown (NS)	*11.4*	*B*	*8.8*	*A*
2. Pratt Whitney & IndiantownRd	*CMA UNDER 1,400*		*CMA UNDER 1,400*	
3. Beeline Highway (EW) & Pratt Whitney (NS)	*49.7*	*D*	*54.7*	*D*
4. Beeline Highway / Project Entrance	*22.5*	*C*	*35.0*	*D*
5. Bee Line & PGA	*38.8*	*D*	*38.3*	*D*
6. PGA Boulevard &Ryder Cup Boulevard (JOG)	*CMA Under 1,400*		*CMA Under 1,400*	
7. Northlake Boulevard & Seminole Pratt	*CMA Under 1,400*		*CMA Under 1,400*	
8. Northlake Boulevard & 140th Avenue N	*CMA Under 1,400*		*CMA Under 1,400*	
9. Northlake Boulevard & Coconut Boulevard	*CMA Under 1,400*		*CMA Under 1,400*	
10. Northlake Boulevard & SR 7	*CMA Under 1,400*		*CMA Under 1,400*	
11.A Beeline Highway & Northlake Boulevard (Int A)	40.0	D	42.2	D
11.B Beeline Highway & Northlake Boulevard (Int B)	48.7	D	36.9	D
12. Jog Road/Florida Turnpike	*CMA Under 1,400*		*CMA Under 1,400*	
13. Northlake Blvd/ Ryder Cup	*CMA Under 1,400*		*CMA Under 1,400*	
14. Northlake Boulevard & Military	*CMA Under 1,400*		*CMA Under 1,400*	
15. Northlake Boulevard & I-95 West Ramp	*49.2*	*D*	*52.1*	*D*
16. Northlake Boulevard & I-95 East Ramp	*45.2*	*D*	*51.8*	*D*
17. Beeline Highway & Jog Road	*48.4*	*D*	*48.6*	*D*
18. Beeline Highway & Haverhill	*31.5*	*C*	*38.7*	*D*
19.Beeline Highway & Blue Heron Blvd	*33.0*	*C*	*34.1*	*C*
20. Blue Heron Boulevard & Military	*54.8*	*D*	*54.4*	*D*
21. Orange Boulevard & Seminole Pratt Whitney	*CMA Under 1,400*		*CMA Under 1,400*	
22. Orange Boulevard & 140 AV N	*CMA Under 1,400*		*CMA Under 1,400*	
23. Orange Boulevard & Coconut Boulevard	*CMA Under 1,400*		*CMA Under 1,400*	
24. 60 ST N/SEMINOLE PRATT WHITNEY	*CMA Under 1,400*		*CMA Under 1,400*	
25. 60 Street N/Royal Palm Beach Boulevard	*CMA Under 1,400*		*CMA Under 1,400*	
26. 60 Street N/SR 7	*CMA Under 1,400*		*CMA Under 1,400*	
27. Persimon/Seminole Pratt Whitney	*CMA Under 1,400*		*CMA Under 1,400*	
28. Persimon/Royal Palm Beach	*CMA Under 1,400*		*CMA Under 1,400*	
29. Persimmon Boulevard/SR 7	*CMA Under 1,400*		*CMA Under 1,400*	
30. SR 7/Orange Grove	*CMA Under 1,400*		*CMA Under 1,400*	
31. SR 7/Roebuck	*CMA Under 1,400*		*CMA Under 1,400*	
32. Okeechobee/ Seminole Pratt Whitney	*CMA Under 1,400*		*CMA Under 1,400*	
33. Blue Heron & I-95 West Side	N/A	N/A	42.5	D
34. Blue Heron & I-95 East Side	N/A	N/A	48.4	D
35. Roebuck and Haverhill	CMA Under 1,400		CMA Under 1,400	
36. Sycamore Dr & Seminole Pratt Whitney	CMA Under 1,400		CMA Under 1,400	
37. Orange Grove & Royal Palm Beaach	CMA Under 1,400		CMA Under 1,400	

Figure 3 - Intersection Geometrics

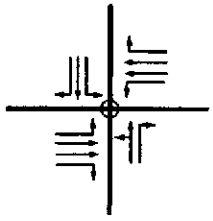
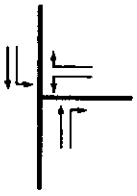
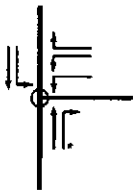
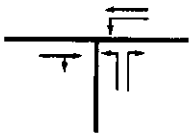
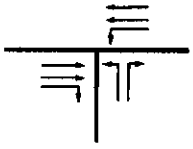
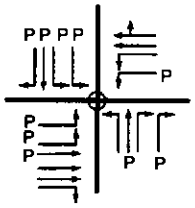
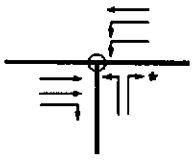
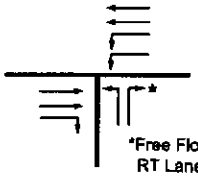
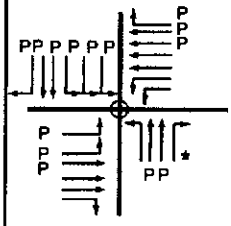
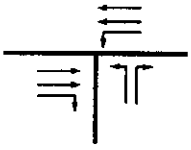
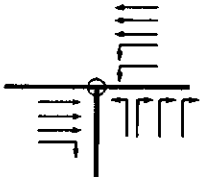
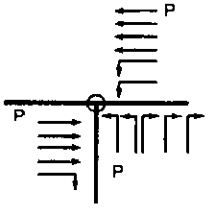
Intersection	Existing	Programmed	Proposed	Prop Share A= Individual Cost Individual % B= Included in Link Cost and % Prop Share
1 Beeline Highway / W. Indiantown Road See Pages: G-1 to G-13	 Intersection w/ at grade ramps * Free Flow	 4 Lane of Beeline *Free Flow	N/A	N/A
2 Pratt Whitney Road / W. Indiantown Road See Pages: G-14 to G-24		N/A		A Cost for SBT approach, 2 WBL, NBR, NBT receiving lane; NBT approach, SBT receiving lane in Link Cost
3 Beeline Highway / Pratt Whitney Road See Pages: G-25 to G-32	 * Free Flow	N/A	 * Free Flow	A EBL, EBT approach, WBR, WBT receiving lane 2 SBL; WBT approach, EBT receiving lane in link cost
4 Beeline Highway / Project Entrance See Pages: G-33 to G-39		N/A		B (Project to Construct Turn Lanes and Thru Lanes at Intersection)
5 Beeline Highway / PGA Boulevard See Pages: G-40 to G-48	 Partially signal controlled intersection * Free Flow	N/A	 * Free Flow	A 2 PGA Rights SBL, NBT approach, SBT receiving; NBT receiving, SBT approach in link cost

○ =Signalized

P =Proposed Future Lane

Revised 9.21.15

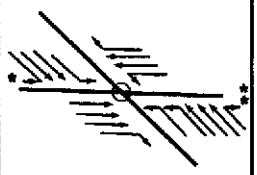
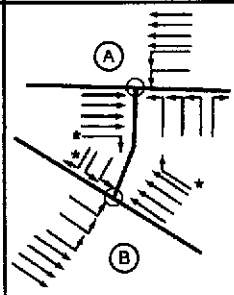
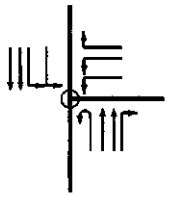
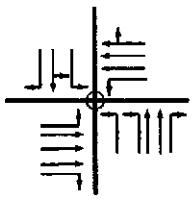
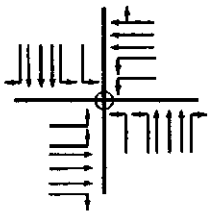
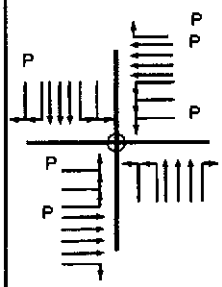
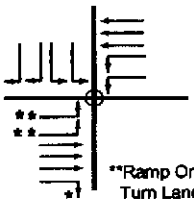
Figure 3 - Intersection Geometrics

Intersection	Existing	Programmed	Proposed	Prop Share A= Individual Cost Individual % B= Included in Link Cost and % Prop Share
6 PGA Boulevard / Ryder Cup Boulevard See Pages G-49 to G-63		N/A	N/A	N/A
7 Northlake Boulevard / Seminole Pratt Whitney Road See Pages G-64 to G-66		 *Free Flow	N/A	N/A
8 Northlake Boulevard / 140th Avenue N. See Pages G-67 to G-72		 4 lane of Northlake Blvd.	Project Entrance 	B Turn lanes and EBT approach to be constructed by project
9 Northlake Boulevard / Coconut Boulevard See Pages G-73 to G-76	 *Free Flow Right Lane seperated by island	 *Free Flow RT Lane Per Minto West Traffic Study.	Project Entrance 	B Thru Lanes in link cost (Project will build all turn lanes)
10 Northlake Boulevard / SR 7 See Pages G-77 to G-81		 Per FDOT SR 7 PD&E.		A For NBL, WBT Approach, EBT Receiving; WBT recieving, EBT approach in link cost

O = Signalized
P = Proposed Future Lane

Revised 9.21.15

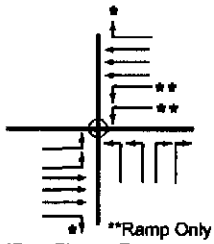
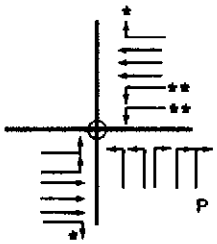
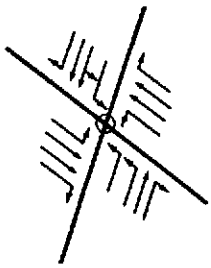
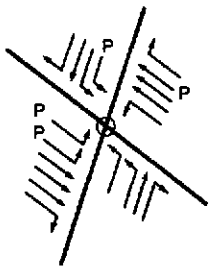
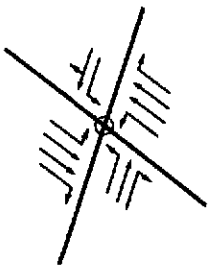
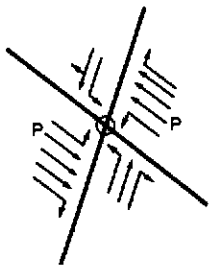
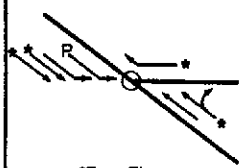
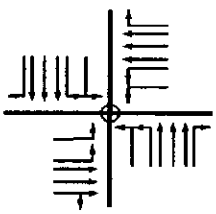
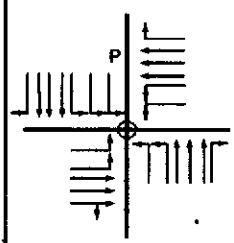
Figure 3 - Intersection Geometrics

Intersection	Existing	Programmed	Proposed	Prop Share A= Individual Cost Individual % B= Included in Link Cost and % Prop Share
11 Beeline Highway / Northlake Boulevard See Pages G-82 to G-95	 **WB to NB lane *Free Flow	N/A	 *Free Flow	A (All new cost)
12 Jog Road / Florida Turnpike See Pages G-96 to G-101		N/A	N/A	N/A
13 Northlake Boulevard / Ryder Cup Boulevard See Pages G-102 to G-113		N/A	N/A	N/A
14 Northlake Boulevard / N. Military Trail See Pages G-114 to G-115		N/A	 	A WBT approach, WBR, WBL SBR, EBL, EBT receiving lane; EBT approach, WBT receiving in link cost
15 Northlake Boulevard / I-95 West Ramp See Pages G-116 to G-117	 *Free Flow RT Lane **Ramp Only Turn Lane (shown as thru lane in HCS)	N/A	N/A	N/A

○ = Signalized
P = Proposed Future Lane

Revised 11.4.15

Figure 3 - Intersection Geometrics

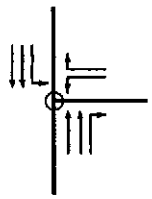
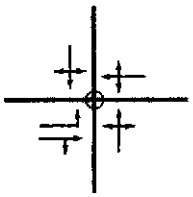
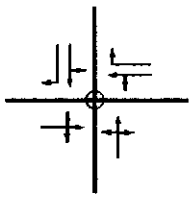
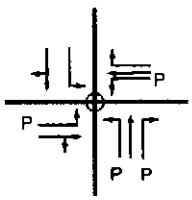
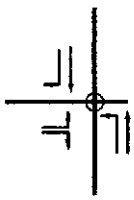
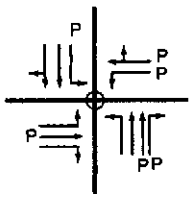
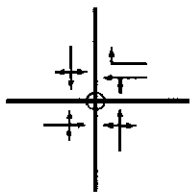
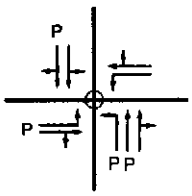
Intersection	Existing	Programmed	Proposed	Prop Share A= Individual Cost Individual % B= Included in Link Cost and % Prop Share
16 Northlake Boulevard / I-95 East Ramp See Pages G-118 to G-119	 *Free Flow RT Lane **Ramp Only Turn Lane (shown as thru lane in HCS)	N/A	 *Free Flow RT Lane **Ramp Only Turn Lane	A (NBR)
17 Beeline Highway / Jog Road See Pages G-120 to G-130		N/A		A For EBL; EBT receiving and approach, WBT receiving and approach in link cost
18 Beeline Highway / Haverhill Road See Pages G-131 to G-139		N/A	 6 Lane Beeline	B
19 Beeline Highway / Blue Heron Boulevard See Pages G-140 to G-150	 Access to SB Beeline via Military *Free Flow	N/A	 *Free Flow Partial Signalization	A Beeline left turn lane
20 Blue Heron Boulevard / N. Military Trail See Pages G-151 to G-161		N/A		A SBL

○ = Signalized

P = Proposed Future Lane

Revised: 11.13.15

Figure 3 - Intersection Geometrics

Intersection	Existing	Programmed	Proposed	Prop Share A= Individual Cost Individual % B= Included in Link Cost and % Prop Share
21 Orange Boulevard / Seminole Pratt Whitney Road See Pages G-162 to G-173		N/A	N/A	N/A
22 Orange Boulevard / 140th Avenue N. See Pages G-174 to G-185	 Flashing Red Signal	N/A	N/A Signalization	N/A
23 Orange Boulevard / Coconut Boulevard See Pages G-186 to G-194		N/A		A All approaches have link improvements +WBL, EBL NBL, SBL
24 60th Street N. / Seminole Pratt Whitney Road See Pages G-195 to G-198		N/A	 * Minto West Project Driveway	B
25 60th Street N. / Royal Palm Beach Boulevard See Pages G-199 to G-204		N/A		A EBL, NBL; NBT approach and receiving, SBT approach and receiving in link cost

○ = Signalized

P = Proposed Future Lane

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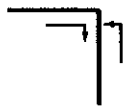
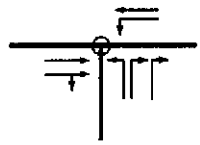
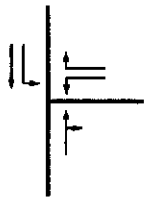
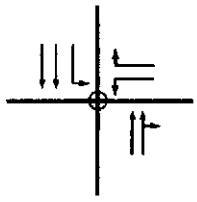
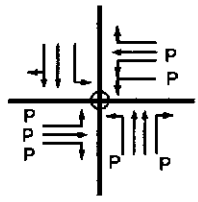
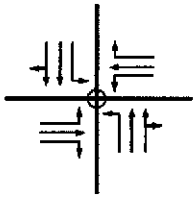
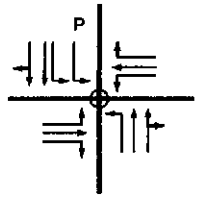
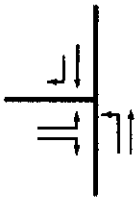
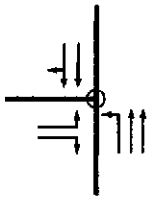
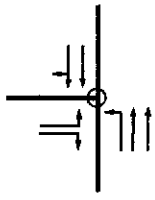
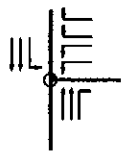
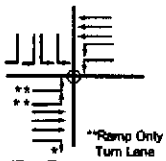
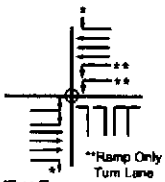
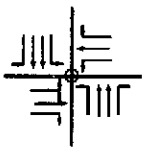
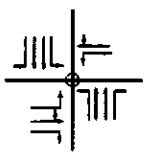
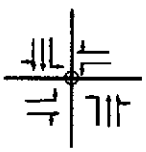
Figure 3 - Intersection Geometrics

Intersection	Existing	Programmed	Proposed	Prop Share A= Individual Cost Individual % B= Included In Link Cost and % Prop Share
26 60th Street N. / SR 7 See Pages G-205 to G-207		 Signalization Per FDOT SR 7 PD&E.	N/A	N/A
27 Persimmon Boulevard / Seminole Pratt Whitney See Pages G-208 to G-210		 Widening of Seminole Pratt Whitney	 * Minto West Project Driveway	A WBL, NBR; other turn lanes responsibility of Minto West
28 Persimmon Boulevard / Royal Palm Beach Boulevard See Pages G-211 to G-215		N/A		A SBL
29 Persimmon Boulevard / SR 7 See Pages G-216 to G-221		 Signalization Per FDOT SR 7 PD&E.	N/A	N/A
30 SR 7 / Orange Grove See Pages G-222 to G-225		 Signalization Per Minto West	N/A	N/A

○ = Signalized
P = Proposed Future Lane

Revised: 9.21.15

Figure 3 - Intersection Geometrics

Intersection	Existing	Programmed	Proposed	Prop Share A= Individual Cost Individual % B= Included In Link Cost and % Prop Share
31 SR 7 / Roebuck Road See Pages G-225 to G-227	N/A	 Signalization Per FDOT SR 7 PD&E.	N/A	N/A
32 Okeechobee Blvd/Seminole Pratt Whitney See Pages G-228 to G-230		N/A	N/A	N/A
33 Blue Heron & I-95 (West Side) G-231 to G-239 See Pages	 **Ramp Only Turn Lane (shown as thru lane in HCS) *Free Flow RT Lane	N/A	N/A	N/A
34 Blue Heron & I-95 (East Side) G-240 to G-243 See Pages G-yix to G-iox	 **Ramp Only Turn Lane (shown as thru lane in HCS) *Free Flow RT Lane	N/A	N/A	N/A
35 Roebuck Rd & Haverhill Rd G-244 to G-248 See Pages (		N/A	N/A	N/A
36 Sycamore / Seminole Pratt & Whitney G-249 to G-251 See Pages (		N/A	N/A	N/A
37 Orange Grove / Royal Palm Beach G-252 to G-256 See Pages		N/A	N/A	N/A

O = Signalized

P = Proposed Future Lane

Revised: 9.21.15

Table 5B: Intersection Costs (All Intersections marked with "A" on Figure 3)

Intersection	Approach	Improvement	Length of Improvement (ft)	Cost of Improvement (1) (1a)
2. Pratt Whitney/ Indiantown	NB	1 NBR	600	$ 207,827.95
		1 NBT receiving lane	600	$ 207,827.95
	SB	1 SBT approach lane	600	$ 207,827.95
	WB	2 WBL, 1 receiving lane	1800	$ 623,483.86
		Total		**$ 1,246,967.73**
3. Beeline/ Pratt Whitney	SB	2 SBL	1200	$ 415,655.91
	EB	1 EBL	600	$ 207,827.95
		1 EBT approach lane	600	$ 207,827.95
	WB	1 WBR	600	$ 207,827.95
		1 WBT receiving lane	600	$ 207,827.95
		Total		**$ 1,246,967.73**
5. Beeline/ PGA Blvd	NB	add 1 NBT approach lane	600	$ 207,827.95
	SB	1 SBL	600	$ 207,827.95
		1 SBT receiving lane	600	$ 207,827.95
	WB	add 2 WBR	1200	$ 415,655.91
		Total		**$ 1,039,139.77**
10. Northlake/ SR 7	EB	1 EBT receiving lane	600	$ 207,827.95
	WB	1 WBT approach lane	600	$ 207,827.95
	NB	add 1 NBL	600	$ 207,827.95
		Total		**$ 623,483.86**
14. Northlake/ Military	SB	add SBR	600	$ 207,827.95
	WB	1 WBL	600	$ 207,827.95
		1 WBT approach lane	600	$ 207,827.95
		1 WBR	600	$ 207,827.95
	EB	1 EBL	600	$ 207,827.95
		1 EBT receiving lane	600	$ 207,827.95
		Total		**$ 1,246,967.73**
16. Northlake/ I-95 East Ramp	NB	add NBR	600	**$ 207,827.95**
17. Beeline/ Jog Rd	SB	add 1 EBL	600	**$ 207,827.95**
19. Beeline/ Blue Heron	SB	add SBL	600	**$ 207,827.95**
20. Blue Heron/ Military	SB	add SBL	600	**$ 207,827.95**
23. Orange Blvd/Coconut Blvd	NB	add NBL	600	$ 207,827.95
	NB	add NBR	600	$ 207,827.95
	EB	add EBL	600	$ 207,827.95
	WB	add WBL	600	$ 207,827.95
		Total		**$ 831,311.82**
25. 60th St/ Seminole Pratt Whitney	EB	add EBL	600	$ 207,827.95
	NB	add NBL	600	$ 207,827.95
		Total		**$ 415,655.91**
27. Persimmon/ Seminole Pratt Whitney	NB	add NBL	600	$ 207,827.95
	WB	add 1 WBL	600	$ 207,827.95
		Total		**$ 415,655.91**
28. Persimmon Blvd/ Royal Palm Beach Blvd	SB	add 1 SBL (2)	1200	**$ 415,655.91**

(1) cost of turn lane per mile:
$ 1,828,886.00
*per Minto West FDOT Generic Cost Per Mile Model for New Construction Extra Cost for Additional Lane on Urban Arterial of $1,828,886 per mile
(1a) Costs to be finalized with PBCo Roadway Dept.
(2) approach and receiving lane needed
(3) Note: Intersection #11 from Minto West Report $34.7M

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3.2 Test 1 Part Two – Links

Part Two of Test 1 requires that all major roadway segments (links) where the project impact is greater than 1% of Level of Service (LOS) "D" within the RDI and greater than 5% of LOS "D" beyond the RDI be analyzed. Traffic diversions due to the extension of SR 7 and Roebuck Road were included in the analysis. **Table 6a and 6b** summarize the traffic components on each link and the resultant level of service in the AM and PM, respectively. The link data to include committed trips are included with the traffic data sheet in **Appendix B.**

Recommended roadway segment improvements are illustrated in **Figure 4** and summarized on **Table 7**.

3.3 Test 2 Part Two – Five Year Analysis

Test two is typically a five year analysis. It was agreed during methodology discussions that Test 2 is to be addressed for project buildout. The results and conclusions will be essentially the same as Test 1. Therefore, additional analysis is not necessary nor provided.

Table 6A

Avenir Traffic Projections (AM Peak Hour)

Roadway	Segment From	Segment To	Existing + Committed Lanes	Service Volume	Dir.	AM PEAK HOUR Existing (2014)	Source/ Year	0.5% Growth	Committed Trips	Minto from TPS	Minto-In 2,384	Minto-Out 2,278	Minto Traffic Study	Bck to Avenir Connector See Page E-7	Committed Dev Redistribution: Minto See Pg E-4	FL Research Pk See Pg E-2	Pratt Whitney See Pg E-3	N County Airport See Pg E-1	SR7 Div See App F	Roebuck Rd Div See App F	Total Bckgd	Meets Std?	Back logged?	Project	Total (2035)	Project % of Total	Meets Std?	Improvement # of Lanes	Improvement SV	Improvement Meets Std?
60th Street N	140th Av	Coconut Blvd	2L	880	EB	29	2015 TM G-201b,201c	3	329	-329	0.0%	16.0%	364			-	-	-	76	-	472	Yes	No	25	497	5.0%	Yes	NA		
				880	WB	11		1	345	-345	16.0%		381			-	-	-	19	-	412	Yes	No	22	435	5.2%	Yes			
	Coconut Blvd	Royal PB Blvd	2L	880	EB	29		3	329	-329	0.0%	11.0%	251			-	-	-	76	-	359	Yes	No	34	392	8.6%	Yes			
				880	WB	11		1	345	-345	11.0%		262			-	-	-	19	-	293	Yes	No	37	331	11.3%	Yes			
	Royal PB Blvd	SR 7	2L	880	EB	580	2015 STA ID HLP	64	171	-164	0.0%	8.0%	182			-	-	-	152	-	985	No	Yes	56	1,041	5.4%	No	4LD	1,960	Yes
				880	WB	150		17	174	-172	8.0%		191			-	-	-	38	-	398	Yes	No	62	460	13.5%	Yes		1,960	Yes
140 Avenue N	Orange Blvd	Temple Blvd	2L	880	NB	130	2014 TM Counts p. B-4b, 4c	14	112	-41	0.0%	0.5%	11			-	-	-	-	-	226	Yes	No	100	326	30.6%	Yes	NA		
				880	SB	144		16	102	-43	0.5%		12			-	-	-	-	-	231	Yes	No	90	321	28.0%	Yes			
	Temple Blvd	Northlake Blvd	2L	880	NB	130		14	112	-41	0.0%	0.5%	11			-	-	-	-	-	226	Yes	No	100	326	30.6%	Yes			
				880	SB	144		16	102	-43	0.5%		12			-	-	-	-	-	231	Yes	No	90	321	28.0%	Yes			
	Northlake Blvd	N Avenir Connector (5)	4LD	1,960	NB	0	NA	0	0	0	0.0%	0.0%	0	37	17	214	34	-	-	-	302	Yes	No	275	577	47.7%	Yes			
				1,960	SB	0		0	0	0	0.0%		0	20	18	32	5	-	-	-	75	Yes	No	325	400	81.3%	Yes			
Beeline Highway (3)	Indiantown Rd (1) *2L to 4LD Under Const.	Pratt Whitney Rd	4LD	3,320	EB (SB)	325	STA 1401 2014	36	653	0	1.5%		36			-	-	-	-	-	1,050	Yes	No	149	1,199	12.5%	Yes	NA		
				3,320	WB (NB)	208		23	1000	0	0.0%	1.5%	35			-	-	-	-	-	1,266	Yes	No	135	1,401	9.6%	Yes			
	Pratt Whitney Rd(1)	Caloosa Blvd	4LD	3,320	EB (SB)	340	STA 1411 2014	38	576	0	0.0%		0			-	-	-	-	-	954	Yes	No	224	1,178	19.0%	Yes	6LD	4,980	Yes
				3,320	WB (NB)	691		76	2906	0	0.0%	0.0%	0			-	-	-	-	-	3,673	No	Yes	202	3,875	5.2%	No		4,980	Yes
	Caloosa Blvd (1)	Project Entrance	4LD	3,320	EB (SB)	448	STA 2109a 2014	49	576	0	0.0%		0			-	-	-	-	-	1,073	Yes	No	249	1,322	18.8%	Yes	6LD	4,980	Yes
				3,320	WB (NB)	780		86	2906	0	0.0%	0.0%	0			-	-	-	-	-	3,772	No	Yes	224	3,996	5.6%	No		4,980	Yes
	Project Entrance (1)	N. County Airport	4LD	3,320	EB (SB)	448	STA 2109b 2014	49	576	0	0.0%		0	-40	-36	-76	-14	48	-	-	955	Yes	No	147	1,102	13.3%	Yes	NA		
				3,320	WB (NB)	780		86	2906	0	0.0%	0.0%	0	-73	-34	-501	-102	6	-	-	3,068	Yes	No	163	3,231	5.0%	Yes			
	N. County Airport(1)	PGA Blvd	4LD	3,320	EB (SB)	434	STA 2101 2014	48	539	0	0.0%		0	-40	-36	-76	-14	-6	-	-	849	Yes	No	147	996	14.7%	Yes	6LD	4,980	Yes
				3,320	WB (NB)	804		89	3082	0	0.0%	0.0%	0	-73	-34	-501	-102	-48	-	-	3,217	Yes	No	163	3,380	4.8%	No		4,980	Yes
	NorthlakeBlvd	Jog Rd	4LD	1,960	EB (SB)	1,791	STA 2419 2014	198	249	-93	0.0%	4.5%	103			-	-	-	-	-	2,248	No	Yes	448	2,696	16.6%	No	6LD	2,940	Yes
				1,960	WB (NB)	969		107	938	-97	4.5%		107			-	-	-	-	-	2,024	No	Yes	498	2,522	19.8%	No		2,940	Yes
	Jog Rd	Haverhill Rd	4LD	1,960	EB (SB)	1,678	STA 2209 2014	185	179	-62	0.0%	3.0%	68			-	-	-	-	-	2,048	No	Yes	336	2,385	14.1%	No	6LD	2,940	Yes
				1,960	WB (NB)	791		87	428	-65	3.0%		72			-	-	-	-	-	1,313	Yes	No	374	1,686	22.2%	Yes		2,940	Yes
	Haverhill Rd	Blue Heron Dr	4LD	1,960	EB (SB)	1,678	STA 2209 2014	185	166	-62	0.0%	2.0%	46			-	-	-	-	-	2,013	No	Yes	291	2,304	12.7%	No	6LD	2,940	Yes
				1,960	WB (NB)	791		87	391	-65	2.0%		48			-	-	-	-	-	1,252	Yes	No	324	1,576	20.6%	Yes		2,940	Yes
Blue Heron Blvd (3)	Beeline Hwy	Military Trail	4LD	1,960	EB	690	STA 2601 2014	76	62	-21	0.0%	1.0%	23			-	-	-	-	-	830	Yes	No	202	1,032	19.6%	Yes	NA		
				1,960	WB	842		93	122	-22	1.0%		24			-	-	-	-	-	1,059	Yes	No	224	1,283	17.5%	Yes			
	Military Trail	I-95	6LD	2,940	EB	1,712	STA 2211 2014	189	179	-21	0.0%	1.0%	23			-	-	-	-	-	2,082	Yes	No	168	2,250	7.5%	Yes			
				2,940	WB	1,399		154	150	-22	1.0%		24			-	-	-	-	-	1,705	Yes	No	187	1,892	9.9%	Yes			
Coconut Boulevard	Persimmon Blvd	60th St	2L	880	NB	180	STA 2104 2014	20	41	-41	0.0%	0.5%	11			-	-	-	-	-	211	Yes	No	25	236	10.5%	Yes	NA		
				880	SB	95		10	43	-48	0.5%	0.0%	12			-	-	-	-	-	112	Yes	No	22	134	16.7%	Yes			
	60th St	Orange Blvd	2L	880	NB	235	TM 2013 P. G-192,193	26	207	-93	0.0%	2.0%	46			-	-	-	-	-	421	Yes	No	100	520	19.2%	Yes			
				880	SB	76		8	137	-97	2.0%		48			-	-	-	-	-	171	Yes	No	90	261	34.3%	Yes			
	Orange Blvd	Temple Boulevard	2L	880	NB	807	STA 2412 2014	89	516	-103	0.0%	4.5%	103	-	-	-	-	-	-320	-	1,092	No	Yes	187	1,278	14.6%	No	4LD	1,960	Yes
				880	SB	387		43	222	-108	4.5%		107	-	-	-	-	-	-80	-	571	Yes	No	168	739	22.7%	Yes		1,960	Yes
	Temple Boulevard	Northlake Blvd	2L	880	NB	1,149	STA 2404 2014	127	472	-103	0.0%	5.0%	114	-	-	-	-	-	-320	-	1,439	No	Yes	199	1,638	12.2%	No	4LD	1,960	Yes
				880	SB	241		27	189	-108	5.0%		119	-	-	-	-	-	-80	-	388	Yes	No	179	568	31.6%	Yes		1,960	Yes
	Northlake Blvd	N Avenir Connector (4)	4LD	1,960	NB	0	NA	0	0	0	0.0%	0.0%	0	36	17	287	68	48	-	-	456	Yes	No	885	1,341	66.0%	Yes	NA		
				1,960	SB	0		0	0	0	0.0%		0	20	18	44	9	6	-	-	97	Yes	No	762	859	88.7%	Yes			

Table 6A Cont.

Avenir Traffic Projections (AM Peak Hour)

Roadway	Segment From	Segment To	Existing + Committed Lanes	Service Volume	Dir.	AM PEAK HOUR Existing (2014)	Source/ Year	0.5% Growth	Committed Trips	Minto from TPS	Minto-In 2,384	Minto-Out 2,278	Minto Traffic Study	Bck to Avenir Connector See Page E-7	Committed Dev Redistribution: Minto See Pg E-4	FL Research Pk See Pg E-2	Pratt Whitney See Pg E-3	N County Airport See Pg E-1	SR7 Div See App F	Roebuck Rd Div See App F	Total Bckgd	Meets Std?	Back logged?	Project	Total (2035)	Project % of Total	Meets Std?	Improvement # of Lanes	SV	Meets Std?
Florida's Turnpike (3) (7)	Okeechobee Blvd	Beeline Hwy	4LX	3,720	NB	2,947	FDOT Statistics Office 2015	2003	0	0	0.0%	0.0%	114	0	0	-	-	-	-	-	5,064	No	Yes	224	5,288	4.2%	No	6LX	5,580	Yes
				3,720	SB	2,366		1608	0	0	0.0%	0.0%	119	0	0	-	-	-	-	-	4,093	No	Yes	202	4,295	4.7%	No		5,580	Yes
Jog Road	FL Tpk Ent	Northlake Blvd	4LD	1,770	NB	288	TM 2014 P. G-105, 106	32			4.0%		95			-	-	-	-	-	415	Yes	No	212	627	33.8%	Yes	NA		
				1,770	SB	322		36			0.0%	4.0%	91			-	-	-	-	-	449	Yes	No	191	640	29.8%	Yes			
N Avenir Connector	Coconut Boulevard	Beeline Highway	4LD	1,770	NB	0	NA	0	0	0	0.0%		0	73	34	501	102	48	-	-	758	Yes	No	411	1,169	35.2%	Yes	NA		
				1,770	SB	0		0	0	0	0.0%	0.0%	0	40	36	76	14	6	-	-	172	Yes	No	370	542	68.3%	Yes			
Northlake Boulevard	Pratt Whitney Road *2L to 4LD FY 2015/2017	140 Av N	4LD	1,960	EB	822	STA 2413 2014	91	624	-319	0.0%	16.0%	364			-	-	-	-152	-	1,430	Yes	No	299	1,729	17.3%	Yes	NA		
				1,960	WB	202		22	443	-334	16.0%		381			-	-	-	-38	-	676	Yes	No	269	945	28.5%	Yes			
	140 Av N *2L to 4LD FY	Coconut Blvd	4LD	1,960	EB	1,370	STA 2413 2014	151	776	-329	0.0%	16.0%	364	-37	-17	-214	-34	-	-152	-	1,878	Yes	No	412	2,291	18.0%	No	6LD	2,940	Yes
				1,960	WB	293		32	516	-345	16.0%		381	-20	-18	-32	-5	-	-38	-	764	Yes	No	478	1,243	38.5%	Yes		2,940	Yes
	Coconut Blvd	Ibis Rd (6)	4LD	1,770	EB	2,435	STA 2411 2014	269	1409	-463	0.0%	20.0%	456	-73	-34	-501	-102	-48	-472	-	2,876	No	Yes	1,334	4,210	31.7%	No	8LD+	4,590	Yes
				1,770	WB	565		62	689	-484	20.0%		477	-40	-36	-76	-14	-6	-118	-	1,019	Yes	No	1,482	2,501	59.3%	No		4,590	Yes
	Ibis Rd	SR 7 (6)	4LD	1,770	EB	2,621	STA 2407 2014	289	1381	-463	0.0%	19.0%	433	-73	-34	-501	-102	-48	-472	-	3,031	No	Yes	1,289	4,320	29.8%	No	8LD+	4,590	Yes
				1,770	WB	718		79	694	-484	19.0%		453	-40	-36	-76	-14	-6	-118	-	1,170	Yes	No	1,432	2,602	55.0%	No		4,590	Yes
	SR 7	Beeline Hwy (1)	4LD	3,320	EB	2,621	STA 2407 2014	289	1381	-463	0.0%	22.5%	513	-73	-34	-501	-102	-48	-	-	3,583	No	Yes	1,075	4,658	23.1%	No	6LD	4,980	Yes
				3,320	WB	718		79	694	-484	22.5%		536	-40	-36	-76	-14	-6	-	-	1,371	Yes	No	1,194	2,566	46.6%	Yes		4,980	Yes
	Beeline Hwy	Ryder Cup Blvd/Jog	6LD	2,940	EB	1,589	STA 2401 2014	175	384	-308	0.0%	15.0%	342			-	-	-	-	-	2,182	Yes	No	617	2,798	22.0%	Yes	NA		
				2,940	WB	537		59	664	-323	15.0%		358			-	-	-	-	-	1,295	Yes	No	685	1,980	34.6%	Yes			
	Ryder Cup Blvd/Jog	Steeplechase Dr	6LD	2,680	EB	2,064	STA 2205 2014	228	355	-206	0.0%	10.0%	228			-	-	-	-	-	2,669	Yes	No	426	3,095	13.8%	No	8LD	3,590	Yes
				2,680	WB	731		81	373	-217	10.0%		238			-	-	-	-	-	1,206	Yes	No	473	1,680	28.2%	Yes		3,590	Yes
	Steeplechase Dr	Military Tr	6LD	2,940	EB	2,316	STA 2605 2014	256	402	-206	0.0%	9.0%	205			-	-	-	-	-	2,973	No	Yes	404	3,377	12.0%	No	8LD	3,940	Yes
				2,940	WB	1,176		130	404	-215	9.0%		215			-	-	-	-	-	1,710	Yes	No	448	2,158	20.8%	Yes		3,940	Yes
	Military Tr	I-95 (2)	6LD	3,890	EB	2,162	STA 2207 2014	239	434	-185	0.0%	5.0%	114			-	-	-	-	-	2,764	Yes	No	269	3,033	8.9%	Yes	NA		
				3,890	WB	1,550		171	436	-194	5.0%		119			-	-	-	-	-	2,082	Yes	No	299	2,381	12.6%	Yes			
Okeechobee Boulevard	Seminole Pratt Whitney	E Road	2LU	1,140	EB	499	STA 3419 2014	55	260	-206	0.0%	10.0%	228			-	-	-	-	-	836	Yes	No	67	903	7.4%	Yes	NA		
				1,140	WB	331		37	252	-215	10.0%		238			-	-	-	-	-	643	Yes	No	75	718	10.4%	Yes			
	E Road	Folsum	2L	880	EB	742	STA 3451 2014	82	276	-195	0.0%	9.0%	205			-	-	-	-	-	1,110	No	Yes	45	1,155	3.9%	No	4LD	1,960	Yes
				880	WB	531		59	283	-205	9.0%		215			-	-	-	-	-	883	No	Yes	50	932	5.3%	No		1,960	Yes
Orange Boulevard	Pratt Whitney Road	140th Av N	2L	880	EB	292	STA 2417 2014	32	120	-62	0.0%	3.0%	68			-	-	-	76	-	526	Yes	No	12	539	2.3%	Yes	NA		
				880	WB	246		27	116	-65	3.0%	0.0%	72			-	-	-	19	-	415	Yes	No	11	426	2.6%	Yes			
	140th Av N	Coconut Blvd	2L	880	EB	487	STA 2409 2014	54	112	-51	0.0%	2.5%	57			-	-	-	76	-	735	Yes	No	67	802	8.4%	Yes			
				880	WB	148		16	80	-54	2.5%	0.0%	60			-	-	-	19	-	269	Yes	No	75	343	21.8%	Yes			
	Coconut Blvd	Royal PB Blvd	2L	880	EB	617	STA 2415 2014	68	71	-41	0.0%	0.0%	0			-	-	-	-301	-	414	Yes	No	135	549	24.5%	Yes	4LD	1,960	Yes
				880	WB	540		60	185	-43	0.0%	0.0%	0			-	-	-	-4	-	738	Yes	No	149	887	16.8%	No		1,960	Yes
Persimmon Boulevard	140 Avenue N	Coconut Blvd	2L	880	EB	427	STA 3447 TPS/2014	47	339	-339	0.0%	16.5%	376			-	-	-	-	-	850	Yes	No	12	862	1.4%	Yes	NA		
				880	WB	169		19	355	-355	16.5%	0.0%	393			-	-	-	-	-	581	Yes	No	11	593	1.9%	Yes			
	Coconut Boulevard	Royal PB Blvd	2L	880	EB	427	STA 3447 TPS/2014	47	333	-329	0.0%	12.0%	273			-	-	-	-	-	751	Yes	No	11	763	1.5%	Yes			
				880	WB	169		19	356	-345	12.0%	0.0%	286			-	-	-	-	-	485	Yes	No	12	498	2.5%	Yes			
	Royal Palm Beach Boulevard	SR-7	2L	880	EB	455	Minto 2013	53	228	-216	0.0%	10.5%	239			-	-	-	-	-	759	Yes	No	11	770	1.5%	Yes			
				880	WB	162		19	240	-226	10.5%	0.0%	250			-	-	-	-	-	445	Yes	No	12	458	2.7%	Yes			

Table 6A Cont.

Avenir Traffic Projections (AM Peak Hour)

Roadway	Segment From	Segment To	Existing + Committed Lanes	Service Volume	Dir.	AM PEAK HOUR Existing (2014)	Source/ Year	0.5% Growth	Committed Trips	Minto from TPS	Minto-In 2,384	Minto-Out 2,278	Minto Traffic Study	Bck to Avenir Connector See Page E-7	Committed Dev Redistribution: Minto See Pg E-4	FL Research Pk See Pg E-2	Pratt Whitney See Pg E-3	N County Airport See Pg E-1	SR7 Div See App F	Roebuck Rd Div See App F	Total Bckgd	Meets Std?	Back logged?	Project	Total (2035)	Project % of Total	Meets Std?	Improvement # of Lanes	SV	Meets Std?
PGA Boulevard	Beeline Hwy (1)	Ryder Cup Blvd/Jog	2L	1,140	EB	124	STA 2405	14	207	-21	0.0%	1.0%	23			-	-	-	-	-	347	Yes	No	147	493	29.7%	Yes	4LD	3,320	Yes
				1,140	WB	218	2014	24	990	-22	1.0%	0.0%	24			-	-	-	-	-	1,234	No	Yes	163	1,397	11.7%	No		3,320	Yes
	Ryder Cup Boulevard (Jog)	FL Tpk	4LD	1,960	EB	912	STA 2103	101	366	-21	0.0%	0.9%	21			-	-	-	-	-	1,379	Yes	No	112	1,491	7.5%	Yes	6LD	2,940	Yes
				1,960	WB	1,214	2014	134	961	-22	0.9%	0.0%	21			-	-	-	-	-	2,308	No	Yes	125	2,433	5.1%	No		2,940	Yes
Pratt Whitney	Indiantown Rd	Beeline Hwy	2L	1,140	NB	83	STA 1402	9	1564	0	0.0%	0.5%	11			-	-	-	-	-	1,667	No	Yes	67	1,735	3.9%	No	4LD	3,320	Yes
				1,140	SB	448	2014	49	1847	0	0.5%	0.0%	12			-	-	-	-	-	2,356	No	Yes	75	2,431	3.1%	No		3,320	Yes
Royal Palm Beach Boulevard	40th St	Persimmon Blvd	4LD	1,960	NB	468	STA 3426	52	121	-86	4.0%	0.0%	95			-	-	-	-320	-	330	Yes	No	87	418	20.9%	Yes	NA		
				1,960	SB	682	2014	75	109	-82	0.0%	4.0%	91			-	-	-	-80	-	795	Yes	No	78	874	9.0%	Yes			
	Persimmon Blvd	60th St	2L	880	NB	548	STA 2402	61	76	-51	2.5%	0.0%	60			-	-	-	-320	-	374	Yes	No	100	473	21.1%	Yes	4LD	1,960	Yes
				880	SB	831	2014	92	76	-54	0.0%	2.5%	57			-	-	-	-80	-	922	No	Yes	90	1,012	8.9%	No		1,960	Yes
	60th St	Orange Blvd	2L	880	NB	548	STA 2402	61	34	-10	0.0%	0.5%	11			-	-	-	-301	-	343	Yes	No	137	480	28.5%	Yes	4LD	1,960	Yes
				880	SB	831	2014	92	36	-11	0.5%	0.0%	12			-	-	-	-4	-	956	No	Yes	123	1,079	11.4%	No		1,960	Yes
Seminole Pratt Whitney Road	Okeechobee Blvd *2L to 4LD Under Const.	Sycamore Dr E	4LD	2,700	NB	566	TM 2014	62	886	-711	33.0%		787			-	-	-	-	-	1,590	Yes	No	174	1,764	9.9%	Yes	NA		
				2,700	SB	1,008	B38b,38c	111	792	-678	0.0%	33.0%	752			-	-	-	-	-	1,985	Yes	No	157	2,142	7.3%	Yes			
	Sycamore Dr E *2L to 4LD Under Const.	Persimmon Blvd	4LD	1,960	NB	882	STA 3442	97	1000	-830	38.0%		906			-	-	-	-	-	2,055	No	Yes	187	2,242	8.3%	No	6LD	2,940	Yes
				1,960	SB	732	2013	81	889	-792	0.0%	38.0%	866			-	-	-	-	-	1,776	Yes	No	168	1,944	8.7%	Yes		2,940	Yes
	Persimmon Blvd	60th St N	2L	880	NB	882	STA 3442	97	962	-792	0.0%	32.0%	729			-	-	-	-	-	1,878	No	Yes	199	2,077	9.6%	No	6LD	2,940	Yes
				880	SB	732	2013	81	927	-830	32.0%		763			-	-	-	-	-	1,673	No	Yes	179	1,852	9.7%	No		2,940	Yes
	60th St N *2L to 4LD Under Const.	Orange Blvd	4LD	1,960	NB	550	STA 2408	61	733	-563	0.0%	27.0%	615			-	-	-	-76	-	1,320	Yes	No	237	1,557	15.2%	Yes	NA		
				1,960	SB	597	2013	66	687	-590	27.0%		644			-	-	-	-19	-	1,385	Yes	No	213	1,598	13.3%	Yes			
	Orange Blvd *2L to 4LD Under Const.	Northlake Blvd	4LD	1,960	NB	510	STA 2406	56	440	-411	0.0%	20.0%	456			-	-	-	-152	-	899	Yes	No	249	1,148	21.7%	Yes			
				1,960	SB	472	2014	52	460	-431	20.0%		477			-	-	-	-38	-	992	Yes	No	224	1,216	18.4%	Yes			
	Northlake Blvd	North	2L	1,140	NB	38	TM 2014	4	38	-10	0.0%	0.5%	11			-	-	-	-	-	81	Yes	No	22	104	21.6%	Yes			
				1,140	SB	59	P. G-67	7	35	-11	0.5%		12			-	-	-	-	-	102	Yes	No	25	127	19.6%	Yes			
SR 7	Okeechobee Blvd *2L to 4LD 2016	Roebuck Rd	4LD	1,960	NB	295	STA 3468	33	405	-366	13.5%		322			-	-	-	320	451	1,460	Yes	No	149	1,609	9.3%	Yes	6LD	2,940	Yes
				1,960	SB	1,379	2014	152	408	-349	0.0%	13.5%	308			-	-	-	80	31	2,009	No	Yes	135	2,143	6.3%	No		2,940	Yes
	Roebuck Rd *2L to 4LD 2016	Orange Grove Blvd	4LD	3,320	NB	295	STA 3468	33	405	-366	17.0%		405			-	-	-	320	-	1,092	Yes	No	249	1,341	18.6%	Yes	NA		
				3,320	SB	1,379	2014	152	408	-349	0.0%	17.0%	387			-	-	-	80	-	2,057	Yes	No	224	2,281	9.8%	Yes			
	Orange Grove Blvd *2L to 4LD 2016	Persimmon Blvd	4LD	1,960	NB	295	STA 3468 2014	33	405	-366	13.5%		322			-	-	-	320	-	1,009	Yes	No	249	1,258	19.8%	Yes	6LD	2,940	Yes
				1,960	SB	1,379		152	408	-349	0.0%	13.5%	308			-	-	-	80	-	1,978	No	Yes	224	2,202	10.2%	No		2,940	Yes
	Persimmon Blvd *2L to 4LD 2016	60th St N	4LD	1,960	NB	150	2015 per PBC	17	0	0	6.0%	0.0%	143			-	-	-	320	-	630	Yes	No	274	904	30.3%	Yes	NA		
				1,960	SB	580		64	0	0	0.0%	6.0%	137			-	-	-	80	-	861	Yes	No	247	1,107	22.3%	Yes			
	60th St N (1) *0L to 4LD 2018	Northlake Blvd	4LD	3,320	NB	0	NA	0	0	0	0.0%	4.0%	91			-	-	-	472	-	563	Yes	No	224	787	28.5%	Yes			
				3,320	SB	0		0	0	0	4.0%		95			-	-	-	118	-	213	Yes	No	202	415	48.6%	Yes			

(1) Uninterrupted Flow
(2) Crails
(3) SIS
(4) Project Traffic Including Pass-by: NB= 698 + 27 + 160; SB= 741 + 18 + 3
(5) Project Traffic see figure 5b
(6) PBC 8L class II plus 1000
(7) 2.5% growth rate used see B-47a

Table 6B

Avenir Traffic Projections (PM Peak Hour)

Roadway	Segment From	Segment To	Lanes	Service Volume	Dir.	PM PEAK HOUR Existing (2014)	Source	0.5% Growth	Committed Trips	Minto from TPS	Minto-In 2,281	Minto-Out 2,651	Minto from Traffic Study	Bck Div to Avenir Connector See Pg E-7	Committed Dev Redistribution: Minto See Pg E-4	FL Research Pk See Pg E-2	Pratt Whitney See Pg E-3	N County Airport See Pg E-1	SR7 Div. See App F	Roebuck Rd Div. See App F	Total Bckgd.	Meets Std?	Back logged?	Project	Total (2035)	Project % of Total	Meets Std?	Improvement # of Lanes	SV	Meet Std?
60th Street N	140th Av	Coconut Blvd	2L	880	EB	17	2015 TM G-201b,201c	2	935	-935	0.0%	16.0%	424			-	-	-	29	-	472	Yes	No	23	496	4.7%	Yes	NA		
				880	WB	37		4	413	-413	16.0%	0.0%	365			-	-	-	67	-	473	Yes	No	34	507	6.8%	Yes			
	Coconut Blvd	Royal PB Blvd	2L	880	EB	17		2	935	-935	0.0%	11.0%	292			-	-	-	29	-	340	Yes	No	51	391	13.2%	Yes			
				880	WB	37		4	413	-413	11.0%	0.0%	251			-	-	-	67	-	359	Yes	No	35	394	8.9%	Yes			
	Royal PB Blvd	SR 7	2L	880	EB	181	2015 per PBC	20	471	-467	0.0%	8.0%	212			-	-	-	57	-	474	Yes	No	86	560	15.3%	Yes	4LD	1,960	Yes
				880	WB	528		58	214	-207	8.0%	0.0%	182			-	-	-	133	-	908	No	Yes	59	967	6.1%	No		1,960	Yes
140 Avenue N	Orange Blvd	Temple Blvd	2L	880	NB	142	2014 TM Counts p. B-4b, 4c	16	231	-117	0.0%	0.5%	13			-	-	-	-	-	285	Yes	No	94	379	24.7%	Yes	NA		
				880	SB	179		20	178	-52	0.5%	0.0%	11			-	-	-	-	-	336	Yes	No	137	474	29.0%	Yes			
	Temple Blvd	Northlake Blvd	2L	880	NB	142		16	231	-117	0.0%	0.5%	13			-	-	-	-	-	285	Yes	No	94	379	24.7%	Yes			
				880	SB	179		20	178	-52	0.5%	0.0%	11			-	-	-	-	-	336	Yes	No	137	474	29.0%	Yes			
	Northlake Blvd	N Avenir Connector (5)	4LD	1,960	NB	0	NA	0	0	0			0	23	20	56	5	-	-	-	104	Yes	No	258	362	71.3%	Yes			
				1,960	SB	0		0	0	0			0	70	17	244	34	-	-	-	365	Yes	No	498	863	57.7%	Yes			
Beeline Highway (3)	Indiantown Rd (1) *2L to 4LD Under Const.	Pratt Whitney Rd	4LD	3,320	EB (SB)	239	STA 1401	26	1,042	0	1.5%	0.0%	34			-	-	-	-	-	1,341	Yes	No	141	1,482	9.5%	Yes	NA		
				3,320	WB (NB)	309	2014	34	785	0	0.0%	1.5%	41			-	-	-	-	-	1,169	Yes	No	206	1,375	15.0%	Yes			
	Pratt Whitney Rd(1)	Caloosa Blvd	4LD	3,320	EB (SB)	682	STA 1411	75	3,295	0	0.0%	0.0%	0			-	-	-	-	-	4,052	No	Yes	211	4,263	4.9%	No	6LD	4,980	Yes
				3,320	WB (NB)	364	2014	40	885	0	0.0%	0.0%	0			-	-	-	-	-	1,289	Yes	No	309	1,598	19.3%	Yes		4,980	Yes
	Caloosa Blvd (1)	Project Entrance	4LD	3,320	EB (SB)	720	STA 2109a	80	3,295	0	0.0%	0.0%	0			-	-	-	-	-	4,095	No	Yes	234	4,329	5.4%	No	6LD	4,980	Yes
				3,320	WB (NB)	400	2014	44	885	0	0.0%	0.0%	0			-	-	-	-	-	1,329	Yes	No	343	1,672	20.5%	Yes		4,980	Yes
	Project Entrance (1)	N. County Airport	4LD	3,320	EB (SB)	720	STA 2109b	80	3,295	0	0.0%	0.0%	0	-139	-34	-585	-103	8	-	-	3,242	Yes	No	224	3,466	6.5%	No	6LD	4,980	Yes
				3,320	WB (NB)	400	2014	44	885	0	0.0%	0.0%	0	-45	-40	-135	-16	50	-	-	1,143	Yes	No	153	1,296	11.8%	Yes		4,980	Yes
	N. County Airport(1)	PGA Blvd	4LD	3,320	EB (SB)	758	STA 2101	84	3,450	0	0.0%	0.0%	0	-139	-34	-585	-103	-50	-	-	3,381	No	Yes	224	3,605	6.2%	No	6LD	4,980	Yes
				3,320	WB (NB)	462	2014	51	822	0	0.0%	0.0%	0	-45	-40	-135	-16	-8	-	-	1,091	Yes	No	153	1,244	12.3%	Yes		4,980	Yes
	NorthlakeBlvd	Jog Rd	4LD	1,960	EB (SB)	972	STA 2419	107	1,196	-263	0.0%	4.5%	119			-	-	-	-	-	2,131	No	Yes	686	2,817	24.4%	No	6LD	2,940	Yes
				1,960	WB (NB)	1,526	2014	169	355	-116	4.5%	0.0%	103			-	-	-	-	-	2,037	No	Yes	469	2,505	18.7%	No		2,940	Yes
	Jog Rd	Haverhill Rd	4LD	1,960	EB (SB)	817	STA 2209	90	604	-175	0.0%	3.0%	80			-	-	-	-	-	1,416	Yes	No	515	1,930	26.7%	Yes	6LD	2,940	Yes
				1,960	WB (NB)	1,506	2014	166	263	-77	3.0%	0.0%	68			-	-	-	-	-	1,926	Yes	No	351	2,278	15.4%	No		2,940	Yes
	Haverhill Rd	Blue Heron Dr	4LD	1,960	EB (SB)	817	STA 2209	90	555	-175	0.0%	2.0%	53			-	-	-	-	-	1,340	Yes	No	446	1,786	25.0%	Yes	6LD	2,940	Yes
				1,960	WB (NB)	1,506	2014	166	239	-77	2.0%	0.0%	46			-	-	-	-	-	1,880	Yes	No	305	2,184	13.9%	No		2,940	Yes
	Blue Heron Dr *WB Not Significant	Military	4LD	1,960	EB (SB)	319	TM p. B-10a, 10b TPS/2014	35	134	-58	0.0%	1.0%	27								456	Yes	No	120	576	20.8%	Yes	NA		
				1,960	WB (NB)	709		78	70	-26	1.0%	0.0%	23								854	Yes	No	82	936	8.8%	Yes			
Blue Heron Boulevard (3)	Beeline Highway	Military Trail	4LD	1,960	EB	686	STA 2601	76	190	-58	0.0%	1.0%	27			-	-	-	-	-	921	Yes	No	309	1,229	25.1%	Yes	NA		
				1,960	WB	987	2014	109	95	-26	1.0%	0.0%	23			-	-	-	-	-	1,188	Yes	No	211	1,399	15.1%	Yes			
	Military Trail	I-95	6LD	2,940	EB	1,400	STA 2211	155	245	-58	0.0%	1.0%	27			-	-	-	-	-	1,769	Yes	No	257	2,026	12.7%	Yes			
				2,940	WB	1,500	2014	166	210	-26	1.0%	0.0%	23			-	-	-	-	-	1,873	Yes	No	176	2,049	8.6%	Yes			
Coconut Boulevard	Persimmon Blvd	60th St	2L	880	NB	113	STA 2104	12	117	-117	0.0%	0.5%	13	-	-	-	-	-	-	-	138	Yes	No	23	162	14.5%	Yes	NA		
				880	SB	183	2014	20	52	-52	0.5%	0.0%	11	-	-	-	-	-	-	-	214	Yes	No	34	249	13.8%	Yes			
	60th St	Orange Blvd	2L	880	NB	75	TM 2013 P. G-192,193	8	338	-263	0.0%	2.0%	53	-	-	-	-	-	-	-	211	Yes	No	94	304	30.8%	Yes			
				880	SB	216		24	270	-116	2.0%	0.0%	46	-	-	-	-	-	-	-	440	Yes	No	137	577	23.8%	Yes			
	Orange Blvd	Temple Boulevard	2L	880	NB	431	STA 2412	48	505	-292	0.0%	4.5%	119	-	-	-	-	-120	-	-	691	Yes	No	176	867	20.3%	Yes	4LD	1,960	Yes
				880	SB	678	2014	75	681	-129	4.5%	0.0%	103	-	-	-	-	-280	-	-	1,128	No	Yes	257	1,385	18.6%	No		1,960	Yes
	Temple Boulevard	Northlake Blvd	2L	880	NB	310	STA 2404	34	436	-292	0.0%	5.0%	133	-	-	-	-	-120	-	-	501	Yes	No	187	688	27.2%	Yes	4LD	1,960	Yes
				880	SB	865	2014	96	604	-129	5.0%	0.0%	114	-	-	-	-	-280	-	-	1,270	No	Yes	274	1,545	17.8%	No		1,960	Yes
	Northlake Blvd	N Avenir Connector (4)	4LD	1,960	NB	0	NA	0	0	0			0	22	20	79	11	8	-	-	140	Yes	No	767	907	84.6%	Yes	NA		
				1,960	SB	0		0	0	0			0	69	17	341	69	50	-	-	546	Yes	No	1,297	1,843	70.4%	Yes			

Table 6B Cont.

Avenir Traffic Projections (PM Peak Hour)

Roadway	Segment From	Segment To	Lanes	Service Volume	Dir.	Existing (2014)	Source	0.5% Growth	Committed Trips	Minto from TPS	Minto-In 2,281	Minto-Out 2,651	Minto from Traffic Study	Bck Div to Avenir Connector See Pg E-7	Committed Dev Redistribution: Minto See Pg E-4	Committed Dev Redistribution: FL Research Pk See Pg E-2	Committed Dev Redistribution: Pratt Whitney See Pg E-3	Committed Dev Redistribution: N County Airport See Pg E-1	SR7 Div. See App F	Roebuck Rd Div. See App F	Total Bckgd.	Meets Std?	Back logged?	Project	Total (2035)	Project % of Total	Meets Std?	Improvement: # of Lanes	Improvement: SV	Improvement: Meet Std?
						PM PEAK HOUR																								
Florida's Turnpike (3) (7)	South	Okeechobee Blvd	4LX	3,720	NB	2,354	FDOT Statistics Office 2015	1600	0	0	5.0%	0.0%	114	-	-	-	-	-	-	-	4,068	No	Yes	164	4,232	3.9%	No	6LX	5,580	Yes
	*NB Not Significant			3,720	SB	3,090		2100	0	0	0.0%	5.0%	133	-	-	-	-	-	-	-	5,323	No	Yes	240	5,563	4.3%	No		5,580	Yes
	Okeechobee Blvd	Beeline Hwy	4LX	3,720	NB	2,366		1608	0	0	0.0%	0.0%	0	-	-	-	-	-	-	-	3,974	No	Yes	211	4,185	5.0%	No	6LX	5,580	Yes
				3,720	SB	3,091		2101	0	0	0.0%	0.0%	0	-	-	-	-	-	-	-	5,192	No	Yes	309	5,501	5.6%	No		5,580	Yes
Jog Road	45th Street	Beeline Hwy	2L	1,140	NB	387	STA 2414	43	53	-13	0.5%	0.0%	11			-	-	-	-	-	481	Yes	No	47	528	8.9%	Yes	NA		
	*NB Not Significant			1,140	SB	189	2014	21	178	-29	0.0%	0.5%	13			-	-	-	-	-	372	Yes	No	69	441	15.6%	Yes			
	Beeline Highway	FL Tpk Ent	4LD	1,770	NB	744	STA 2416	86	241	-237	1.0%	0.0%	23			-	-	-	-	-	857	Yes	No	103	960	10.7%	Yes			
	*SB Not Significant			1,770	SB	544	2013	63	107	-105	0.0%	1.0%	27			-	-	-	-	-	636	Yes	No	70	706	10.0%	Yes			
	FL Tpk Ent	Northlake Blvd	4LD	1,770	NB	347	TM 2014	38			4.0%	0.0%	91			-	-	-	-	-	476	Yes	No	199	675	29.5%	Yes			
				1,770	SB	232	p G105,106	26			0.0%	4.0%	106			-	-	-	-	-	364	Yes	No	292	656	44.5%	Yes			
Military Trail	Northlake Boulevard	Holly Drive	6LD	2,680	NB	1,765	STA 2600	195	421	-175	0.0%	3.0%	80			-	-	-	-		2,286	Yes	No	172	2,458	7.0%	Yes	NA		
	*SB Not Significant			2,680	SB	1,915	2014	211	488	-77	3.0%	0.0%	68			-	-	-	-		2,605	Yes	No	117	2,722	4.3%	No			
	Holly Drive	PGA Boulevard	6LD	2,680	NB	2,007	STA 2606	222	431	-175	0.0%	3.0%	80			-	-	-	-		2,565	Yes	No	154	2,719	5.7%	No	8LD	3,590	Yes
	*SB Not Significant			2,680	SB	1,742	2014	192	510	-77	3.0%	0.0%	68			-	-	-	-		2,435	Yes	No	105	2,540	4.1%	Yes		3,590	Yes
N Avenir Connector	Coconut Boulevard	Beeline Highway	4LD	1,960	NB	0	NA	0	0	0			0	45	40	135	16	8	-	-	244	Yes	No	387	631	61.3%	Yes	NA		
				1,960	SB	0		0	0	0			0	139	34	585	103	50	-	-	911	Yes	No	566	1,477	38.3%	Yes			
Northlake Boulevard	Pratt Whitney Road *2L to 4LD FY 2015/2017	140 Av N	4LD	1,960	EB	257	STA 2413	28	1,082	-905	0.0%	16.0%	424			-	-	-	-57	-	829	Yes	No	281	1,110	25.3%	Yes	NA		
				1,960	WB	659	2014	73	787	-400	16.0%	0.0%	365			-	-	-	-133	-	1,351	Yes	No	412	1,763	23.4%	Yes			
	140 Av N *2L to 4LD FY 2	Coconut Blvd	4LD	1,960	EB	348	STA 2413	38	1,240	-935	0.0%	16.0%	424	-23	-20	-56	-5	0	-57	-	955	Yes	No	513	1,468	35.0%	Yes	6LD	2,940	Yes
				1,960	WB	1,129	2014	125	1,034	-413	16.0%	0.0%	365	-70	-17	-244	-34	0	-133	-	1,742	Yes	No	555	2,297	24.1%	No		2,940	Yes
	Coconut Blvd	Ibis Rd (6)	4LD	1,770	EB	670	STA 2411	74	1,666	-1,314	0.0%	20.0%	530	-45	-40	-135	-16	-8	-177	-	1,205	Yes	No	2,041	3,247	62.9%	No	8LD+	4,590	Yes
				1,770	WB	2,476	2014	273	1,755	-581	20.0%	0.0%	456	-139	-34	-585	-103	-50	-413	-	3,055	No	Yes	1,394	4,449	31.3%	No		4,590	Yes
	Ibis Rd	SR 7 (6)	4LD	1,770	EB	824	STA 2407	91	1,680	-1,314	0.0%	19.0%	504	-45	-40	-135	-16	-8	-177	-	1,364	Yes	No	1,973	3,337	59.1%	No	8LD+	4,590	Yes
				1,770	WB	2,328	2014	257	1,632	-581	19.0%	0.0%	433	-139	-34	-585	-103	-50	-413	-	2,745	No	Yes	1,347	4,093	32.9%	No		4,590	Yes
	SR 7	Beeline Hwy (1)	4LD	3,320	EB	824	STA 2407	91	1,680	-1,314	0.0%	22.5%	596	-45	-40	-135	-16	-8	-	-	1,633	Yes	No	1,645	3,279	50.2%	Yes	6LD	4,980	Yes
				3,320	WB	2,328	2014	257	1,632	-581	22.5%	0.0%	513	-139	-34	-585	-103	-50	-	-	3,238	Yes	No	1,123	4,362	25.8%	No		4,980	Yes
	Beeline Hwy	Ryder Cup Blvd/Jog	6LD	2,940	EB	705	STA 2401	78	1,253	-876	0.0%	15.0%	398			-	-	-	-	-	1,558	Yes	No	944	2,501	37.7%	Yes	NA		
				2,940	WB	1,444	2014	159	486	-387	15.0%	0.0%	342			-	-	-	-	-	2,044	Yes	No	644	2,688	24.0%	Yes			
	Ryder Cup Blvd/Jog	Steeplechase Dr	6LD	2,680	EB	1,004	STA 2205	111	782	-584	0.0%	10.0%	265			-	-	-	-	-	1,578	Yes	No	652	2,230	29.2%	Yes	8LD	3,590	Yes
				2,680	WB	1,748	2014	193	431	-258	10.0%	0.0%	228			-	-	-	-	-	2,342	Yes	No	445	2,787	16.0%	No		3,590	Yes
	Steeplechase Dr	Military Tr	6LD	2,940	EB	1,457	STA 2605	161	823	-584	0.0%	9.0%	239			-	-	-	-	-	2,096	Yes	No	618	2,713	22.8%	Yes	8LD	3,940	Yes
				2,940	WB	2,254	2014	249	480	-258	9.0%	0.0%	205			-	-	-	-	-	2,930	Yes	No	422	3,352	12.6%	No		3,940	Yes
	Military Tr	I-95 (2)	6LD	3,890	EB	1,877	STA 2207	207	816	-526	0.0%	5.0%	133			-	-	-	-	-	2,507	Yes	No	412	2,918	14.1%	Yes	NA		
				3,890	WB	2,174	2014	240	507	-232	5.0%	0.0%	114			-	-	-	-	-	2,803	Yes	No	281	3,084	9.1%	Yes			
Okeechobee Boulevard	Seminole Pratt Whitney	E Road	2LU	1140	EB	284	STA 3419	31	637	-584	0.0%	10.0%	265			-	-	-	-	-	633	Yes	No	103	736	14.0%	Yes	NA		
				1140	WB	488	2014	54	324	-258	10.0%	0.0%	228			-	-	-	-	-	836	Yes	No	70	906	7.8%	Yes			
	E Road	Folsum	2L	880	EB	556	STA 3451	61	690	-555	0.0%	9.0%	239			-	-	-	-	-	991	No	Yes	69	1,059	6.5%	No	4LD	1,960	Yes
				880	WB	748	2014	83	381	-245	9.0%	0.0%	205			-	-	-	-	-	1,172	No	Yes	47	1,219	3.8%	No		1,960	Yes
Orange Boulevard	Pratt Whitney Road	140th Av N	2L	880	EB	419	STA 2417	46	281	-175	0.0%	3.0%	80			-	-	-	29	-	680	Yes	No	12	691	1.7%	Yes	NA		
				880	WB	457	2014	50	186	-77	3.0%	0.0%	68			-	-	-	67	-	751	Yes	No	17	769	2.2%	Yes			
	140th Av N	Coconut Blvd	2L	880	EB	274	STA 2409	30	196	-146	0.0%	2.5%	66			-	-	-	29	-	449	Yes	No	103	552	18.6%	Yes			
				880	WB	469	2014	52	153	-65	2.5%	0.0%	57			-	-	-	67	-	733	Yes	No	70	803	8.7%	Yes			
	Coconut Blvd	Royal PB Blvd	2L	880	EB	562	STA 2415	62	289	-117	0.0%	0.0%	0			-	-	-	-53	-	743	Yes	No	206	949	21.7%	No	4LD	1,960	Yes
				880	WB	645	2014	71	108	-52	0.0%	0.0%	0			-	-	-	-251	-	521	Yes	No	141	662	21.2%	Yes		1,960	Yes
Persimmon Boulevard	140 Avenue N	Coconut Blvd	2L	880	EB	231	STA 3447	26	964	-964	0.0%	16.5%	437			-	-	-	-	-	694	Yes	No	12	706	1.7%	Yes	NA		
				880	WB	345	TPS/2014	38	426	-426	16.5%	0.0%	376			-	-	-	-	-	759	Yes	No	17	777	2.2%	Yes			
	Coconut Boulevard	Royal PB Blvd	2L	880	EB	231	STA 3447	26	945	-935	0.0%	12.0%	318			-	-	-	-	-	585	Yes	No	17	602	2.8%	Yes			
				880	WB	345	TPS/2014	38	419	-413	12.0%	0.0%	274			-	-	-	-	-	663	Yes	No	12	674	1.7%	Yes			
	Royal Palm Beach Boulevard	SR-7	2L	880	EB	255	Minto	30	629	-613	0.0%	10.5%	278			-	-	-	-	-	579	Yes	No	17	597	2.9%	Yes			
				880	WB	363	2013	42	286	-271	10.5%	0.0%	240			-	-	-	-	-	660	Yes	No	12	671	1.7%	Yes			

Table 6B Cont.

Avenir Traffic Projections (PM Peak Hour)

Roadway	Segment From	Segment To	Lanes	Service Volume	Dir.	Existing (2014)	Source	0.5% Growth	Committed Trips	Minto from TPS	Minto-In 2,281	Minto-Out 2,651	Minto from Traffic Study	Bck Div to Avenir Connector See Pg E-7	Committed Dev Redistribution: Minto See Pg E-4	Committed Dev Redistribution: FL Research Pk See Pg E-2	Committed Dev Redistribution: Pratt Whitney See Pg E-3	Committed Dev Redistribution: N County Airpcrt See Pg E-1	SR7 Div. See App F	Roebuck Rd Div. See App F	Total Bckgd.	Meets Std?	Back logged?	Project	Total (2035)	Project % of Total	Meets Std?	Improvement # of Lanes	Improvement SV	Improvement Meet Std?
						PM PEAK HOUR																								
PGA Boulevard	Beeline Hwy (1)	Ryder Cup Blvd/Jog	2L	1,140	EB	219	STA 2405	24	1,163	-58	0.0%	1.0%	27			-	-	-	-	-	1,375	No	Yes	224	1,599	14.0%	No	4LD	3,320	Yes
				1,140	WB	163	2014	18	313	-26	1.0%	0.0%	23			-	-	-	-	-	491	Yes	No	153	644	23.8%	Yes		3,320	Yes
	Ryder Cup Boulevard (Jog)	FL Tpk	4LD	1,960	EB	1,021	STA 2103	113	1,090	-58	0.0%	0.9%	24			-	-	-	-	-	2,190	No	Yes	172	2,361	7.3%	No	6LD	2,940	Yes
				1,960	WB	1,234	2014	136	414	-26	0.9%	0.0%	21			-	-	-	-	-	1,779	Yes	No	117	1,896	6.2%	Yes		2,940	Yes
Pratt Whitney	Indiantown Rd	Beeline Hwy	2L	1,140	NB	362	STA 1402	40	2,135	0	0.0%	0.5%	13			-	-	-	-	-	2,550	No	Yes	103	2,653	3.9%	No	4LD	3,320	Yes
				1,140	SB	84	2014	9	1,886	0	0.5%	0.0%	11			-	-	-	-	-	1,990	No	Yes	70	2,061	3.4%	No		3,320	Yes
Roebuck Rd	Jog Rd	Haverhill Rd	4LD	1,960	EB	702	STA 3107	78	138	-29	0.0%	0.5%	13			-	-	-	-	-	902	Yes	No	103	1,005	10.2%	Yes		NA	
	*WB Not Significant			1,960	WB	1,203	2014	133	59	-13	0.5%	0.0%	11			-	-	-	-	-	1,393	Yes	No	70	1,464	4.8%	Yes			
Royal Palm Beach Boulevard	40th St	Persimmon Blvd	4LD	1,960	NB	764	STA 3426	84	137	-103	4.0%	0.0%	91			-	-	-	-120	-	853	Yes	No	82	935	8.8%	Yes		NA	
				1,960	SB	604	2014	67	271	-234	0.0%	4.0%	106			-	-	-	-280	-	534	Yes	No	120	654	18.4%	Yes			
	Persimmon Blvd	60th St	2L	880	NB	904	STA 2402	100	173	-146	0.0%	2.5%	66			-	-	-	-120	-	977	No	Yes	94	1,071	8.8%	No	4LD	1,960	Yes
				880	SB	587	2014	65	94	-65	2.5%	0.0%	57			-	-	-	-280	-	458	Yes	No	137	595	23.1%	Yes		1,960	Yes
	60th St	Orange Blvd	2L	880	NB	904	STA 2402	100	55	-29	0.0%	0.5%	13			-	-	-	-53	-	990	No	Yes	129	1,119	11.5%	No	4LD	1,960	Yes
				880	SB	587	2014	65	41	-13	0.5%	0.0%	11			-	-	-	-251	-	440	Yes	No	189	629	30.0%	Yes		1,960	Yes
Seminole Pratt Whitney Road	Southern Blvd	Okeechobee Blvd	4LD	1,960	NB	787	STA 3420	87	845	-568	22.0%	0.0%	502			-	-	-	-	-	1,653	Yes	No	82	1,735	4.7%	Yes		NA	
	*NB Not Significant	*2L to 4LD Under Const.		1,960	SB	413	2014	46	1,607	-1,285	0.0%	22.0%	583			-	-	-	-	-	1,364	Yes	No	120	1,484	8.1%	Yes			
	Okeechobee Blvd	Sycamore Dr E	4LD	2,700	NB	1,048	TM 2014	116	1,060	-852	33.0%	0.0%	753			-	-	-	-	-	2,125	Yes	No	164	2,289	7.2%	Yes		NA	
	*2L to 4LD Under Const.			2,700	SB	548	B38b.38c	61	2,164	-1,927	0.0%	33.0%	875			-	-	-	-	-	1,721	Yes	No	240	1,961	12.2%	Yes			
	Sycamore Dr E	Persimmon Blvd	4LD	1,960	NB	785	STA 3442	87	1,159	-995	38.0%	0.0%	867			-	-	-	-	-	1,903	Yes	No	176	2,079	8.5%	No	6LD	2,940	Yes
	*2L to 4LD Under Const.			1,960	SB	598	2013	66	2,456	-2,251	0.0%	38.0%	1,007			-	-	-	-	-	1,876	Yes	No	257	2,134	12.1%	No		2,940	Yes
	Persimmon Blvd	60th St N	2L	880	NB	785	STA 3442	87	2,415	-2,251	0.0%	32.0%	848			-	-	-	-	-	1,884	No	Yes	187	2,072	9.0%	No	6LD	2,940	Yes
				880	SB	598	2013	66	1,200	-995	32.0%	0.0%	730			-	-	-	-	-	1,599	No	Yes	274	1,873	14.7%	No		2,940	Yes
	60th St N	Orange Blvd	4LD	1,960	NB	510	STA 2408	56	1,763	-1,599	0.0%	27.0%	716			-	-	-	-29	-	1,417	Yes	No	223	1,639	13.6%	Yes		NA	
	*2L to 4LD Under Const.			1,960	SB	592	2013	65	912	-707	27.0%	0.0%	616			-	-	-	-67	-	1,411	Yes	No	326	1,737	18.8%	Yes			
	Orange Blvd	Northlake Blvd	4LD	1,960	NB	467	STA 2406	52	1,212	-1,168	0.0%	20.0%	530			-	-	-	-57	-	1,036	Yes	No	234	1,271	18.4%	Yes			
	*2L to 4LD Under Const.			1,960	SB	477	2014	53	561	-516	20.0%	0.0%	456			-	-	-	-133	-	898	Yes	No	343	1,241	27.6%	Yes			
	Northlake Blvd	North	2L	1,140	NB	70	TM 2014	8	54	-29	0.0%	0.5%	13			-	-	-	-	-	116	Yes	No	34	151	22.8%	Yes			
				1,140	SB	57	p.G-67	6	41	-13	0.5%	0.0%	11			-	-	-	-	-	102	Yes	No	23	126	18.6%	Yes			
SR 7	Belvedere Rd	Okeechobee Blvd	6LD	2,680	NB	1,798	STA 3404	199	802	-168	6.5%	0.0%	148			-	-	-			2,779	No	Yes	94	2,873	3.3%	No	8LD	3,590	Yes
				2,680	SB	1,518	2014	168	1054	-380	0.0%	6.5%	172			-	-	-			2,532	Yes	No	137	2,670	5.1%	Yes		3,590	Yes
	Okeechobee Blvd	Roebuck Rd	4LD	1,960	NB	1,121	STA 3468	124	535	-439	13.5%	0.0%	308			-	-	-	120	-72	1,697	Yes	No	141	1,838	7.7%	Yes	6LD	2,940	Yes
	*2L to 4LD FY 2016			1,960	SB	514	2014	57	1077	-993	0.0%	13.5%	358			-	-	-	280	484	1,777	Yes	No	206	1,983	10.4%	No		2,940	Yes
	Roebuck Rd	Orange Grove Blvd	4LD	3,320	NB	1,121	STA 3468	124	535	-439	17.0%	0.0%	388			-	-	-	120	-	1,849	Yes	No	234	2,083	11.2%	Yes		NA	
	*2L to 4LD FY 2016			3,320	SB	514	2014	57	1077	-993	0.0%	17.0%	451			-	-	-	280	-	1,386	Yes	No	343	1,729	19.8%	Yes			
	Orange Grove Blvd	Persimmon Blvd	4LD	1,960	NB	1,121	STA 3468 2014	124	535	-439	13.5%	0.0%	308			-	-	-	120	-	1,769	Yes	No	234	2,003	11.7%	No	6LD	2,940	Yes
	*2L to 4LD FY 2016			1,960	SB	514		57	1077	-993	0.0%	13.5%	358			-	-	-	280	-	1,293	Yes	No	343	1,636	21.0%	Yes		2,940	Yes
	Persimmon Blvd	60th St N	4LD	1,960	NB	528	2015 per PBC	58	0	0	6.0%	0.0%	137			-	-	-	120	-	843	Yes	No	258	1,101	23.4%	Yes		NA	
	*2L to 4LD FY 2016			1,960	SB	181		20	0	0	0.0%	6.0%	159			-	-	-	280	-	640	Yes	No	377	1,017	37.1%	Yes			
	60th St N (1)	Northlake Boulevard	4LD	3,320	NB	0	NA	0	0	0	0.0%	4.0%	106			-	-	-	177	-	283	Yes	No	211	494	42.7%	Yes			
	*0L to 4LD FY 2018			3,320	SB	0		0	0	0	4.0%	0.0%	91			-	-	-	413	-	504	Yes	No	309	813	38.0%	Yes			

(1) Uninterrupted Flow
(2) Cralls
(3)SIS
(4) Project Traffic Including Pass-by: NB= 656 + 65 + 46; SB= 1133 + 73 + 91; see figure 5c
(5) Project Traffic from Figure 5c
(6) PBC 8L class II plus 1000
(7) 2.5% growth rate used see page B-47a

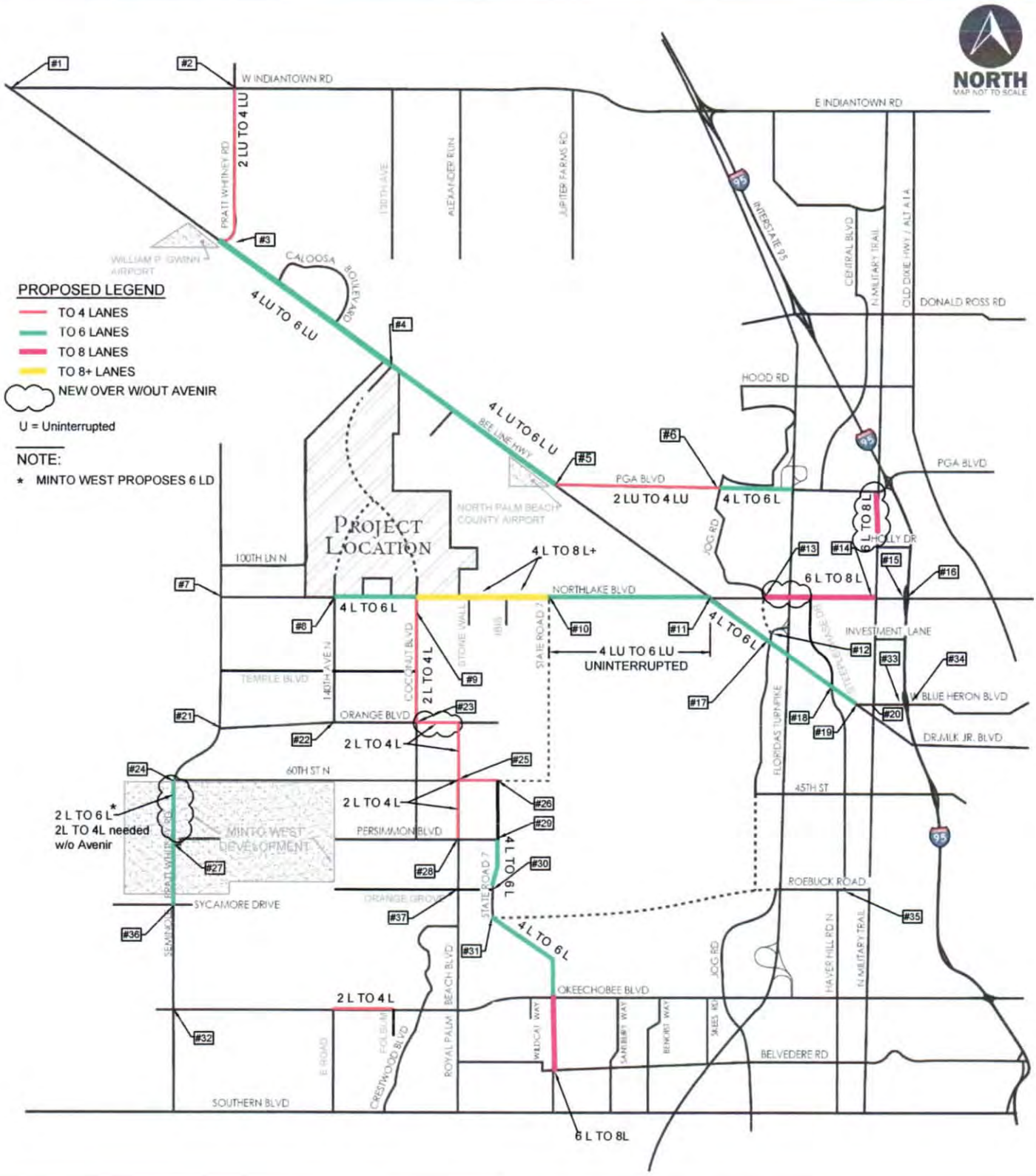

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FIGURE - 4

2035 ROADWAY NEEDS WITH AVENIR

AVENIR

October 27, 2015

Table 7
Roadway Segment Improvements

Roadway	Segment		Improvement
	From	To	
60th St	SR 7	Royal Palm Beach Blvd	Widen to 4LD
Beeline Highway	Pratt Whitney Rd	Caloosa Blvd	Widen to 6LU
	Caloosa Boulevard	Project Entrance	Widen to 6LU
	Project Entrance	N. County Airport	Widen to 6LU
	N. Country Airport	PGA Blvd	Widen to 6LU
	NorthlakeBlvd	Jog Rd	Widen to 6LD
	Jog Rd	Haverhill Rd	Widen to 6LD
	Haverhill Rd	Blue Heron Dr	Widen to 6LD
Coconut Boulevard	Orange Blvd	Temple Boulevard	Widen to 4LD
	Temple Boulevard	Northlake Blvd	Widen to 4LD
Military Trail	Holly Dr	PGA Blvd	Widen to 8LD
Northlake Boulevard	140 Av N	Coconut Blvd	Widen to 6LD
	Coconut Blvd	Ibis Rd	Widen to 8LD+
	Ibis Rd	SR 7	Widen to 8LD+
	SR 7	Beeline Hwy	Widen to 6LU
	Ryder Cup Blvd/Jog	Steeplechase Dr	Widen to 8LD
	Steeplechase Dr	Military Tr	Widen to 8LD
Okeechobee Boulevard	E Road	Folsum	Widen to 4LD
Orange Boulevard	Royal Palm Beach	Coconut Blvd	Widen to 4LD
PGA Boulevard	Beeline Hwy	Ryder Cup Blvd/Jog	Widen to 4LU
	Ryder Cup Boulevard (Jog)	FL Tpk	Widen to 6LD
Pratt Whitney	Indiantown Rd	Beeline Hwy	Widen to 4LU
Royal Palm Beach Boulevard	Persimmon Blvd	60th St	Widen to 4LD
	60th St	Orange Blvd	Widen to 4LD
Seminole Pratt Whitney Road	Sycamore Drive	Persimmon Blvd	Widen to 6LD
	Persimmon Blvd	60th St N	Widen to 6LD
SR 7	Belvedere Rd	Okeechobee Blvd	Widen to 8LD
	Okeechobee Blvd	Roebuck Rd	Widen to 6LD
	Orange Grove Blvd	Persimmon Blvd	Widen to 6LD

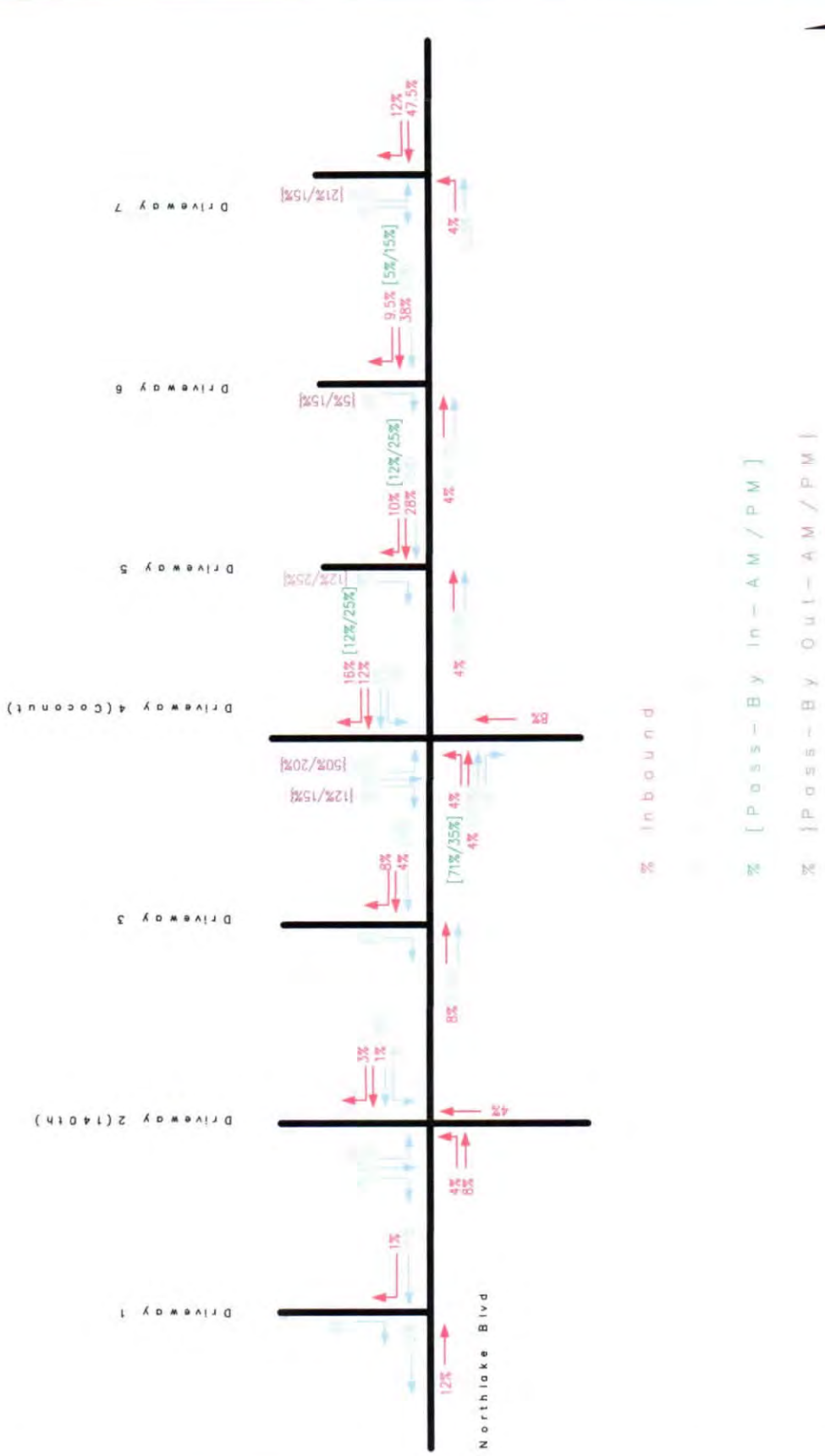
U= Uninterrupted
D= Divided

3.4 Driveway Volumes

Project percent assignments for the AM and PM peak hour on the proposed driveways is graphically portrayed in **Figure 5a**. Corresponding driveway volumes can be found in **Figure 5b** and **Figure 5c**. These full access driveways are outlined below along with the proposed lanes.

- Beeline Highway/Project Driveway
  Signalization
  Northbound: two left-turn lanes, and one right-turn lane;
  Eastbound: four thru lanes, and two right-turn lanes,
  Westbound: one left-turn lane, and four thru lanes.
- Northlake Boulevard/140th Street (Driveway 2)
  Signalization
  Southbound: two left-turn lanes, and one thru lane, one right-turn lane;
  Eastbound: two left-turn lanes, one thru lane, and one shared thru-right lane;
  Westbound: two left-turn lanes, three thru lanes, and one right-turn lane;
  Northbound: one left-turn lane, one thru lane, and two right-turn lanes.
- Northlake Boulevard/Coconut Boulevard (Driveway 4)
  Signalization
  Southbound: three left-turn lanes, two thru lanes, and one right turn lane;
  Eastbound: two left-turn lanes, four thru lanes, and one right-turn lane;
  Westbound: two left-turn lanes, four thru lanes, and one right-turn lane;
  Northbound: one left-turn lane, two thru lanes, and one free flow right-turn lane.
- Northlake Boulevard/Driveway 7
  Signalization
  Southbound: three left-turn lane and one right-turn lane;
  Eastbound: one left-turn lane, and four thru lanes;
  Westbound: one right-turn lane, and four thru lanes.

Four more project driveways are proposed accessing Northlake Boulevard. All will provide right turn in/right-turn out, un-signalized access. The turn lanes for these driveways are summarized in **Table 8. Appendix H** provides the driveway data to include the HCS analysis worksheets



NTS

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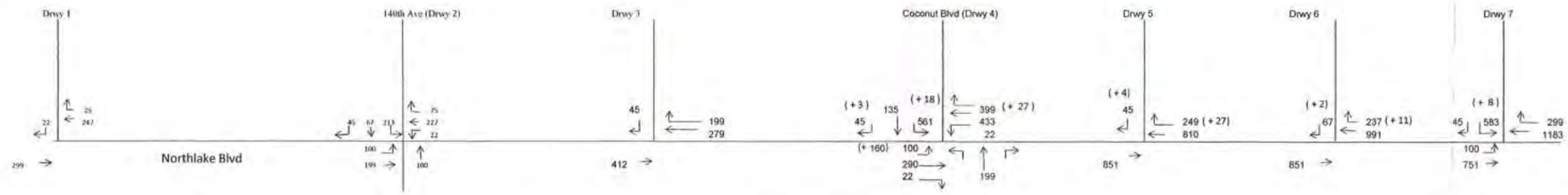
FIGURE - 5a

DRIVEWAY DISTRIBUTION

AVENIR



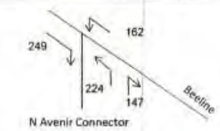
Northlake/ Drwy 1												
Net Trips In: 2491			Net Trips Out: 2242			Pass By Trips In: 226			Pass By Trips Out: 36			
	N/A	N/A	SBR	N/A	N/A	N/A	N/A	EBT	N/A	WBL	WBT	WBR
Net %	N/A	N/A	1%	N/A	N/A	N/A	N/A	12%	N/A	N/A	11%	1%
In/Out	-	-	Out	-	-	-	-	In	-	-	Out	In
Net Trips	N/A	N/A	22	N/A	N/A	N/A	N/A	299	N/A	N/A	247	25
Pass-by %												
Pass-by Trips	0	0	0	0	0	0	0	0	0	0	0	0

Northlake/ Coconut Blvd (Drwy 4)												
Net Trips In: 2491			Net Trips Out: 2242			Pass By Trips In: 226			Pass By Trips Out: 36			
	SBL	SBT	SBR	NBT	EBL	EBT	EBT	EBR	WBL	WBT	WBT	WBR
Net %	25%	6%	2%	8%	4%	4%	8.5%	1%	1%	12%	6%	16%
In/Out	Out	Out	Out	In	In	In	Out	Out	Out	In	Out	In
Net Trips	561	135	45	199	100	100	191	22	22	299	135	399
Pass-by %	50%		12%		71%							12%
Pass-by Trips	18	0	9	0	160	0	0	0	0	0	0	27

Northlake/ Drwy 7												
Net Trips In: 2491			Net Trips Out: 2242			Pass By Trips In: 226			Pass By Trips Out: 36			
	SBL	N/A	SBR	N/A	N/A	N/A	EBL	EBT	N/A	WBT	N/A	WBR
Net %	26.0%	N/A	2%	N/A	N/A	N/A	4%	33.5%	N/A	47.5%	N/A	12%
In/Out	Out	-	Out	-	-	-	In	Out	-	In	-	In
Net Trips	583	N/A	45	N/A	N/A	N/A	100	751	N/A	1183	N/A	299
Pass-by %	21%											
Pass-by Trips	8	0	0	0	0	0	0	0	0	0	0	0

Northlake/ 140th Ave (Drwy 2)												
Net Trips In: 2491			Net Trips Out: 2242			Pass By Trips In: 226			Pass By Trips Out: 36			
	SBL	SBT	SBR	NBL	NBT	NBR	EBL	EBT	WBL	WBT	WBT	WBR
Net %	9.5%	3%	2%		4%		4%	8%	1%	1%	9%	3%
In/Out	Out	Out	Out	-	In	-	In	In	Out	In	Out	In
Net Trips	213	67	45	0	100	0	100	199	22	25	202	75
Pass-by %												
Pass-by Trips	0	0	0	0	0	0	0	0	0	0	0	0

Northlake/ Drwy 5												
Net Trips In: 2491			Net Trips Out: 2242			Pass By Trips In: 226			Pass By Trips Out: 36			
	N/A	N/A	SBR	N/A	N/A	N/A	EBT	EBT	N/A	WBT	WBT	WBR
Net %	N/A	N/A	2.0%	N/A	N/A	N/A	4%	33.5%	N/A	28%	5.0%	10%
In/Out	-	-	Out	-	-	-	In	Out	-	In	Out	In
Net Trips	N/A	N/A	45	N/A	N/A	N/A	100	751	N/A	697	112	249
Pass-by %			12%									12%
Pass-by Trips	0	0	4	0	0	0	0	0	0	0	0	27



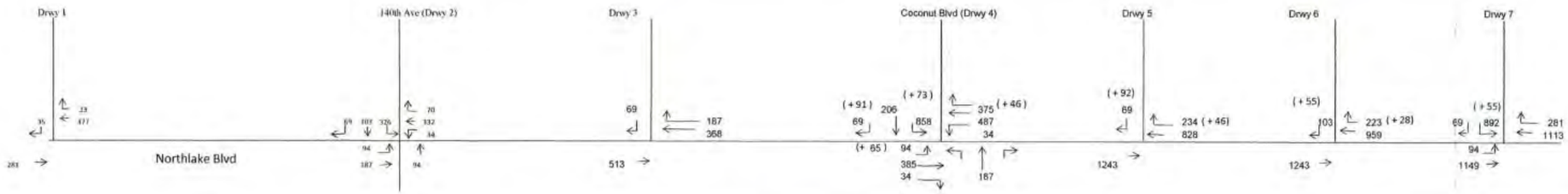
Northlake/ Drwy 3												
Net Trips In: 2491			Net Trips Out: 2242			Pass By Trips In: 226			Pass By Trips Out: 36			
	N/A	N/A	SBR	N/A	N/A	N/A	EBT	EBT	N/A	WBT	WBT	WBR
Net %	N/A	N/A	2%	N/A	N/A	N/A	9.5%	8.0%	N/A	4%	8%	8%
In/Out	-	-	Out	-	In	-	Out	In	-	In	Out	In
Net Trips	N/A	N/A	45	N/A	N/A	N/A	213	199	N/A	100	179	199
Pass-by %												
Pass-by Trips	0	0	0	0	0	0	0	0	0	0	0	0

Northlake/ Drwy 6												
Net Trips In: 2491			Net Trips Out: 2242			Pass By Trips In: 226			Pass By Trips Out: 36			
	N/A	N/A	SBR	N/A	N/A	N/A	EBT	EBT	N/A	WBT	WBT	WBR
Net %	N/A	N/A	3.0%	N/A	N/A	N/A	4%	33.5%	N/A	38%	2%	9.5%
In/Out	-	-	Out	-	-	-	In	Out	-	In	Out	In
Net Trips	N/A	N/A	67	N/A	N/A	N/A	100	751	N/A	947	45	237
Pass-by %			5%									5%
Pass-by Trips	0	0	2	0	0	0	0	0	0	0	0	11

N Avenir Connector/Beeline												
Net Trips In: 2491			Net Trips Out: 2242			Pass By Trips In: 226			Pass By Trips Out: 36			
	N/A	N/A	N/A	NBR	NBL	N/A	EBR	N/A	N/A	WBL	N/A	N/A
Net %	N/A	N/A	N/A	6.5%	10%	N/A	10.0%	N/A	N/A	6.5%	N/A	N/A
In/Out	-	-	-	Out	Out	-	In	-	-	In	-	-
Net Trips	N/A	N/A	N/A	147	224	N/A	249	N/A	N/A	162	N/A	N/A
Pass-by %												
Pass-by Trips	0	0	0	0	0	0	0	0	0	0	0	0

Figure 5b
AM Project Driveway Volumes
Avenir

North
Not to Scale



Northlake/ Drwy 1												
Net Trips In: 2343		Net Trips Out: 3431			Pass By Trips In: 185			Pass By Trips Out: 366				
	N/A	N/A	SBR	N/A	N/A	N/A	N/A	EBT	N/A	WBL	WBT	WBR
Net %	N/A	N/A	1%	N/A	N/A	N/A	N/A	12%	N/A	N/A	11%	1%
In/Out	-	-	Out	-	-	-	-	In	-	-	Out	In
Net Trips	N/A	N/A	35	N/A	N/A	N/A	N/A	281	N/A	N/A	377	23
Pass-by %												
Pass-by Trips	0	0	0	0	0	0	0	0	0	0	0	0

Northlake/ 140th Ave (Drwy 2)												
Net Trips In: 2343		Net Trips Out: 3431			Pass By Trips In: 185			Pass By Trips Out: 366				
	SBL	SBT	SBR	NBL	NBT	NBR	EBL	EBT	WBL	WBT	WBT	WBR
Net %	9.5%	3%	2%		4%		4%	8%	1%	1%	9%	3%
In/Out	Out	Out	Out	-	In	-	In	In	Out	In	Out	In
Net Trips	326	103	69	0	94	0	94	187	34	23	309	70
Pass-by %												
Pass-by Trips	0	0	0	0	0	0	0	0	0	0	0	0

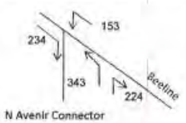
Northlake/ Drwy 3												
Net Trips In: 2343		Net Trips Out: 3431			Pass By Trips In: 185			Pass By Trips Out: 366				
	N/A	N/A	SBR	N/A	N/A	N/A	EBT	EBT	N/A	WBT	WBT	WBR
Net %	N/A	N/A	2%	N/A	N/A	N/A	9.5%	8.0%	N/A	4%	8%	8%
In/Out	-	-	Out	-	In	-	Out	In	-	In	Out	In
Net Trips	N/A	N/A	69	N/A	N/A	N/A	326	187	N/A	94	274	187
Pass-by %												
Pass-by Trips	0	0	0	0	0	0	0	0	0	0	0	0

Northlake/ Coconut Blvd (Drwy 4)												
Net Trips In: 2343		Net Trips Out: 3431			Pass By Trips In: 185			Pass By Trips Out: 366				
	SBL	SBT	SBR	NBT	EBL	EBT	EBT	EBR	WBL	WBT	WBT	WBR
Net %	25%	6%	2%	8%	4%	4%	8.5%	1%	1%	12%	6%	16%
In/Out	Out	Out	Out	In	In	In	Out	Out	Out	In	Out	In
Net Trips	858	206	69	187	94	94	292	34	34	281	206	375
Pass-by %	20%		25%		35%							25%
Pass-by Trips	73	0	91	0	65	0	0	0	0	0	0	46

Northlake/ Drwy 5												
Net Trips In: 2343		Net Trips Out: 3431			Pass By Trips In: 185			Pass By Trips Out: 366				
	N/A	N/A	SBR	N/A	N/A	N/A	EBT	EBT	N/A	WBT	WBT	WBR
Net %	N/A	N/A	2.0%	N/A	N/A	N/A	4%	33.5%	N/A	28%	5.0%	10%
In/Out	-	-	Out	-	-	-	In	Out	-	In	Out	In
Net Trips	N/A	N/A	69	N/A	N/A	N/A	94	1149	N/A	656	172	234
Pass-by %			25%									25%
Pass-by Trips	0	0	92	0	0	0	0	0	0	0	0	46

Northlake/ Drwy 6												
Net Trips In: 2343		Net Trips Out: 3431			Pass By Trips In: 185			Pass By Trips Out: 366				
	N/A	N/A	SBR	N/A	N/A	N/A	EBT	EBT	N/A	WBT	WBT	WBR
Net %	N/A	N/A	3.0%	N/A	N/A	N/A	4%	33.5%	N/A	38%	2%	9.5%
In/Out	-	-	Out	-	-	-	In	Out	-	In	Out	In
Net Trips	N/A	N/A	103	N/A	N/A	N/A	94	1149	N/A	890	69	223
Pass-by %			15%									15%
Pass-by Trips	0	0	55	0	0	0	0	0	0	0	0	28

Northlake/ Drwy 7												
Net Trips In: 2343		Net Trips Out: 3431			Pass By Trips In: 185			Pass By Trips Out: 366				
	SBL	N/A	SBR	N/A	N/A	N/A	EBL	EBT	N/A	WBT	N/A	WBR
Net %	26.0%	N/A	2%	N/A	N/A	N/A	4%	33.5%	N/A	47.5%	N/A	12%
In/Out	Out	-	Out	-	-	-	In	Out	-	In	-	In
Net Trips	892	N/A	69	N/A	N/A	N/A	94	1149	N/A	1113	N/A	281
Pass-by %	15%											
Pass-by Trips	55	0	0	0	0	0	0	0	0	0	0	0



N Avenir Connector/Beeline												
Net Trips In: 2343		Net Trips Out: 3431			Pass By Trips In: 185			Pass By Trips Out: 366				
	N/A	N/A	N/A	NBR	NBL	N/A	EBR	N/A	N/A	WBL	N/A	N/A
Net %	N/A	N/A	N/A	6.5%	10%	N/A	10%	N/A	N/A	6.5%	N/A	N/A
In/Out	-	-	-	Out	Out	-	In	-	-	In	-	-
Net Trips	N/A	N/A	N/A	224	343	N/A	234	N/A	N/A	153	N/A	N/A
Pass-by %												
Pass-by Trips	0	0	0	0	0	0	0	0	0	0	0	0

Figure 5c
PM Project Driveway Volumes
Avenir

North
Not to Scale

Table 8: Right-in/Right-out Driveway Turn Lane Requirements

Driveway		EBL	SBR	SBL	WBR
Northlake/ Driveway 1	AM Volume	0	22	0	25
	PM Volume	0	35	0	23
	Turn Lane Required	**N/A**	**No**	**N/A**	**No**
Northlake/ Driveway 3	AM Volume	0	45	0	199
	PM Volume	0	69	0	187
	Turn Lane Required	**N/A**	**No**	**N/A**	**Yes**
Northlake/ Driveway 5	AM Volume	0	49	0	276
	PM Volume	0	161	0	280
	Turn Lane Required	**N/A**	**Yes**	**N/A**	**Yes**
Northlake/ Driveway 6	AM Volume	0	69	0	248
	PM Volume	0	158	0	251
	Turn Lane Required	**N/A**	**Yes**	**N/A**	**Yes**

Note: Driveway 2/ 140th Ave; Driveway 4/ Coconut Blvd; and Driveway 7 are full access intersections included in intersection tables

3.5 Proportionate Share Calculation

Chapter Q of Article 12 of the Palm Beach County Unified Land Development Code establishes a method in which the impacts of development on transportation facilities can be mitigated by using the Proportionate Fair-share Program. Proportionate fair-share contributions are applied as credit against impact fees.

Table 9a shows the results of the link proportionate share. **Table 9b** summarizes how the cost of the improvements was calculated. **Table 10** summarizes the intersection proportionate share for those interseetion improvements that were not included in Table 9a and Table 9b. (Noted with an 'A' in Figure 3) The total project proportionate share on the links is estimated to be over $50,000,000.00. The intersection prop share for intersection costs not included on the link table are estimated to be over $15,000,000. Details of the costs, and the trigger points for each link and intersection are provided in **Appendix I.**

Also included in **Appendix I** are the worksheets that calculate the timing of proportionate share payments, assured construction and the Avenir Connection.

Table 9a: Avenir Prop Share - Links

If background traffic is less than existing capacity, than Prop share =(Total Traffic - existing capacity)/ increased capacity

A	B	C	D	E	F	G	H	I	J	L	M	N	O	P	Q	R	S		
Maintaining Agency	Segment	From	To	Direction	E + C Lanes	Existing LOS Threshold	Proposed Lanes	Future Capacity	Length in Miles	AM Background (see Table 6a)	PM Background (see Table 6b)	AM Total Traffic	PM Total Traffic	AM Project Trips (see Table 6a)	PM Project Trips (see Table 6b)	P or Total traffic - Existing Capacity Total AM Project Trips on the Link or adjusted	Q or Total traffic - Existing Capacity Total PM Project Trips on the Link or adjusted	Project % Increase Capacity (Average for Directions)	Roadway Improvement Condition #
PBCo	80th Street	Royal Palm	SR 7	EB	2L	880	4L	1960	0.8	985	474	1,041	560	56	0	56	0	5.32%	#32
				WB		880	4L	1960	0.8	398	908	460	967	0	59	0	59		
FDOT	Beeline Highway	Pratt Whitney	Caloosa	SB	4	3320	6L	4980	1.75	954	4,052	1,178	4,263	0	211	0	211	12.44%	#41
				NB		3320	6L	4980	1.75	3,673	1,289	3,875	1,598	202	0	202	0		
		Caloosa	Project	SB	4	3320	6L	4980	2	1,073	4,095	1,322	4,329	0	234	0	234	13.80%	#38
				NB		3320	6L	4980	2	3,772	1,329	3,996	1,672	224	0	224	0		
		Project	No. County Airport	SB	4	3320	6L	4980	0.7	955	3,242	1,102	3,466	0	224	0	146	4.40%	#51
				NB		3320	6L	4980	0.7	3,068	1,143	3,231	1,296	0	0	0	0		
		No. County Airport	PGA Blvd.	SB	4	3320	6L	4980	2.5	849	3,381	996	3,605	0	224	0	224	8.55%	#47
				NB		3320	6L	4980	2.5	3,217	1,091	3,380	1,244	163	0	60	0		
		Northlake Blvd	Jog Rd	SB	4	1960	6L	2940	1.2	2,248	2,131	2,696	2,817	448	686	448	686	60.41%	#11
				NB		1960	6L	2940	1.2	2,024	2,037	2,522	2,505	498	469	498	469		
		Jog Rd	Haverhill Rd	SB	4	1960	6L	2940	1.39	2,048	1,416	2,385	1,930	336	515	336	0	33.37%	#23
				NB		1960	6L	2940	1.39	1,313	1,926	1,686	2,278	374	351	0	318		
		Haverhill Rd	Blue Heron Blvd	SB	4	1960	6L	2940	0.48	2,013	1,340	2,304	1,786	291	446	291	0	26.28%	#25
				NB		1960	6L	2940	0.48	1,252	1,880	1,576	2,184	324	305	0	224		
PBCo	Coconut Blvd.	Orange	Temple	NB	2L	880	4L	1960	1	1,092	691	1,278	867	187	0	187	0	20.56%	#10
				SB		880	4L	1960	1	571	1,128	739	1,385	0	257	0	257		
		Temple	Northlake	NB	2L	880	4L	1960	1.16	1,439	501	1,638	688	199	0	199	0	21.90%	#7
				SB		880	4L	1960	1.16	388	1,270	568	1,545	0	274	0	274		
PBCo	Northlake Blvd.	140th Ave N	Coconut Blvd	EB	4L	1960	6L	2940	1.5	1,878	955	2,291	1,468	412	0	331	0	37.65%	#26
				WB		1960	6L	2940	1.5	764	1,742	1,288	2,367	0	555	0	407		
		Coconut Blvd	Ibis	EB	4L	1770	8L+	4590	2	2,876	1,205	4,210	3,247	1,334	2,041	1,334	1,477	50.90%	#1/#17
				WB		1770	8L+	4590	2	1,019	3,055	2,501	4,449	1,482	1,394	731	1,394		
		Ibis	SR 7	EB	4L	1770	8L+	4590	0.5	3,031	1,364	4,320	3,337	1,289	1,973	1,289	1,567	51.67%	#2/#17
				WB		1770	8L+	4590	0.5	1,170	2,745	2,622	4,093	1,432	1,347	852	1,347		
		SR 7	Beeline Hwy	EB	4L	3320	6L	4980	2.5	3,583	1,633	4,658	3,279	1,075	0	1,075	0	63.77%	#21b
				WB		3320	6L	4980	2.5	1,371	3,238	2,566	4,362	0	1,123	0	1,042		
		Jog	Steeplechase	EB	6L	2680	8L	3590	0.75	2,669	1,578	3,095	2,230	426	0	415	0	28.68%	#31
				WB		2680	8L	3590	0.75	1,206	2,342	1,680	2,787	0	445	0	107		
		Steeplechase	Military Trail	EB	6L	2940	8L	3940	1.25	2,973	2,096	3,377	2,713	404	0	404	0	40.80%	#30
				WB		2940	8L	3940	1.25	1,710	2,930	2,158	3,352	0	422	0	412		
PBCo	Okeechobee	E. Road	Folsum	EB	2L	880	4L	1960	1.24	1,110	991	1,155	1,059	45	69	45	69	5.51%	#16
				WB		880	4L	1960	1.24	883	1,172	932	1,219	50	47	50	47		
PBCo	PGA Blvd.	Beeline Highway	Ryder Cup	EB	2L	1140	4L	3320	3	347	1,375	493	1,599	0	224	0	224	8.89%	#44
				WB		1140	4L	3320	3	1,234	491	1,397	644	163	0	163	0		
		Ryder Cup	Fl. Turnpike	EB	4L	1960	6L	2940	1.25	1,379	2,190	1,491	2,361	0	171	0	171	15.15%	#33
				WB		1960	6L	2940	1.25	2,308	1,779	2,433	1,896	125	0	125	0		
PBCo	Pratt Whitney	Indiantown	Beeline Highway	NB	2L	1140	4L	3320	3	1,667	2,550	1,735	2,653	67	103	67	103	4.08%	#22
				SB		1140	4L	3320	3	2,356	1,990	2,431	2,061	75	70	75	70		
PBCo	Royal Palm Beach Blvd	Persimmon	60th	NB	2L	880	4L	1960	1	374	977	473	1,071	0	94	0	94	8.52%	#9
				SB		880	4L	1960	1	922	458	1,012	595	90	0	90	0		
		80th	Orange	NB	2L	880	4L	1960	1	343	990	480	1,119	0	129	0	129	11.67%	#8
				SB		880	4L	1960	1	956	440	1,079	629	123	0	123	0		
PBCo	Seminole Pratt Whitney	Sycamore	Persimmon	NB	4L	1960	6L	2940	1	2,055	1,903	2,242	2,079	187	176	187	113	18.42%	#45
				SB		1960	6L	2940	1	1,776	1,876	1,944	2,134	0	257	0	174		
		Persimmoon	60th	NB	2L	880	6L	2940	1	1,878	1,884	2,077	2,072	199	187	199	187	11.48%	#14
				SB		880	6L	2940	1	1,673	1,599	1,852	1,873	179	274	179	274		
PBCo	Orange Boulevard	Coconut	Royal Palm Beach	EB	2L	880	4L	1960	0.75	414	743	549	949	0	206	0	69	3.52%	#48
				WB		880	4L	1960	0.75	738	521	887	662	149	0	7	0		
FDOT	SR 7	Belvadere	Okeechobee	NB	6LD	2680	8L	3590	1.2	0	2,779	0	2,873	0	94	0	94	5.16%	#43
				SB		2680	8L	3590	1.2	0	2,532	0	2,670	0	0	0	0		
		Okeechobee	Roebuck	NB	4L	1960	6L	2940	2.5	1,460	1,697	1,609	1,838	0	0	0	0	6.89%	#39
				SB		1960	6L	2940	2.5	2,009	1,777	2,143	1,983	135	206	135	23		
		Orange Grove Blvd.	Persimmon	NB	4L	1960	6L	2940	0.5	1,009	1,769	1,258	2,003	0	234	0	43	13.62%	#36
				SB		1960	6L	2940	0.5	1,978	1,293	2,202	1,636	224	0	224	0		
PBCo	Military Trail	Holly	PGA Blvd.	NB	6LD	2680	8LD	3590	1	0	2,565	0	2,719	0	154	0	39	2.14%	#50
				SB		2680	8LD	3590	1	0	2,435	0	2,540	0	0	0	0		

Adjusted = Total Traffic less existing capacity / new capacity created
This calculation is that same as 'Project traffic on the link minus the capacity available after the background traffic is subtracted'/ new capacity created.

This column feeds into column K Table 9a

Table 9b: Avenir Prop Share Cost Estimates- Links- COST ARE UNDER REVIEW AND SERVE AS PLACEHOLDERS ONLY AT THIS TIME

Maintaining Agency	Segment	From	To	Direction	E + C Lanes	Existing LOS Threshold	Proposed Lanes	Future Capacity	Length in Miles	(1)Cost of Improvement	Des/Perm/CEI	R/W	Total
PBCo	**60th Street**	Royal Palm	SR 7	EB	2L	880	4L	1960	0.8	$ 1,831,851	$ 366,370		$ 2,198,221
				WB		880	4L	1960	0.8	$ 1,831,851	$ 366,370		$ 2,198,221
FDOT	**Beeline Highway**	Pratt Whitney	Caloosa	NB	4	3320	6L	4980	1.75	$ 3,606,301	$ 721,260		$ 4,327,561
				SB		3320	6L	4980	1.75	$ 3,606,301	$ 721,260		$ 4,327,561
		Caloosa	Project	NB	4	3320	6L	4980	2	$ 4,121,487	$ 824,297		$ 4,945,784
				SB		3320	6L	4980	2	$ 4,121,487	$ 824,297		$ 4,945,784
		Project	No. County Airport	NB	4	3320	6L	4980	0.7	$ 1,442,520	$ 288,504		$ 1,731,024
				SB		3320	6L	4980	0.7	$ 1,442,520	$ 288,504		$ 1,731,024
		No. County Airport	PGA Blvd.	NB	4	3320	6L	4980	2.5	$ 5,151,858	$ 1,030,372		$ 6,182,230
				SB		3320	6L	4980	2.5	$ 5,151,858	$ 1,030,372		$ 6,182,230
		Northlake Blvd	Jog Rd	NB	4	1960	6L	2940	1.2	$ 2,472,892	$ 494,578		$ 2,967,470
				SB		1960	6L	2940	1.2	$ 2,472,892	$ 494,578		$ 2,967,470
		Jog Rd	Haverhill Rd	NB	4	1960	6L	2940	1.39	$ 2,864,433	$ 572,887		$ 3,437,320
				SB		1960	6L	2940	1.39	$ 2,864,433	$ 572,887		$ 3,437,320
		Haverhill Rd	Blue Heron Blvd	NB	4	1960	6L	2940	0.48	$ 989,157	$ 197,831		$ 1,186,988
				SB		1960	6L	2940	0.48	$ 989,157	$ 197,831		$ 1,186,988
PBCo	**Coconut Blvd.**	Orange	Temple (2)	NB	2L	880	4L	1960	1	$ 2,289,800	$ 466,960	$ 145,000	$ 2,901,760
				SB		880	4L	1960	1	$ 2,289,800	$ 466,960	$ 145,000	$ 2,901,760
		Temple	Northlake (2)	NB	2L	880	4L	1960	1.16	$ 2,747,760	$ 549,552	$ 105,000	$ 3,402,312
				SB		880	4L	1960	1.16	$ 2,747,760	$ 549,552	$ 105,000	$ 3,402,312
PBCo	**Northlake Blvd.**	140th Ave N	Coconut Blvd (2)	EB	4L	1960	6L	2940	1.5	$ 3,091,125	$ 618,225	$ 60,000	$ 3,769,350
				WB		1960	6L	2940	1.5	$ 3,091,125	$ 618,225	$ 60,000	$ 3,769,350
		Coconut Blvd	Ibis (2)	EB	4L	1770	8L+	4590	2	$ 8,843,800	$ 1,768,760	$ 680,000	$ 11,292,560
				WB		1770	8L+	4590	2	$ 8,843,800	$ 1,768,760	$ 680,000	$ 11,292,560
		Ibis	SR 7 (2)	EB	4L	1770	8L+	4590	0.5	$ 2,210,950	$ 442,190	$ 1,050,000	$ 3,703,140
				WB		1770	8L+	4590	0.5	$ 2,210,950	$ 442,190	$ 1,050,000	$ 3,703,140
		SR 7	Beeline Hwy (2)	EB	4L	3320	6L	4980	2.5	$ 5,770,100	$ 1,154,020	$ -	$ 6,924,120
				WB		3320	6L	4980	2.5	$ 5,770,100	$ 1,154,020	$ -	$ 6,924,120
		Jog	Steeplechase	EB	6L	2680	8L	3590	0.75	$ 1,770,878	$ 354,176		$ 2,125,054
				WB		2680	8L	3590	0.75	$ 1,770,878	$ 354,176		$ 2,125,054
		Steeplechase	Military Trail	EB	6L	2940	8L	3940	1.25	$ 2,951,464	$ 590,293		$ 3,541,756
				WB		2940	8L	3940	1.25	$ 2,951,464	$ 590,293		$ 3,541,756
PBCo	**Okeechobee**	E. Road	Folsum (2)	EB	2L	880	4L	1960	1.24	$ 2,747,760	$ 549,552	$ 870,000	$ 4,167,312
				WB		880	4L	1960	1.24	$ 2,747,760	$ 549,552	$ 870,000	$ 4,167,312
PBCo	**PGA Blvd.**	Beeline Highway	Ryder Cup	EB	2L	1140	4L	3320	3	$ 6,869,441	$ 1,373,888		$ 8,243,329
				WB		1140	4L	3320	3	$ 6,869,441	$ 1,373,888		$ 8,243,329
		Ryder Cup	Fl. Turnpike	EB	2L	1960	6L	2940	1.25	$ 4,001,288	$ 800,258		$ 4,801,546
				WB		1960	6L	2940	1.25	$ 4,001,288	$ 800,258		$ 4,801,546
PBCo	**Pratt Whitney**	Indiantown	Beeline Highway	NB	2L	1140	4L	3320	3	$ 6,869,441	$ 1,373,888		$ 8,243,329
				SB		1140	4L	3320	3	$ 6,869,441	$ 1,373,888		$ 8,243,329
PBCo	**Royal Palm Beach Blvd**	Persimmon	60th	NB	2L	880	4L	1960	1	$ 2,289,814	$ 457,963		$ 2,747,776
				SB		880	4L	1960	1	$ 2,289,814	$ 457,963		$ 2,747,776
		60th	Orange (2)	NB	2L	880	4L	1960	1	$ 2,289,814	$ 457,960	$ 245,000	$ 2,992,774
				SB		880	4L	1960	1	$ 2,060,743	$ 457,960	$ 245,000	$ 2,763,703
PBCo	**Seminole Pratt Whitney**	Sycamore	Persimmon	NB	4L	1960	6L	2940	1	$ 2,060,743	$ 412,149		$ 2,472,892
				SB		1960	6L	2940	1	$ 2,060,743	$ 412,149		$ 2,472,892
		Persimmoon	60th	NB	2L	880	6L	2940	1	$ 3,201,030	$ 640,206		$ 3,841,237
				SB		880	6L	2940	1	$ 3,201,030	$ 640,206		$ 3,841,237
PBCo	**Orange Boulevard**	Coconut	Royal Palm Beach	EB	2L	880	4L	1960	0.75	$ 1,717,360	$ 343,472		$ 2,060,832
				WB		880	4L	1960	0.75	$ 1,717,360	$ 343,472		$ 2,060,832
FDOT	**SR 7**	Belvedere	Okeechobee	NB	6L	2680	8L	3590	1.2	$ 2,833,405	$ 566,681		$ 3,400,086
				SB		2680	8L	3590	1.2	$ 2,833,405	$ 566,681		$ 3,400,086
		Okeechobee	Roebuck	NB	4L	1960	6L	2940	2.5	$ 6,763,492	$ 1,352,698		$ 8,116,190
				SB		1960	6L	2940	2.5	$ 6,763,492	$ 1,352,698		$ 8,116,190
		Orange Grove Blvd	Persimmon	NB	4L	1960	6L	2940	0.5	$ 1,030,372	$ 206,074		$ 1,236,446
				SB		1960	6L	2940	0.5	$ 1,030,372	$ 206,074		$ 1,236,446
	Military Trail	Holly	PGA Blvd.	NB	6LD	2680	8LD	3590	1	$ 2,361,171	$ 472,234		$ 2,833,405
				SB		2680	8LD	3590	1	$ 2,361,171	$ 472,234		$ 2,833,405
	(2)Per Minto West total costs									$173,843,873			

			Cost
	$4,579,627	Add 2l to create 4L	$2,289,814
	$4,121,487	Widen 4l to 6L	$2,060,743
	$4,722,342	Widen 6L to 8L	$2,361,171
increased byratio	$5,410,793	Widen 8L to 8L+/10L	$2,705,397
using new 4	$6,402,061	Widen 2L to 6l	$3,201,030
new 6l cons	$7,226,562	4L to 10L	$3,613,281
	$11,706,962		$5,853,481

Table 10 : Intersection Prop Share (Costs are under review and serve as placeholders only at this time)

Intersection	Project % of Cost	Project Prop Share Amount	Condition #
2. Pratt Whitney/ Indiantown	5.82%	$72,454	#42
3. Beeline/ Pratt Whitney	28.90%	$360,875	#29
5. Beeline/ PGA Blvd	26.20%	$272,121	#24
10. Northlake/ SR 7	81.40%	$507,770	#15
11. Beeline Highway/ Northlake	35.56%	$12,319,713	#18
14. Northlake/ Military	43.15%	$538,035	#34
16. Northlake/ I-95 East Ramp	24.00%	$49,797	#49
17. Beeline/ Jog Rd	60.60%	$125,939	#27
19. Beeline/ Blue Heron	26.00%	$54,034	#37
20. Blue Heron/ Military	65.90%	$137,003	#35
23. Orange Blvd/Coconut Blvd	52.00%	$432,063	#21a
25. 60th St/ Royal Palm Beach Blvd.	19.40%	$80,438	#19
27. Persimmon/ Seminole Pratt Whitney	20.80%	$86,548	#46
28. Persimmon Blvd/ Royal Palm Beach Blvd	44.90%	$186,478	#28

Total $15,223,268

3.6 Project Phasing

1. No building permits for development generating an equivalent number of net 28 outbound am peak hour trips or 28 PM peak hour inbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 50.9% of the cost for the construction of Northlake Boulevard from 4 lanes to 6 lanes from Coconut to Ibis. The payment for construction from 6L to 8L is tied to the timing of the Avenir connector and SR7 connections.

2. No building permits for development generating an equivalent number of net equivalent 29AM outbound or 29 inbound PM peak hour trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 51.67% for the construction of Northlake Boulevard from 4 lanes to 6 lanes from Ibis to SR 7. This payment may be used for this improvement or construction of another improvement that benefits mobility.

3. No building permits for development generating an equivalent number of equivalent 36 inbound am peak hour trips or 36 outbound PM peak hour trips shall be issued until the assured construction is let for the construction of Northlake Boulevard from 4 lanes to 6 lanes from 140th Avenue to Coconut Boulevard.

4. No building permits for development generating an equivalent number of equivalent 67 inbound am peak hour trips or 67 outbound trips shall be issued until the assured construction is let for the construction of Northlake Boulevard from 2 lanes to 4 lanes from Seminole Pratt Whitney to 140th Avenue.

5. No building permits for development generating an equivalent number of equivalent 73 inbound am peak hour trips or 73 outbound PM trips; shall be issued until the assured construction is let for the construction of SR 7 from 2 lanes to 4 lanes from Persimmon to 60th Street.

6. No building permits for development generating an equivalent number of 73 inbound am peak hour trips or 73 PM outbound trips; shall be issued until the assured construction is let for the construction of SR 7 to 4 lanes from 60th Street to Northlake Boulevard.

7. No building permits for development generating an equivalent number of net equivalent 76 PM outbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 21.9% of the cost for the construction of Coconut from Temple to Northlake from 2 lanes to 4 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

8. No building permits for development generating an equivalent number of net equivalent 145 PM inbound trips; shall be issued until the Property Owner makes a Proportionate share payment in the amount of 11.67% of the cost for the construction of Royal Palm Beach Boulevard from 60th Street to Orange Avenue from 2lanes to 4 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

9. No building permits for development generating net equivalent 200 PM inbound trips; shall be issued until the Property Owner makes a Proportionate share payment in the amount of 8.52% of the cost for the construction of Royal Palm Beach Boulevard from Persimmon to 60th Street froom 2 lanes to 4 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility in the area impacted by the project.

10. No building permits for development generating an equivalent number of net equivalent 386 AM inbound trips; shall be issued until the Property Owner makes a Proportionate share payment in the amount of 20.56% of the cost for the construction of Coconut Boulevard from Orange to Temple from 2 lanes to 4 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

11. No building permits for development generating an equivalent number of net equivalent 419 AM outbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 60.41% of the cost for the construction of Beeline Highway from Northlake Boulevard to Jog Road 4lanes to 6 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

12a/b. No building permits for development generating an equivalent number of 440 AM inbound peak hour trips or 440 PM outbound trips; shall be issued until the assured construction is let for the construction of SR 7 from and from Orange Grove to Persimmon and Roebuck to Orange Grove from 2 lanes to 4 lanes.

13. No building permits for development generating an equivalent number of 464 PM inbound peak hour trips shall be issued until the assured construction of intersection improvement at 60th Street and SR 7 is let.

14. No building permits for development generating an equivalent number of net equivalent 550 AM inbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 11.48% of the cost for the construction of Seminole Pratt Whitney from Persimmon to 60th Street from 2 lanes to 6 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

15. No building permits for development generating an equivalent number of net equivalent 591 PM outbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 81.4% of the cost for the construction of intersection improvements at Northlake and SR This payment may be used for this improvement or construction of another improvement that benefits mobility.

16. No building permits for development generating an equivalent number of net equivalent 657 PM Inbound trips; shall be issued until the Property Owner makes a Proportionate share payment in the amount of 5.51% of the cost for the construction of Okeechobee Boulevard from E Road to Folsum from 2 lanes to 4 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

17. No building permits for development generating an equivalent number of net 702 PM inbound peak hour trips shall be constructed until payments have been made in the amount of 50.9% of the cost for the construction of Northlake Boulevard from Coconut to Ibis and 51.67 % for the cost of construction of Northlake Boulevard from Ibis to SR 7 from 6L to 8L+.

18. No building permits for development generating an equivalent number of net equivalent 709 PM inbound trips or 931 PM outbound trips, whichever shall occur first, shall be issued until the Property Owner makes a Proportionate share payment in the amount of 35.5% of the cost for the construction of intersection improvements at Beeline Highway and Northlake. This payment may be used for this improvement or construction of another improvement that benefits mobility.

19. No building permits for development generating an equivalent number of net equivalent 725 AM inbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 19.4% of the cost for the construction of intersection improvements at 60th Street and Royal Palm Beach Boulevard. This payment may be used for this improvement or construction of another improvement that benefits mobility.

20. No building permits for development generating an equivalent number of 733 AM inbound peak hour trips or 733 PM outbound trips; shall be issued until the assured construction is let for the construction of SR 7 from Okeechobee to Roebuck Road from 2 lanes to 4 lanes.

21a. No building permits for development generating an equivalent number of net equivalent 760 PM inbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 52.0% of the cost for the construction of intersection improvements at Orange Boulevard and Coconut Boulevard. This payment may be used for this improvement or construction of another improvement that benefits mobility.

21b. No building permits for development generating an equivalent number of net equivalent 769 AM outbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 63.77% of the cost for the construction of Northlake Boulevard from SR 7 to Beeline Highway from 4 lanes to 6 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

22. No building permits for development generating an equivalent number of net equivalent 869 AM inbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 4.08% of the cost for the construction of Pratt Whitney from Indiantown Road to Beeline Highway from 2 lanes to 4 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

23. No building permits for development generating an equivalent number of net equivalent 894 AM outbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 33.37% of the cost for the construction of Beeline Highway from Jog Road to Haverhill Road from 4 lanes to 6 lanes or the roadway is constructed by the FDOT. This payment may be used for this improvement or construction of another improvement that benefits mobility.

24. No building permits for development generating an equivalent number of net equivalent 954 PM inbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 15.6% of the cost for the construction of intersection improvements at Beeline Highway and PGA Boulevard. This payment may be used for this improvement or construction of another improvement that benefits mobility.

25. No building permits for development generating an equivalent number of net equivalent 1,010 AM outbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 26.28% of the cost for the construction of Beeline Highway from Haverhill Road to Blue Heron Boulevard or the roadway is constructed by the FDOT. This payment may be used for this improvement or construction of another improvement that benefits mobility.

26. No building permits for development generating an equivalent number of net equivalent 1,082 AM outbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 37.65% of the cost for the construction of Northlake Boulevard from 140th Avenue N to Coconut Boulevard 4 lanes to 6 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

27. No building permits for development generating an equivalent number of net equivalent 1,100 PM outbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 60.6% of the cost for the construction of intersection improvements at Beeline Highway and Jog Road. This payment may be used for this improvement or construction of another improvement that benefits mobility.

28. No building permits for development generating an equivalent number of net equivalent 1,167 AM inbound trips; shall be issued until the Property Owner makes a Proportionate share payment in the amount of 44.9% of the cost for the construction of intersection of Persimmon/ Royal Palm Beach Boulevard. This payment may be used for this improvement or construction of another improvement that benefits mobility.

29. No building permits for development generating an equivalent number of net equivalent 1,267 PM outbound trips; shall be issued until the Property Owner makes a Proportionate share payment in the amount of 28.9% of the cost for the construction of intersection improvements at Beeline Highway and Pratt Whitney. This payment may be used for this improvement or construction of another improvement that benefits mobility.

30. No building permits for development generating an equivalent number of 1,319 net equivalent AM outbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 40.8% of the cost for the construction of Northlake Boulevard from Steeplechase to Military Trail from 6 lanes to 8 lanes. This payment may be used for this improvement or construction of another benefits mobility.

31. No building permits for development generating an equivalent number of 1,340 net equivalent AM outbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 28.68% of the cost for the construction of Northlake Boulevard from Jog Road to Steeplechase 6 lanes to 8 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility in the area impacted by the project.

32. No building permits for development generating an equivalent number of 1,459 net equivalent AM outbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 5.32% of the cost for the construction of 60th Street from Royal Palm Beach Boulevard to SR 7 from 2 lanes to 4 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

33. No building permits for development generating an equivalent number of 1,524 net equivalent AM inbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 15.15% of the cost for the construction of PGA Boulevard from Ryder Cup to Florida's Turnpike from 4 lanes to 6 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

34. No building permits for development generating an equivalent number of net equivalent 1525 AM inbound trips or 1594 PM Outbound trips whichever shall occur first, shall be issued until the Property Owner makes a Proportionate share payment in the amount of 43.15% of the cost for the construction of intersection improvements at Northlake Boulevard and North Military Trail. This payment may be used for this improvement or construction of another improvement that benefits mobility.

35. No building permits for development generating an equivalent number of net equivalent 1,563 AM inbound trips; shall be issued until the Property Owner makes a Proportionate share payment in the amount of 65.9% of the cost for the construction of intersection of Blue Heron Boulevard/N. Military Trail. This payment may be used for this improvement or construction of another improvement that benefits mobility.

36. No building permits for development generating an equivalent number of 1,583 net equivalent AM outbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 13.62% of the cost for the construction of SR7 from Orange Grove to Persimmon from 4 lanes to 6 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

37. No building permits for development generating an equivalent number of net equivalent 1,589 PM outbound trips; shall be issued until the Property Owner makes a Proportionate share payment in the amount of 26.0% of the cost for the construction of improvements at the intersection of Blue Heron Boulevard/Beeline Highway. This payment may be used for this improvement or construction of another improvement that benefits mobility.

38. No building permits for development generating an equivalent number of 1,688 net equivalent PM inbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 13.8% of the cost for the construction of Beeline Highway from Caloosa to the Project from 4 lanes to 6 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

39. No building permits for development generating an equivalent number of 1,705 net equivalent AM outbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 6.89% of the cost for the construction of SR7 from Okeechobee to Roebuck, from 4 lanes to 6 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

40. Not Used

41. No building permits for development generating an equivalent number of 1,726 net equivalent PM inbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 12.44% of the cost for the construction of Beeline Highway from Pratt Whitney to Caloosa from 4 lanes to 6 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

42. No building permits for development generating an equivalent number of net equivalent 1,760 AM outbound trips; shall be issued until the Property Owner makes a Proportionate share payment in the amount of 5.82% of the cost for the construction of intersection improvements at Pratt Whitney/Indiantown. This payment may be used for this improvement or construction of another improvement that benefits mobility.

43. No building permits for development generating an equivalent number of 1,922 net equivalent PM inbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 5.16% of the cost for the construction of SR7 from Belvedere to Okeechobee, from 6 lanes to 8 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

44. No building permits for development generating an equivalent number of 1,948 net equivalent AM inbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 8.88% of the cost for the construction of PGA Boulevard from Beeline Highway to Ryder Cup from 2 lanes to 4 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

45. No building permits for development generating an equivalent number of 1,974 net equivalent AM inbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 18.42% of the cost for the construction of Seminole Pratt Whitney from Sycamore to Persimmon from 4 lanes to 6 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

46. No building permits for development generating an equivalent number of 2,400 net equivalent PM outbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 20.8% of the cost for the construction of the improvements to the intersection of Persimmon and Seminole Pratt Whitney.. This payment may be used for this improvement or construction of another improvement that benefits mobility.

47. No building permits for development generating an equivalent number of 2,433 net equivalent AM inbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 8.55% of the cost for the construction of Beeline Highway from North County Airport to PGA Boulevard from 4 lanes to 6 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

48. No building permits for development generating an equivalent number of 2,441 net equivalent AM inbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 3.52% of the cost for the construction of Orange Boulevard from Coconut Avenue to Royal Palm Beach Boulevard from 2 lanes to 4 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

49. No building permits for development generating an equivalent number of net equivalent 3,156 PM outbound trips; shall be issued until the Property Owner makes a Proportionate share payment in the amount of 24.0% of the cost for the construction of intersection improvements at Northlake/ I-95 East. This payment may be used for this improvement or construction of another improvement that benefits mobility.

50. No building permits for development generating an equivalent number of 3,243 net equivalent PM outbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 2.14% of the cost for the construction of Military Trail from Holly to PGA Boulevard, from 6 lanes to 8 lanes. This payment may be used for this improvement or construction of another improvement that benefits mobility.

51. No building permits for development generating an equivalent number of 3,249 net equivalent PM outbound trips shall be issued until the Property Owner makes a Proportionate share payment in the amount of 4.40% of the cost for the construction of Beeline Highway from Project to North County Airport, from 4L to 6L. This payment may be used for this improvement or construction of another improvement that benefits mobility.

52. The Avenir Connection shall be constructed according to the following phasing:

a) Following the 6 laning of Northlake Boulevard no building permits shall be constructed generating a net 266 PM inbound trips until the Avenir Connection is constructed or:

b) Following the 6 laning of Northlake Boulevard, and the SR 7 connection no building permit shall be constructed generating net 438 PM inbound trips

4.0 Conclusion

The Avenir project complies with Article 12. All analysis are complete and the impacts related to the project traffic have been mitigated through construction, timing and proportionate share.

The project will construct all turn lanes and driveway improvements to include:

- Beeline Highway/Project Driveway
  Signalization
  Northbound: two left-turn lanes, and one right-turn lane;
  Eastbound: four thru lanes, and two right-turn lanes,
  Westbound: one left-turn lane, and four thru lanes.
- Northlake Boulevard/140th Street (Driveway 2)
  Signalization
  Southbound: two left-turn lanes, and one thru lane, one right-turn lane;
  Eastbound: two left-turn lanes, one thru lane, and one shared thru-right lane;
  Westbound: two left-turn lanes, three thru lanes, and one right-turn lane;
  Northbound: one left-turn lane, one thru lane, and two right-turn lanes.
- Northlake Boulevard/Coconut Boulevard (Driveway 4)
  Signalization
  Southbound: three left-turn lanes, two thru lanes, and one right turn lane;
  Eastbound: two left-turn lanes, four thru lanes, and one right-turn lane;
  Westbound: two left-turn lanes, four thru lanes, and one right-turn lane;
  Northbound: one left-turn lane, two thru lanes, and one free flow right-turn lane.
- Northlake Boulevard/Driveway 7
  Signalization
  Southbound: three left-turn lane and one right-turn lane;
  Eastbound: one left-turn lane, and four thru lanes;
  Westbound: one right-turn lane, and four thru lanes.

In addition, the project will add a westbound right turn lane at Northlake/Driveway 3; westbound right turn lanes and southbound right turn lanes at Northlake/Driveway 5 and Northlake/Driveway 7.

The project will construct, make a proportionate share payment or phase development to all improvements shown in Tables 9a and 10.

The amount of development that can occur prior to mitigation of a particular improvement or committed improvement was identified in conditions 1 through 52.

SUSAN E. O'ROURKE, P.E., Inc.

Traffic Engineering, Transportation Planning

LAND USE AMENDMENT TRAFFIC STUDY

FOR

Avenir

Prepared by

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September 8, 2015
Revised: October 28, 2015
Revised: November 30, 2015

PR15021.0

Prepared by:	Professional Engineer
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TABLE OF CONTENTS

1.0 INTRODUCTION

Susan E. O'Rourke, P.E., Inc. was retained to provide traffic engineering services related to the change in land use of approximately 4,763 acres in Palm Beach Gardens, Florida. The purpose of a land use amendment transportation analysis is to determine if the roadway network can accommodate the net increase in traffic. The traffic analysis for the proposed Land Use Amendment is consistent with Policy 2.1.17 of the City of Palm Beach Gardens Transportation Element. The policy requires a five-year short-term and a long term analysis (2040) to reflect the planning horizon for the comprehensive plan. The steps in the analysis are provided herein.

1.1 Project Description

Avenir is located north side of Northlake Boulevard, east of Grapeview Boulevard, south of the Beeline Highway and near the western border of the City of Palm Beach Gardens, FL (see **Exhibit 1**). The site is approximately 4,763 acres of which 2,126 acres will be restored and preserved as natural areas, including grasslands, uplands and wetlands. Avenir is bordered by existing development (the Acreage, Caloosa and North County Airport) and natural areas (JW Corbett Wildlife Management Area and Grassy Waters Preserve).

Avenir is a community that is well placed and thoughtfully designed, with new development of an innovative form and cohesive mix of uses in balance with conservation and restoration of the natural systems. Avenir provides for important transportation connections in western Palm Beach County. A new roadway connection between Northlake Boulevard and the Beeline Highway will benefit the surrounding area by creating a north/south link that can minimize travel times while connecting people to local jobs and businesses. Furthermore, the proposed Avenir Town Center will provide much needed services, entertainment destinations, and jobs in proximity to the western communities.

1.2 Existing and Proposed Future Land Use Designation

The current Future Land Use Designation for the property is RR-10 (Rural Residential – 1 unit per 10 acre) and RR-20 (Rural Residential – 1 unit per 20 acre), where a total of 406 residential units would be permitted on the site. Also allowed as permitted use are land uses to include; golf courses, day care, Schools and regional park. The applicant is requesting a Future Land Use Map Amendment to modify the land use designation of the property from RR10 and RR20 to Mixed Use (MXD), to apply a Conservation Overlay (CO) on the northern 2,426 acres of the property, to modify the location of the Urban Growth Boundary (UGB) to include the property, and to add a

note on the map capping the intensity and density of the property to the proposed development program or equivalent trips.

The approval of the submitted applications will allow for a mixed use community in the western part of the city that strikes a unique balance between the natural and built environments. The applicant is proposing to dedicate the northern 2,426 acres, or 51%, of the property to conservation to allow for the preservation and restoration of the historic hydrologic and wildlife connections between regional conservation lands and natural areas. The balance of the property is being dedicated to the development of the Avenir community, which includes:

Land Use	Units	Intensity
Residential Single Family	Dwelling Units	3,735
Residential Multi-family (Townhomes)	Dwelling Units	250
Hotel	Rooms	300
Retail / Commercial	Square Feet	400,000
Office	Square Feet	1,800,000
Medical Office	Square Feet	200,000
Elementary School	Students	600
Golf Course	Holes	9
Regional Park	Acres	55
Equestrian Facilities	Stalls	80

The site plan is included in **Appendix A**. Project buildout is anticipated in 2035. This traffic study is consistent with the Palm Beach Gardens requirements for Land Use Plan analysis traffic studies.

2.0 TRAFFIC ANALYSIS

This section evaluates three traffic scenarios for the proposed land use change under the proposed development program: Existing Conditions (2014), Five Year Analysis (2020) and Long Range Analysis (2040) within the study area. The study area was limited to roadway segments where the project traffic represents more than 3% of the adopted service volume (significant impact).

2.1 Existing Conditions (2014)

Existing traffic counts for all roadways segments within the 5-mile radius of development influence (RDI) were obtained from Palm Beach County Traffic Division (See **Appendix B**). Existing

traffic was compared to Level of Service (LOS) "D" service volume for existing conditions. Since service volumes in the city of Palm Beach Gardens are based on those published by the county, the latest LOS D Service Volumes published by the Palm Beach County Traffic Division were used.

The existing link analysis is presented in **Exhibit 2**. The results of the analysis show that the following roadway links currently exceed the LOS "D" threshold and are over capacity.

- Coconut Boulevard, between Orange Boulevard and Northlake;
- Northlake Boulevard, between Coconut Boulevard and SR 7; and,
- Royal Palm Beach Boulevard, between 60th Street and Orange Boulevard.

2.2 Five Year Analysis (2020)

2.2.1 Overview

Test 2 requires comparing the peak hour directional traffic volumes on each significant roadway link to the Palm Beach Gardens service volumes. The analysis must include links within the RDI with more than 3% of the adopted LOS "D" thresholds and links outside the RDI with the net trips are greater than 5% of the LOS "D" thresholds. Under this test, analyses of links shall be carried out at the end of the FDOT Five Year Transportation Improvement Program. The improvements are presented in **Exhibit 3**. Documentation of these improvements is provided in **Appendix C.** Background traffic was estimated based on a one percent (1.0%) compounded annual growth rate plus committed developments to be obtained from the TPS database. Anticipated project development to be in place by 2020 was added to these volumes to obtain future with project conditions.

2.2.2 Trip generation- Five Year

The proposed development program for Avenir by 2020 is:

- 1,000 single family homes
- 250 townhomes
- 200,000 SF GLA Retail
- 225,000 SF GFA Office
- 50,000 SF GFA Medical Office
- Elementary School
- Golf Course
- Regional Park

Exhibit 4 shows the trip generation for these uses based on the Palm Beach County TPS standards.

2.2.3 Project Distribution/ Project Significance- Five Year - 2020

A project trip distribution was developed as part of the concurrency analysis and approved by reviewers. The same assignment is used for 2020 and Long Range Analysis. The distribution is graphically portrayed in **Exhibit 5**. Project Percent Impact calculations are presented in **Exhibit 6**.

2.2.4 Link Analysis – Test 2

The results of the Year 2020 AM and PM peak hour directional link analysis for the significantly impacted links are shown in **Exhibit 7**. Link data for year 2020 can be found in **Appendix E**. Diversion values for 2020 are included in **Appendix E.**

The following links fail, but are also backlogged (projected to operate above the adopted level of service standard with the project traffic added) for the year 2020:

- Northlake Boulevard, between Coconut Boulevard and Beeline Highway.
- Coconut from Orange to Northlake Boulevard
- Royal Palm Beach Boulevard from Persimmon Boulevard to Orange Boulevard

2.3 Long Range Analysis (2040)

2.3.1 Project Trip Generation

Trip generation was based on the rates and/or equations published by Palm Beach County, August 2014. Rates and/or equations from the latest version of ITE were used when TPS rates were not available. It is acknowledged that some trips generated by mixed-use projects do not exit the project or enter the major roadway system. Internal traffic was estimated using the procedures from NCHRP 684. It is acknowledged that some trips generated by the non-residential uses are from existing traffic passing the proposed project and are not newly generated trips. Credit against the trip generation of the proposed project was taken for these trips up to the percentage shown in Article 13, Impact Fees. **Exhibit 8a** summarizes the trip generation for the Existing Future Land. **Exhibit 8b** summarizes the trip generation for the Proposed Future Land use. **Exhibit 8c** summarizes the net trip generation. As shown, the project represents an increase of 54,111 daily trips.

2.3.2 Project Traffic Distribution and Assignment

As shown previously the directional project trip distribution was based on discussions with representatives from Palm Beach County, the Florida Department of Transportation (FDOT) and the City of Palm Beach Gardens.

2.3.3 2040 Analysis

Traffic volumes for the year 2040 planning horizon were obtained from the SERPM7 model, updated for the 2040 Long Range Transportation Plan. These values ended up not being used in the LRTP due to timing, but reflect the most up to date data set including approved Minto West. These volumes were added to the project traffic and then compared against the LOS "D" standard. The service volumes for the analysis were obtained from LOS D Link Service Volumes, 2009 FDOT quality level of Service Standards. **Exhibit 9** shows the results of the Long Range Analysis. Traffic associated with recently approved developments has also been included in the analysis. Per Palm Beach County Policy 3.5.d., the project significance is determined when the net project trip increase impacting roads is: greater than one percent (1%) for volume to capacity ration (v/c) of 1.4 or more, two percent (2%) for v/c of 1.2 or more and three percent (3%) for v/c of less than 1.2 of the level of service "D" capacity on an AADT basis of the link affected. Documentation of the Long Range traffic projection including daily diversion to the Avenir Connector is included in **Appendix F.**

The results of the 2040 Long Range Analysis shows that several roadway segments are projected to operate above the adopted level of service standard where project traffic is significant. However, these roadways are backlogged for 2040 volumes without project. The following is a list of roadways projected to operate above the adopted standard after project traffic is added.

- Beeline Highway from Haverhill Road to Blue Heron Drive;
- 60th Street from Royal Palm Beach Boulevard to SR7 (backlogged);
- Northlake Boulevard, from 140th Avenue to Beeline Highway (Parts-backlogged);
- Northlake Boulevard from Jog Road to I-95 (Parts-backlogged);
- Orange Boulevard, Coconut Boulevard to Royal Palm Beach Boulevard;
- Coconut Boulevard from Temple to Northlake Boulevard (2L to 4L); and
- Persimmon Boulevard from Coconut to Royal Palm Beach Boulevard (backlogged);
- Blue Heron Boulevard from Military to I-95 (backlogged).
- Royal Palm Beach Boulevard from 60th Street to Persimmon2L to 4L (backlogged)

3.0 Roadway Need and Mitigation

Palm Beach Gardens Comprehensive Plan requires that under Policy 2.1.1.7 if the traffic analysis for a Land Use Plan Amendment *demonstrates that a roadway will operate below the adopted level of service, then the necessary roadway improvement or alternative measures to maintain the adopted level of service* <u>*should be*</u> *identified and if the necessary measure is a capital improvement it* <u>*should be*</u> *included within the first five years of the financially feasible capital improvement program on the long range transportation map depending on the timing of the need for the improvement to the roadway. Alternatively, the potential amount of development that is permitted on the site, shall be reduced to ensure the future land use plan is coordinated with the transportation plan.*

The project proposes several alternative measures to offset impact; proportionate share, reduced land development through preservation of conservation lands and offsetting the strong peaks by providing work and other destination opportunities.

The Proportionate Share process is an alternative measure in which the maintaining agencies agree to take payment for various projects and apply them to a series of specific improvements that provide mobility within the general study area. This project will utilize a combination of capital improvements and proportionate share to mitigate its impacts in accord with this policy.

For the five year analysis, the project is expected to have an impact of 19,763 trips with 1,325 am trips and 1,760 PM peak hour trips. By 2040 the net impact is 54,111 daily trips.To support the project and other cumulative development in the short term, several improvements are needed.

1. **Coconut Boulevard from Orange Boulevard to Temple Boulevard and from Temple Boulevard to Northlake Boulevard** needs to go from 2 lanes to 4 lanes. This improvement is needed for existing conditions. Therefore, it is needed by 2020 with or without the project. This improvement is conditioned to Minto West. This roadway improvement is not included in the 2040 Plan; it is shown as a 2 lane roadway. The project will make "proportionate share" payments as it pulls building permits to offset its impacts.

2. **Northlake Boulevard from Coconut to Ibis and Ibis to SR 7** needs to go from 4 lanes today to 8 lanes by 2020. This improvement is also conditioned to Minto West. The roadway exceeds the 4 lane capacity today and is nearly exceeding a six-lane capacity today. Therefore, these improvements are needed with or without the project in 2020 and 2040. These two sections are

included as 4 lane facilities in the long range plan. The project will make "proportionate share" payments as it pulls building permits to offset its impacts.

3. **Northlake Boulevard from SR 7 to Beeline Highway** needs to go from 4 lanes uninterrupted to 8 lanes "interrupted flow" by 2020. These improvements are needed with or without the project in 2020. 2040 volumes are within acceptable ranges without the project according to the 2040 model. Peak hour analysis in the concurrency analysis showed that the 6 lanes uninterrupted were needed with or without the project. There is a difference in how uninterrupted flow is measured which leads to differences in the needs. The project will make "proportionate share" payments as it pulls building permits to offset its impacts.

4. **Royal Palm Beach Boulevard from Persimmon Boulevard to 60th Street and 60th Street to Orange Boulevard** needs to go from 2 lanes to 4 lanes. These improvements are needed in 2020 and are needed with or without the project traffic added. The 2040 plan calls for 4 lanes on all but the segment from 60th Street to Persimmon, so the needs are fairly consistent with the 2040 plan but not funded in the five year program. The project will make "proportionate share" payments as it pulls building permits to offset its impacts.

Improvements that are not required to comply with the short term demand but are needed by 2040 include the following roadways.

5. **60th Street from Royal Palm Beach Boulevard to SR7** needs to go from 2 lanes to 4 lanes. This section is included in the LRTP as 2 lanes and is needed without the project as well. The project is going to pay proportionate share payments as the demand on this link increases.

6. **Beeline Highway from Haverhill Road to Blue Heron Drive** needs to go from 6 lanes to 8 lanes based on daily volumes in 2040. The LRTP show 6 lanes. The detailed peak hour analysis included in the concurrency analysis shows that the link will not exceed the thresholds for 6 lanes. So we would offer that the 6 lanes is sufficient for the long range analysis.

7. **Blue Heron Boulevard from Military Trail to I-95** would need to go from 6 to 8 lanes in 2040 with or without the project traffic. However, the daily volumes do not exceed the peak hour thresholds in the concurrency analysis. So we would offer that the 6 lanes is sufficient for the long range analysis.

8. **Northlake Boulevard from 140th Avenue to Coconut Boulevard** would need to go from 4 lanes to 6 lanes by 2040. The Avenir Concurrency analysis shows that 8 lanes to 8 lanes plus would be needed with or without the project and will be prop-shared accordingly.

9. **Northlake Boulevard from Jog Road to Military Trail** needs to go from 6 lanes to 8 lanes. The LRTP calls for 6 lanes. The need for 8 lanes is consistent with the concurrency analysis through to Military Trail. Prop share payments will be made accordingly.

10. **Northlake Boulevard from Military Trail to I-95** The section from Military Trail to I-95 was not called out for improvements as there is a CRALLS for the peak hours. The six lane section should be sufficient as proposed consistent with the CRALLS.

11. **Orange Boulevard from Coconut Boulevard from Royal Palm Beach Boulevard** needs to go from 2 lanes to 4 lanes with the project traffic added. This link is not included in the LRTP but is prop shared by Avenir in the concurrency analysis.

12. **Persimmon Boulevard from Coconut Boulevard to Royal Palm Beach Boulevard** needs to go from 2 lanes to 4 lanes by 2040. However, the detailed concurrency analysis demonstrates that 2 lanes is sufficient so we would offer that 2 lanes is sufficient.

The Project will also construct the Avenir connector. This roadway will improve LOS along Beeline, Northlake and the key intersection of Northlake and Beeline. The project intends to construct this roadway within the first five years.

Twelve improvements have been listed. The first 4 are needed by 2020. These four will be accounted for by Avenir being conditioned to timing and proportionate share payments. Improvements five through 12 are needed for the long range analysis based on ADT. Improvements numbered 5, 8, 9 and 11 will be addressed through proportionate share payments. Numbers 7, 10 and 12 are deemed not needed based on detailed analysis in the concurrency analysis.

4.0 CONCLUSIONS

Avenir is a community that is well placed and thoughtfully designed, with new development of an innovative form and cohesive mix of uses in balance with conservation and restoration of the natural systems. Avenir provides for important transportation connections in western Palm Beach County. A new street connection between Northlake Boulevard and the Beeline Highway will benefit the surrounding area by creating a north/south link that can minimize travel times while connecting people to local jobs and businesses. Furthermore, Avenir's Town Center will provide much needed services, entertainment destinations, and jobs in proximity to the Western Communities.

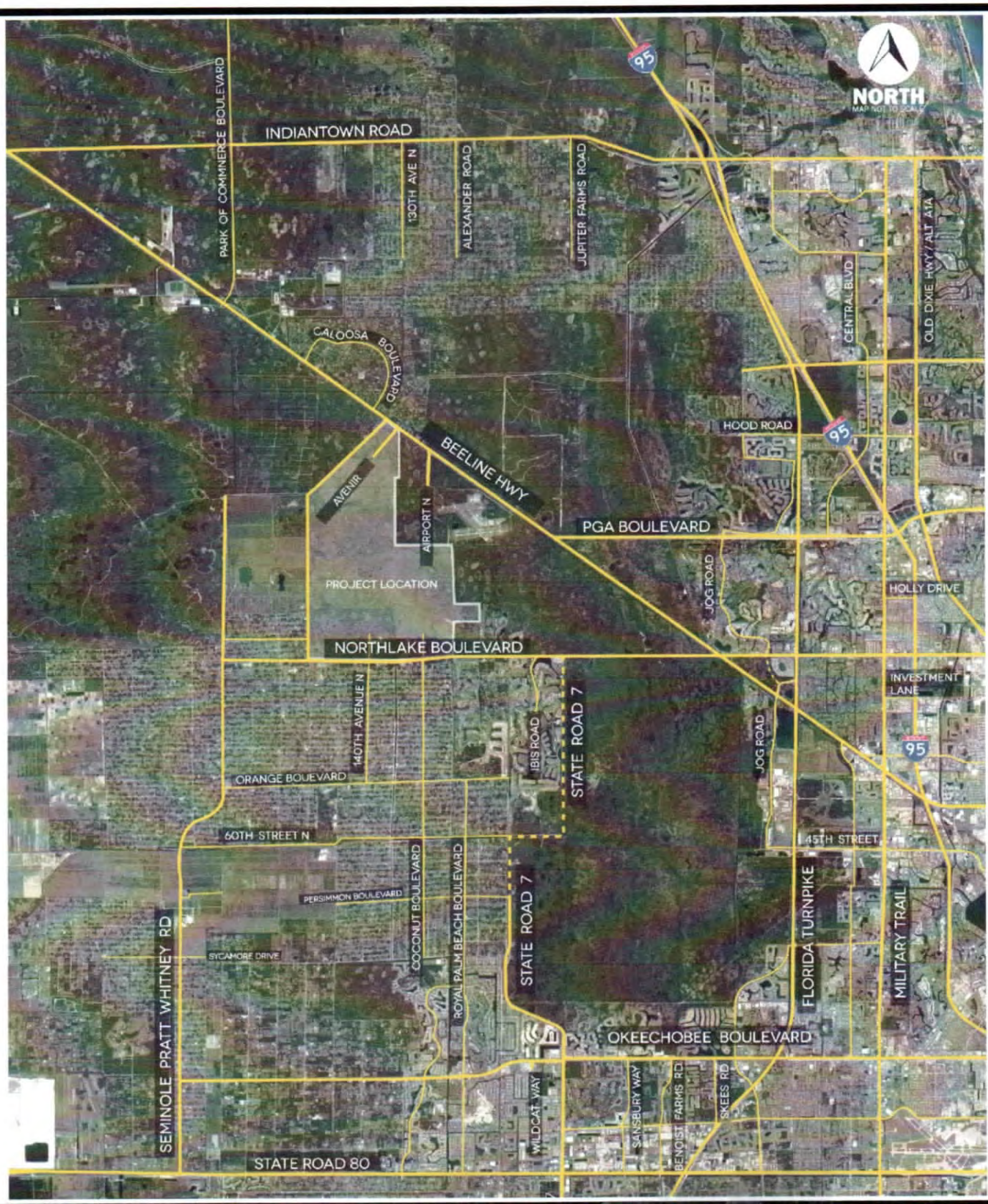

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EXHIBIT - 1

LOCATION

AVENIR

APRIL 16, 2015

Exhibit 2
Level of Service - Existing Conditions (2014)

Roadway	Segment		Lanes	Dir.	LOS D Service Volume	Source/ Year	AM PEAK HOUR		PM PEAK HOUR		Back logged?
	From	To					Existing (2014)	Meets Std?	Existing (2014)	Meets Std?	
60th Street N	140th Avenue	Coconut Avenue	2L	EB	880	2015 TM	29	Yes	17	Yes	No
				WB	880		11	Yes	37	Yes	No
	Coconut Avenue	Royal Palm Beach Blvd	2L	EB	880		29	Yes	17	Yes	No
				WB	880		11	Yes	37	Yes	No
	Royal Palm Beach Blvd	SR 7	2L	EB	880	2015 STA	580	Yes	181	Yes	No
				WB	880	ID HLP	150	Yes	528	Yes	No
140 Avenue N	Orange Boulevard	Temple Boulevard	2L	NB	880	2014 TM Counts	130	Yes	142	Yes	No
				SB	880		144	Yes	179	Yes	No
	Temple Boulevard	Northlake Boulevard	2L	NB	880		130	Yes	142	Yes	No
				SB	880		144	Yes	179	Yes	No
Beeline Highway	Indiantown Road	Pratt Whitney Road	4LD	NB (WB)	3,320	STA 1401 2014	325	Yes	239	Yes	No
				SB (EB)	3,320		208	Yes	309	Yes	No
	Pratt Whitney Road	Caloosa Boulevard	4LD	NB (WB)	3,320	STA 1411 2014	340	Yes	682	Yes	No
				SB (EB)	3,320		691	Yes	364	Yes	No
	Caloosa Boulevard	Project Entrance	4LD	NB (WB)	3,320	STA 2109a 2014	448	Yes	720	Yes	No
				SB (EB)	3,320		780	Yes	400	Yes	No
	Project Entrance	N. Country Airport	4LD	NB (WB)	3,320	STA 2109b 2014	448	Yes	720	Yes	No
				SB (EB)	3,320		780	Yes	400	Yes	No
	N. Country Airport	PGA Boulevard	4LD	NB (WB)	3,320	STA 2101 2014	434	Yes	758	Yes	No
				SB (EB)	3,320		804	Yes	462	Yes	No
	PGA Boulevard	Northlake Boulevard	4LD	NB (WB)	3,320	STA 2103 2014	428	Yes	737	Yes	No
				SB (EB)	3,320		706	Yes	439	Yes	No
Coconut Boulevard	60th Street	Orange Boulevard	2L	NB	880	TM 2013	235	Yes	75	Yes	No
				SB	880		76	Yes	216	Yes	No
	Orange Boulevard	Northlake Boulevard	2L	NB	880	STA 2404 2014	1,149	No	431	Yes	Yes
				SB	880		387	Yes	865	Yes	No
Jog Road	Florida's Turnpike Entrance	Northlake Boulevard	4LD	NB	1,770	TM 2014	288	Yes	347	Yes	No
				SB	1,770		322	Yes	232	Yes	No
Northlake Boulevard	Pratt Whitney Road	140 Avenue N	4LD	EB	1,960	STA 2413 2014	822	Yes	257	Yes	No
				WB	1,960		202	Yes	659	Yes	No
	140 Avenue N	Coconut Boulevard	4LD	EB	1,960	STA 2413 2014	1,370	Yes	348	Yes	No
				WB	1,960		293	Yes	1,129	Yes	No
	Coconut Boulevard	Ibis Road	4LD	EB	1,770	STA 2411 2014	2,435	No	670	Yes	Yes
				WB	1,770		565	Yes	2,476	No	Yes
	Ibis Road	SR 7	4LD	EB	1,770	STA 2407 2014	2,621	No	824	Yes	Yes
				WB	1,770		718	Yes	2,328	No	Yes
	SR 7	Beeline Highway	4LD	EB	3,320	STA 2407 2014	2,621	Yes	824	Yes	No
				WB	3,320		718	Yes	2,328	Yes	No
	Beeline Highway	Ryder Cup Boulevard (Jog)	6LD	EB	2,940	STA 2401	1,589	Yes	705	No	No
				WB	2,940	STA 2401	537	Yes	1,444	No	No
Okeechobee Boulevard	Seminole Pratt Whitney	E Road	2LU	EB	1,140	STA 3419 2014	499	Yes	499	No	No
				WB	1,140		331	Yes	331	No	No
	E Road	Folsum	2LU	EB	880	STA 3451	742	Yes	742	No	No
Orange Boulevard	Pratt Whitney Road	140th Avenue North	2L	EB	880	STA 2417 2014	292	Yes	419	Yes	No
				WB	880		246	Yes	457	Yes	No
	140th Avenue North	Coconut Boulevard	2L	EB	880	STA 2409 2014	487	Yes	274	Yes	No
				WB	880		148	Yes	469	Yes	No
	Coconut Boulevard	Royal Palm Beach Boulevard	2L	EB	880	STA 2415 2014	617	Yes	562	Yes	No
				WB	880		540	Yes	645	Yes	No
Persimmon Boulevard	140 Avenue N	Coconut Boulevard	2L	EB	880	STA 3447 TPS/2014	427	Yes	231	Yes	No
				WB	880		169	Yes	345	Yes	No
	Coconut Boulevard	Royal Palm Beach Blvd	2L	EB	880	STA 3447 TPS/2014	427	Yes	231	Yes	No
				WB	880		169	Yes	345	Yes	No
	Royal Palm Beach Boulevard	SR-7	2L	EB	880	Minto 2013	455	Yes	255	Yes	No
				WB	880		162	Yes	363	Yes	No
PGA Boulevard	Beeline Highway	Ryder Cup Boulevard (Jog)	2L	EB	1,140	STA 2405 2014	124	Yes	219	Yes	No
				WB	1,140		218	Yes	163	Yes	No
Pratt Whitney	Indiantown Road	Beeline Highway	2L	NB	1,140	STA 1402 2014	83	Yes	362	Yes	No
				SB	1,140		448	Yes	84	Yes	No
Royal Palm Beach Boulevard	Persimmon Boulevard	60th Street	2L	NB	880	STA 2402 2014	548	Yes	904	No	Yes
				SB	880		831	Yes	587	Yes	No
	60th Street	Orange Boulevard	2L	NB	880	STA 2402 2014	548	Yes	904	No	Yes
				SB	880		831	Yes	587	Yes	No
Seminole Pratt Whitney Road	60th Street N (2L to 4LD Under Con.)	Orange Boulevard	4LD	NB	1,960	STA 2406 2014	550	Yes	510	Yes	No
				SB	1,960		597	Yes	592	Yes	No
	Orange Boulevard (2L to 4LD Under Con.)	Northlake Boulevard	4LD	NB	1,960	STA 2406 2014	510	Yes	467	Yes	No
				SB	1,960		472	Yes	477	Yes	No
	Northlake Boulevard	North	2L	NB	1,140	STA 2406 2014	38	Yes	70	Yes	No
				SB	1,140		59	Yes	57	Yes	No
SR 7	Persimmon Boulevard (2L to 4LD 2016)	60th Street N	4LD	NB	1,960	NA	150	Yes	528	Yes	No
				SB	1,960		580	Yes	181	Yes	No
	60th Street N (2L to 4LD 2018)	Northlake Boulevard	4LD	NB	3,320	NA	0	Yes	0	Yes	No
				SB	3,320		0	Yes	0	Yes	No

Exhibit 3
Programmed Roadway Improvements

Roadway	Improvement	Construction Schedule
Northlake Blvd - Seminole Pratt Whitney Rd to Hall Blvd	2L to 4L	FY 2016
Northlake Blvd – Hall Blvd to Coconut Blvd	2L to 4L	FY 2018
Seminole Pratt Whitney Rd - Southern Blvd. to Sycamore Dr.	2L to 4L	FY 2016
SR 7 Extension – Okeechobee Blvd to 60th St	2L to 4L	FY 2016
SR 7 Extension - 60th St to Northlake Blvd	0L to 4L	FY 2020
Roebuck Rd - SR 7 to Jog Rd	0L to 4L	FY 2019
Beeline Highway – Northlake Boulevard to Blue Heron Blvd.	4L to 6L	FY 2023

Exhibit 4
Avenir Trip Generation Summary- 5 Year

Scenario	Daily		AM Peak Hour				PM Peak Hour			
			In	Out	Total	% Internal	In	Out	Total	% Internal
ITE Trip Generation	28,033		918	926	1,844		1,236	1,309	2,545	
NCHRP Internal	-9,089	-32.4%	-245	-245	-490	*-26.6%*	-487	-487	-974	*-38.3%*
Pass-by	-1,676	-6.0%	-61	-16	-77	*-4.2%*	-91	-107	-198	*-7.8%*
NCHRP Internal Capped at 25%	-7,008	-25.0%	-231	-230	-461	*-25.0%*	-318	-318	-636	*-25.0%*
Pass-by	-1,262	-4.5%	-46	-12	-58	*-3.1%*	-68	-81	-149	*-5.9%*
Net New External Trips	**19,763**		**641**	**684**	**1,325**		**850**	**910**	**1,760**	

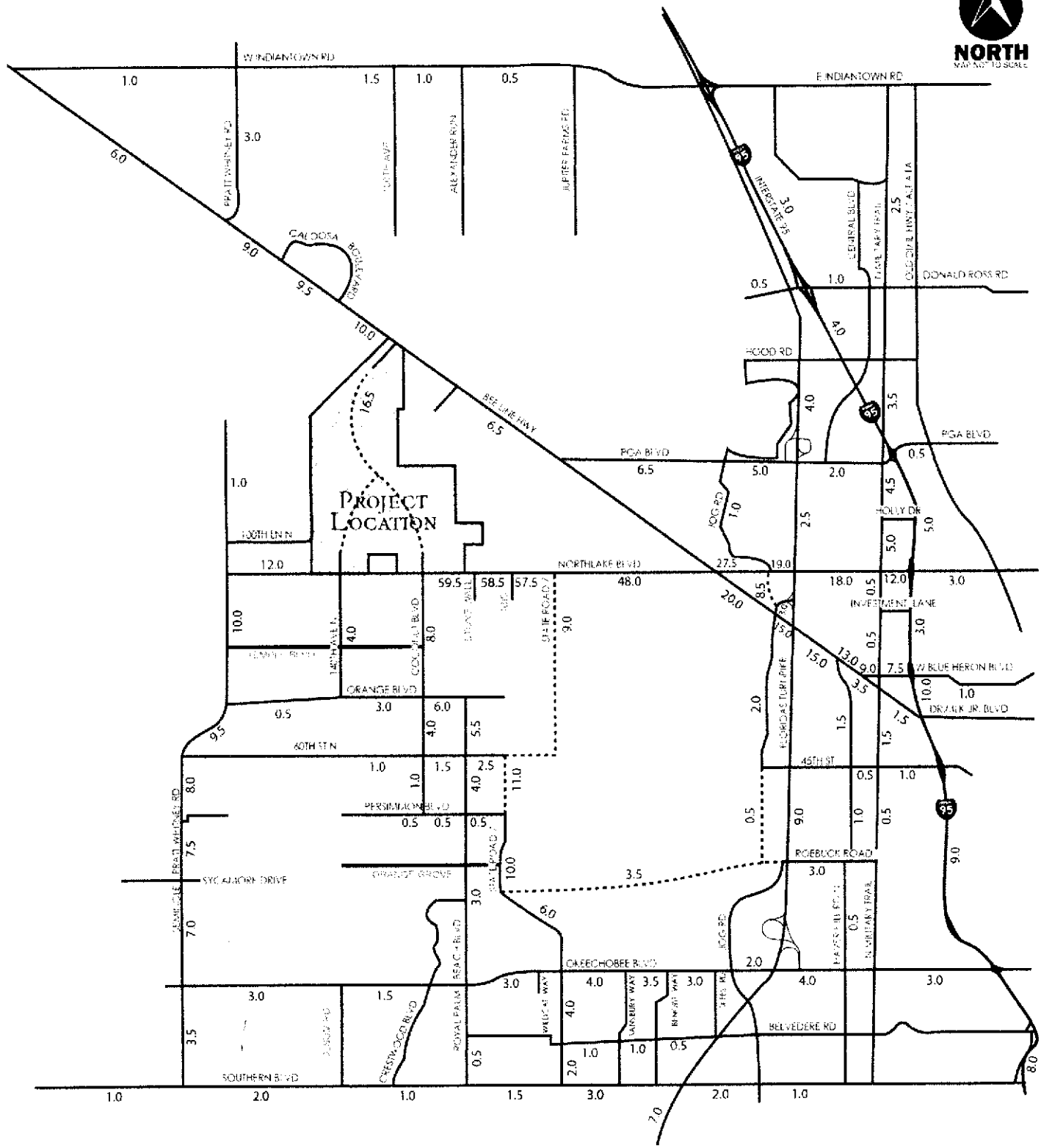

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EXHIBIT 5

TRIP DISTRIBUTION

AVENIR

September 9, 2015

Exhibit 6

Avenir Trip Assignment & Significance Analysis - 5 Year

Roadway	Segment		Lanes	Class	Direction	LOS D Service Volume[1]	% Distribution		Within 5 mi radius?	AM PEAK HOUR			PM PEAK HOUR		
	From	To					OUT	IN		Peak Hour Trips	Project % Impact	Significant Impact?	Peak Hour Trips	Project % Impact	Significant Impact?
60th Street	140th Avenue	Coconut Avenue	2L	I	EB	880	0.0%	1.0%	Yes	6	0.7%	No	9	1.0%	No
					WB	880	1.0%	0.0%	Yes	7	0.8%	No	9	1.0%	No
	Coconut Avenue	Royal Palm Beach Blvd	2L	I	EB	880	1.5%	0.0%	Yes	10	1.2%	No	14	1.6%	No
					WB	880	0.0%	1.5%	Yes	10	1.1%	No	13	1.4%	No
	Royal Palm Beach Blvd	SR 7	2L	I	EB	880	2.5%	0.0%	Yes	17	1.9%	No	23	2.6%	No
					WB	880	0.0%	2.5%	Yes	16	1.8%	No	21	2.4%	No
140 Avenue N	Orange Boulevard	Temple Boulevard	2L	I	NB	880	0.0%	4.0%	Yes	26	2.9%	No	34	3.9%	Yes
					SB	880	4.0%	0.0%	Yes	27	3.1%	Yes	36	4.1%	Yes
	Temple Boulevard	Northlake Boulevard	2L	I	NB	880	0.0%	4.0%	Yes	26	2.9%	No	34	3.9%	Yes
					SB	880	4.0%	0.0%	Yes	27	3.1%	Yes	36	4.1%	Yes
Beeline Highway	Indiantown Road	Pratt Whitney Road	4LD	Unint.	NB (WB)	3,320	6.0%	0.0%	Yes	41	1.2%	No	55	1.6%	No
					SB (EB)	3,320	0.0%	6.0%	Yes	38	1.2%	No	51	1.5%	No
	Pratt Whitney Road	Caloosa Boulevard	4LD	Unint.	NB (WB)	3,320	9.0%	0.0%	Yes	62	1.9%	No	82	2.5%	No
					SB (EB)	3,320	0.0%	9.0%	Yes	58	1.7%	No	77	2.3%	No
	Caloosa Boulevard	Project Entrance	4LD	Unint.	NB (WB)	3,320	10.0%	0.0%	Yes	68	2.1%	No	91	2.7%	No
					SB (EB)	3,320	0.0%	10.0%	Yes	64	1.9%	No	85	2.6%	No
	Project Entrance	N. Country Airport	4LD	Unint.	NB (WB)	3,320	0.0%	6.5%	Yes	42	1.3%	No	55	1.7%	No
					SB (EB)	3,320	6.5%	0.0%	Yes	44	1.3%	No	59	1.8%	No
	N. Country Airport	PGA Boulevard	4LD	Unint.	NB (WB)	3,320	0.0%	6.5%	Yes	42	1.3%	No	55	1.7%	No
					SB (EB)	3,320	6.5%	0.0%	Yes	44	1.3%	No	59	1.8%	No
	PGA Boulevard	Northlake Boulevard	4LD	Unint.	NB (WB)	3,320	0.0%	0.0%	Yes	0	0.0%	No	0	0.0%	No
					SB (EB)	3,320	0.0%	0.0%	Yes	0	0.0%	No	0	0.0%	No
Coconut Boulevard	Persimmon Boulevard	60th Street	2L	I	NB	880	0.0%	1.0%	Yes	6	0.7%	No	9	1.0%	No
					SB	880	1.0%	0.0%	Yes	7	0.8%	No	9	1.0%	No
	60th Street	Orange Boulevard	2L	I	NB	880	0.0%	4.0%	Yes	26	2.9%	No	34	3.9%	Yes
					SB	880	4.0%	0.0%	Yes	27	3.1%	Yes	36	4.1%	Yes
	Orange Boulevard	Northlake Boulevard	2L	I	NB	880	0.0%	8.0%	Yes	51	5.8%	Yes	68	7.7%	Yes
					SB	880	8.0%	0.0%	Yes	55	6.2%	Yes	73	8.3%	Yes
Jog Road	Florida's Turnpike Entrance	Northlake Boulevard	4LD	II	NB	1,770	0.0%	8.5%	No	54	3.1%	No	72	4.1%	No
					SB	1,770	8.5%	0.0%	No	58	3.3%	No	77	4.4%	No
Northlake Boulevard	Pratt Whitney Road	140 Avenue N	4LD	I	EB	1,960	0.0%	12.0%	Yes	77	3.9%	Yes	102	5.2%	Yes
					WB	1,960	12.0%	0.0%	Yes	82	4.2%	Yes	109	5.6%	Yes
	140 Avenue N	Coconut Boulevard	4LD	I	EB	1,960	9.5%	8.0%	Yes	116	5.9%	Yes	154	7.9%	Yes
					WB	1,960	10.0%	12.0%	Yes	145	7.4%	Yes	193	9.8%	Yes
	Coconut Boulevard	Ibis Road	4LD	II	EB	1,770	59.5%	0.0%	Yes	407	23.0%	Yes	541	30.6%	Yes
					WB	1,770	0.0%	59.5%	Yes	381	21.5%	Yes	506	28.6%	Yes
	Ibis Road	SR 7	4LD	II	EB	1,770	57.5%	0.0%	Yes	393	22.2%	Yes	523	29.6%	Yes
					WB	1,770	0.0%	57.5%	Yes	369	20.8%	Yes	489	27.6%	Yes
	SR 7	Beeline Highway	4LD	Unint.	EB	3,320	48.0%	0.0%	Yes	328	9.9%	Yes	437	13.2%	Yes
					WB	3,320	0.0%	48.0%	Yes	308	9.3%	Yes	408	12.3%	Yes
	Beeline Highway	Ryder Cup Boulevard (Jog)	6LD	I	EB	2,940	27.5%	0.0%	No	188	6.4%	Yes	250	8.5%	Yes
					WB	2,940	0.0%	27.5%	No	176	6.0%	Yes	234	8.0%	Yes
Orange Boulevard	Pratt Whitney Road	140th Avenue North	2L	I	EB	880	0.0%	0.5%	Yes	3	0.4%	No	4	0.5%	No
					WB	880	0.5%	0.0%	Yes	3	0.4%	No	5	0.5%	No
	140th Avenue North	Coconut Boulevard	2L	I	EB	880	3.0%	0.0%	Yes	21	2.3%	No	27	3.1%	Yes
					WB	880	0.0%	3.0%	Yes	19	2.2%	No	26	2.9%	No
	Coconut Boulevard	Royal Palm Beach Boulevard	2L	I	EB	880	6.0%	0.0%	Yes	41	4.7%	Yes	55	6.2%	Yes
					WB	880	0.0%	6.0%	Yes	38	4.4%	Yes	51	5.8%	Yes
Persimmon Boulevard	140 Avenue N	Coconut Boulevard	2L	I	EB	880	0.0%	0.5%	Yes	3	0.4%	No	4	0.5%	No
					WB	880	0.5%	0.0%	Yes	3	0.4%	No	5	0.5%	No
	Coconut Boulevard	Royal Palm Beach Blvd	2L	I	EB	880	0.5%	0.0%	Yes	3	0.4%	No	5	0.5%	No
					WB	880	0.0%	0.5%	Yes	3	0.4%	No	4	0.5%	No
	Royal Palm Beach Boulevard	SR-7	2L	I	EB	880	0.5%	0.0%	Yes	3	0.4%	No	5	0.5%	No
					WB	880	0.0%	0.5%	Yes	3	0.4%	No	4	0.5%	No
PGA Boulevard	Beeline Highway	Ryder Cup Boulevard (Jog)	2L	Unint.	EB	1,140	6.5%	0.0%	Yes	45	3.9%	Yes	60	5.2%	Yes
					WB	1,140	0.0%	6.5%	Yes	42	3.7%	Yes	56	4.9%	Yes
Pratt Whitney	Indiantown Road	Beeline Highway	2L	Unint.	NB	1,140	3.0%	0.0%	Yes	21	1.8%	No	27	2.4%	No
					SB	1,140	0.0%	3.0%	Yes	19	1.7%	No	26	2.2%	No
Royal Palm Beach Boulevard	40th Street	Persimmon Boulevard	4LD	I	NB	1,960	0.0%	3.5%	No	22	1.1%	No	30	1.5%	No
					SB	1,960	3.5%	0.0%	No	24	1.2%	No	32	1.6%	No
	Persimmon Boulevard	60th Street	2L	I	NB	880	0.0%	4.0%	Yes	26	2.9%	No	34	3.9%	Yes
					SB	880	4.0%	0.0%	Yes	27	3.1%	Yes	36	4.1%	Yes
	60th Street	Orange Boulevard	2L	I	NB	880	0.0%	5.5%	Yes	35	4.0%	Yes	47	5.3%	Yes
					SB	880	5.5%	0.0%	Yes	38	4.3%	Yes	50	5.7%	Yes
Seminole Pratt Whitney Road	60th Street N (2L to 4LD Under Con.)	Orange Boulevard	4LD	I	NB	1,960	0.0%	9.5%	Yes	61	3.1%	Yes	81	4.1%	Yes
					SB	1,960	9.5%	0.0%	Yes	65	3.3%	Yes	86	4.4%	Yes
	Orange Boulevard (2L to 4LD Under Con.)	Northlake Boulevard	4LD	I	NB	1,960	0.0%	10.0%	Yes	64	3.3%	Yes	85	4.3%	Yes
					SB	1,960	10.0%	0.0%	Yes	68	3.5%	Yes	91	4.6%	Yes
	Northlake Boulevard	North	2L	Unint.	NB	1,140	1.0%	0.0%	Yes	7	0.6%	No	9	0.8%	No
					SB	1,140	0.0%	1.0%	Yes	6	0.6%	No	9	0.7%	No
SR 7	Persimmon Boulevard (2L to 4LD 2016)	60th Street N	4LD	I	NB	1,960	0.0%	11.0%	Yes	71	3.6%	Yes	94	4.8%	Yes
					SB	1,960	11.0%	0.0%	Yes	75	3.8%	Yes	100	5.1%	Yes
	60th Street N (2L to 4LD 2018)	Northlake Boulevard	4LD	Unint.	NB	3,320	0.0%	9.0%	Yes	58	1.7%	No	77	2.3%	No
					SB	3,320	9.0%	0.0%	Yes	62	1.9%	No	82	2.5%	No

[1] Based on 2009FDOT Quality/Level of Service Handbook

684	641	am
910	850	pm
OUT	IN	

Exhibit 7

Avenir Trip Assignment & Significance Analysis (2020)

Roadway	Segment		Lanes	Roadway Type	Dir.	LOS D Service Volume	AM PEAK HOUR												PM PEAK HOUR											
	From	To					Existing (2014) (1)	1% Growth	Commited Trips	Minto TPS	Minto Buildout	25% Minto	SR 7 Diversion	Without Project	Avenir Diversion	Project	Total (2020)	Meets Std?	Existing (2014) (1)	1% Growth	Commited Trips	Minto TPS	Minto Buildout	25% Minto	SR 7 Diversion	Without Project	Avenir Diversion	Project	Total (2020)	Meets Std?
140 Avenue N	Orange Boulevard	Temple Boulevard	2L	I	NB	880	130	8	86	-15	11	3		212		26	238	Yes	142	9	158	-44	13	3		268		34	302	Yes
					SB	880	144	9	75	-16	12	3		215		27	242	Yes	179	11	145	-19	11	3		319		36	355	Yes
	Temple Boulevard	Northlake Boulevard	2L	I	NB	880	130	8	86	-15	11	3		212		26	238	Yes	142	9	158	-44	13	3		268		34	302	Yes
					SB	880	144	9	75	-16	12	3		215		27	242	Yes	179	11	145	-19	11	3		319		36	355	Yes
Coconut Boulevard	60th Street	Orange Boulevard	2L	I	NB	880	235	14	102	-35	46	12		328		26	354	Yes	75	5	162	-99	53	13		156		34	190	Yes
					SB	880	76	5	68	-36	48	12		125		27	152	Yes	216	13	142	-44	46	12		339		36	376	Yes
	Orange Boulevard	Northlake Boulevard	2L	I	NB	880	1,149	71	309	-39	114	29	-320	1,199		51	1,250	No	431	27	285	-110	133	33	-120	546		68	614	Yes
					SB	880	387	24	132	-40	119	30	-80	453		55	508	Yes	865	53	432	-48	114	29	-280	1,051		73	1,124	No
Northlake Boulevard	Pratt Whitney Road	140th Ave N	4LD	I	EB	1,960	822	51	305	-119	364	91	-152	998		77	1,074	Yes	257	16	484	-339	424	106	-57	467		102	569	Yes
					WB	1,960	202	12	216	-125	381	95	-38	362		82	445	Yes	659	41	398	-150	365	91	-133	906		109	1,015	Yes
	140 Avenue N	Coconut Bld	4LD	I	EB	1,960	1,370	84	427	-123	364	91	-152	1,697	-178	116	1,636	Yes	348	21	617	-350	424	106	-57	685	-57	154	783	Yes
					WB	1,960	293	18	278	-129	381	95	-38	517	-45	145	617	Yes	1,129	69	608	-155	365	91	-133	1,609	-228	193	1,574	Yes
	Coconut Bld	Ibis Road	4LD	II	EB	1,770	2,435	150	785	-173	456	114	-472	2,839	-472	407	2,774	No	670	41	765	-493	530	133	-177	939	-144	541	1,337	Yes
					WB	1,770	565	35	338	-182	477	119	-118	757	-105	381	1,033	Yes	2,476	152	1,002	-218	456	114	-413	3,113	-581	506	3,038	No
	Ibis Road	SR 7	4LD	II	EB	1,770	2,621	161	785	-173	433	108	-472	3,030	-472	393	2,952	No	824	51	765	-493	504	126	-177	1,096	-144	523	1,475	Yes
					WB	1,770	718	44	338	-182	453	113	-118	913	-105	369	1,177	Yes	2,328	143	1,002	-218	433	108	-413	2,950	-581	489	2,858	No
	SR 7	Beeline Hwy	4LD	Unint.	EB	3,320	2,621	161	785	-173	513	128		3,522	-472	328	3,379	No	824	51	765	-493	596	149		1,296	-144	437	1,588	Yes
					WB	3,320	718	44	338	-182	536	134		1,052	-105	308	1,255	Yes	2,328	143	1,002	-218	513	128		3,383	-581	408	3,210	Yes
	Beeline Highway	Ryder Cup Boulevard (Jog)	6LD	I	EB	2,940	1,589	98	164	-116	342	86		1,821		188	2,009	Yes	705	43	613	-329	398	100		1,132		250	1,383	Yes
					WB	2,940	537	33	384	-121	358	90		923		176	1,099	Yes	1,444	89	205	-145	342	86		1,679		234	1,913	Yes
Orange Boulevard	140th Avenue North	Coconut Boulevard	2L	I	EB	880	487	30	56	-19	57	14	76	644		21	664	Yes	274	17	99	-55	66	17	29	381		27	408	Yes
					WB	880	148	9	43	-20	60	15	19	214		19	233	Yes	469	29	84	-24	57	14	67	639		26	664	Yes
	Coconut Boulevard	Royal Palm Beach Boulevard	2L	I	EB	880	617	38	33	-15	0	0	-301	372		41	413	Yes	562	35	128	-44	0	0	-53	628		55	682	Yes
					WB	880	540	33	83	-16	0	0	-4	636		38	675	Yes	645	40	52	-19	0	0	-251	467		51	518	Yes
PGA Boulevard	Beeline Highway	Ryder Cup Boulevard (Jog)	2L	Unint.	EB	1,140	124	8	118	-8	23	6		248		45	292	Yes	219	13	668	-22	27	7		885		60	945	Yes
					WB	1,140	218	13	586	-8	24	6		815		42	857	Yes	163	10	174	-10	23	6		343		56	399	Yes
Royal Palm Beach Boulevard	Persimmon Boulevard	60th Street	2L	I	NB	880	548	34	37	-19	57	14	-320	294		26	319	Yes	904	56	77	-55	66	17	-120	879		34	913	No
					SB	880	831	51	42	-20	60	15	-80	839		27	866	Yes	587	36	46	-24	57	14	-280	379		36	416	Yes
	60th Street	Orange Boulevard	2L	I	NB	880	548	34	17	-4	11	3	-301	297		35	332	Yes	904	56	34	-11	13	3	-53	933		47	979	No
					SB	880	831	51	26	-4	12	3	-4	903		38	941	No	587	36	23	-5	11	3	-251	393		50	443	Yes
Seminole Pratt Whitney Road	60th Street N	Orange Boulevard	4LD	I	NB	1,960	550	34	385	-232	615	154	-76	815		61	876	Yes	510	31	812	-659	716	179		873		81	954	Yes
	(2L to 4LD Under Con.)				SB	1,960	597	37	332	-243	644	161	-19	865		65	930	Yes	592	36	479	-291	616	154		970		86	1,057	Yes
	Orange Boulevard	Northlake Boulevard	4LD	I	NB	1,960	510	31	183	-154	456	114	-152	532		64	596	Yes	467	29	482	-438	530	133		673		85	758	Yes
	(2L to 4LD Under Con.)				SB	1,960	472	29	190	-161	477	119	-38	611		68	679	Yes	477	29	239	-194	456	114		665		91	756	Yes
SR 7	Persimmon Boulevard	60th Street N *	4LD	I	NB	1,960	150	9	36	0	143	36	320	551		71	621	Yes	528	32	137	0	34	9	120	826		94	920	Yes
	(2L to 4LD 2016)				SB	1,960	580	36	34	0	137	34	80	764		75	839	Yes	181	11	159	0	40	10	280	641		100	741	Yes

*** 25% of Minto West 2035 Trips used for Commited Trips**

(1) See Exhibit 2

Exhibit 8A- Proposed Future Land Use

Scenario	Daily		AM Peak Hour				PM Peak Hour			
			In	Out	Total	% Internal	In	Out	Total	% Internal
ITE Trip Generation	78,697		3,304	2,866	6,170		3,425	4,693	8,118	
NCHRP Internal	-16,185	-20.6%	-587	-588	-1,175	*-19.0%*	-897	-896	-1,793	*-22.1%*
Pass-by	-4,341	-5.5%	-226	-36	-262	*-4.2%*	-185	-366	-551	*-6.8%*
Net New External Trips	**58,171**		**2,491**	**2,242**	**4,733**		**2,343**	**3,431**	**5,774**	

Exhibit 8B- Existing Future Land Use

Land Use	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Single Family Residential 406 Dus	4,060	76	229	305	234	137	371
LUC 210	*10/DU*	*0.75/DU*			*Ln(T)=.9*Ln(x)+0.51*		

Exhibit 8C- Net Trips

Net Trips	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
	54,111	**2,415**	**2,013**	**4,428**	**2,109**	**3,294**	**5,403**

Exhibit 9

2040 Link Analysis PBC

Roadway	Segment		2040 Lanes	LOS D SV	2040 SERM7 Model Volumes	2040 (Other) Volumes	Diversions to Avenir Connector	2040 Vol w/o Project	Meet LOS Std?	Back logged?	Project		% Project of LOS D	2040 Vol with Project	V/C Ratio	Meet LOS Std?	Lanes Needed	Service Volume	Basis of Calculation
	From	To									%	Volume							
60th Street N	140th Avenue	Coconut Avenue	2	15,200	N/A	5,100	0	9,537	Yes	No	1.0%	541	3.6%	10,078	0.66	Yes	N/A		2040 Volumes per PBC MPO Email, Minto West not included, therefore added manually
	Coconut Avenue	Royal Palm Beach Blvd	2	15,200	N/A	9,000	0	12,050	Yes	No	1.5%	812	5.3%	12,862	0.85	Yes	N/A		2040 Volumes per PBC MPO Email, Minto West not included, therefore added manually
	Royal Palm Beach Blvd	SR 7	2	15,200	N/A	19,800	0	22,018	No	Yes	2.5%	1,353	8.9%	23,371	1.54	No	4	33,200	2040 Volumes per PBC MPO Email, Minto West not included, therefore added manually
140 Avenue N	Orange Boulevard	Temple Boulevard	2	15,200	N/A	1,600	0	1,739	Yes	No	4.0%	2,164	14.2%	3,903	0.26	Yes	N/A		2040 Volumes per PBC MPO Email, Minto West not included, therefore added manually
	Temple Boulevard	Northlake Boulevard	2	15,200	N/A	3,850	0	3,989	Yes	No	4.0%	2,164	14.2%	6,153	0.40	Yes	N/A		2040 Volumes per PBC MPO Email, Minto West not included, therefore added manually
Beeline Highway	Indiantown Road (1)	Pratt Whitney Road	4	33,200	7,900		0	7,900	Yes	No	6.0%	3,247	9.8%	11,147	0.34	Yes	N/A		2040 SERPM7, includes Minto West
	Pratt Whitney Road (1)	Caloosa Boulevard	6	50,300	11,800		0	11,800	Yes	No	9.0%	4,870	9.7%	16,670	0.33	Yes	N/A		2040 SERPM7, includes Minto West
	Caloosa Boulevard (1)	Project Entrance	6	50,300	17,300		0	17,300	Yes	No	10.0%	5,411	10.8%	22,711	0.45	Yes	N/A		2040 SERPM7, includes Minto West
	Project Entrance (1)	N. Country Airport	6	50,300	17,300		-8,794	8,506	Yes	No	6.5%	3,539	7.0%	12,045	0.24	Yes	N/A		2040 SERPM7, includes Minto West
	N. Country Airport (1)	PGA Boulevard	6	50,300	20,100		-9,688	10,412	Yes	No	6.5%	3,539	7.0%	13,951	0.28	Yes	N/A		2040 SERPM7, includes Minto West
	Northlake Boulevard	Jog Road	6	50,300	32,900		0	32,900	Yes	No	20.0%	10,822	21.5%	43,722	0.87	Yes	N/A		2040 SERPM7, includes Minto West
	Jog Road	Haverhill Road	6	50,300	40,000		0	40,000	Yes	No	15.0%	8,117	16.1%	48,117	0.96	Yes	N/A		2040 SERPM7, includes Minto West
	Haverhill Road	Blue Heron Drive	6	50,300	N/A	47,982	0	48,536	Yes	No	13.0%	7,034	14.0%	55,571	1.10	No	8	67,300	2035 Cost Feasible Volume, Grown .5% /yr. Minto West added Manually
Blue Heron Blvd	Beeline Highway	Military Trail	4	33,200	25,900		0	25,900	Yes	No	9.0%	4,870	14.7%	30,770	0.93	Yes	N/A		2040 SERPM7, includes Minto West
	Military Trail	I-95	6	50,300	52,700		0	52,700	No	Yes	7.5%	4,058	8.1%	56,758	1.13	No	8	67,300	2040 SERPM7, includes Minto West
Coconut Blvd	Persimmon Blvd	Orange Boulevard	2	15,200	4,200		0	4,200	Yes	No	1.0%	541	3.6%	4,741	0.31	Yes	N/A		2040 SERPM7, includes Minto West
	Orange Boulevard	Temple Boulevard	2	15,200	12,800		0	12,800	Yes	No	4.0%	2,164	14.2%	14,964	0.98	Yes	N/A		2040 SERPM7, includes Minto West
	Temple Boulevard	Northlake Boulevard	2	15,200	13,400		0	13,400	Yes	No	8.0%	4,329	28.5%	17,729	1.17	No	4	33,200	2040 SERPM7, includes Minto West
Jog Road	Florida's Tpk Entrance	Northlake Boulevard	4	33,200	N/A	8,000	0	9,109	Yes	No	8.5%	4,599	13.9%	13,709	0.41	Yes	N/A		2040 Volumes per PBC MPO Email, Minto West not included, therefore added manually
Northlake Blvd	Pratt Whitney Road	140 Avenue N	4	33,200	14,500		0	14,500	Yes	No	12.0%	6,493	19.6%	20,993	0.63	Yes	N/A		2040 SERPM7, includes Minto West
	140 Avenue N	Coconut Boulevard	4	33,200	29,500		-4,030	25,470	Yes	No	22%/ 17.5%	10,687	32.2%	36,157	1.09	No	6	50,300	2040 SERPM7, includes Minto West
	Coconut Boulevard	Ibis Road	4	33,200	34,700		-9,688	25,012	Yes	No	59.5%	32,196	97.0%	57,208	1.72	No	8	67,300	2040 SERPM7, includes Minto West
	Ibis Road	SR 7 (2)	4	33,200	50,600		-9,688	40,912	No	Yes	57.5%	31,114	93.7%	72,026	2.17	No	+8	77,300	2040 SERPM7, includes Minto West
	SR 7 (1)	Beeline Highway	4	33,200	50,600		-9,688	40,912	No	Yes	48.0%	25,946	78.2%	66,858	2.01	No	8	67,300	2040 SERPM7, includes Minto West
	Beeline Highway	Ryder Cup Blvd (Jog)	6	50,300	26,300		0	26,300	Yes	No	27.5%	14,881	29.6%	41,181	0.82	Yes	N/A		2040 SERPM7, includes Minto West
	Ryder Cup Blvd (Jog)	Steeplechase Dr	6	50,300	46,600		0	46,600	Yes	No	19.0%	10,281	20.4%	56,881	1.13	No	8	67,300	2040 SERPM7, includes Minto West
	Steeplechase Dr	Military Trail	6	50,300	46,500		0	46,500	Yes	No	18.0%	9,740	19.4%	56,240	1.12	No	8	67,300	2040 SERPM7, includes Minto West
	Military Trail	I-95	6	50,300	59,400		0	59,400	No	Yes	12.0%	6,493	12.9%	65,893	1.31	No	8	67,300	2040 SERPM7, includes Minto West
N Avenir Connector	Coconut Avenue	Beeline Highway	4	33,200	N/A	9,748	0	9,748	Yes	No	16.5%	8,928	26.9%	18,676	0.56	Yes	N/A		2040 Total Avenir Connector Diversion
Okeechobee Blvd	S Pratt Whitney Rd (1)	B Road	4	33,200	14,200		0	14,200	Yes	No	3.0%	1,623	4.9%	15,823	0.48	Yes	N/A		2040 SERPM7, includes Minto West
	B Road	Folsom Rd	4	33,200	22,900		0	22,900	Yes	No	2.0%	1,082	3.3%	23,982	0.72	Yes	N/A		2040 SERPM7, includes Minto West
Orange Blvd	Pratt Whitney Road	140th Avenue North	2	15,200	6,800		0	6,800	Yes	No	0.5%	271	1.8%	7,071	0.47	Yes	N/A		2040 SERPM7, includes Minto West
	140th Avenue North	Coconut Boulevard	2	15,200	11,400		0	11,400	Yes	No	3.0%	1,623	10.7%	13,023	0.86	Yes	N/A		2040 SERPM7, includes Minto West
	Coconut Boulevard	Royal Palm Beach Blvd	2	15,200	14,500		0	14,500	Yes	No	6.0%	3,247	21.4%	17,747	1.17	No	4	33,200	2040 SERPM7, includes Minto West
Persimmon Blvd	140 Avenue N	Coconut Boulevard	2	15,200	N/A	6,500	0	11,076	Yes	No	0.5%	271	1.8%	11,346	0.75	Yes	N/A		2040 Volumes per PBC MPO Email, Minto West not included, therefore added manually
	Coconut Boulevard	Royal Palm Beach Blvd (3)	2	15,200	N/A	16,800	0	20,128	No	Yes	0.5%	271	1.8%	20,398	1.34	Yes	N/A		2040 Volumes per PBC MPO Email, Minto West not included, therefore added manually
	Royal Palm Beach Blvd	SR-7	2	15,200	N/A	8,200	0	11,112	Yes	No	0.5%	271	1.8%	11,382	0.75	Yes	N/A		2040 SERPM7, includes Minto West
PGA Boulevard	Beeline Highway (1)	Ryder Cup Blvd (Jog)	4	33,200	5,600		0	5,600	Yes	No	6.5%	3,539	10.7%	9,139	0.28	Yes	N/A		2040 SERPM7, includes Minto West
	Ryder Cup Blvd (Jog)	Florida's Turnpike	4	33,200	29,400		0	29,400	Yes	No	5.0%	2,706	8.1%	32,106	0.97	Yes	N/A		2040 SERPM7, includes Minto West
Pratt Whitney	Indiantown Road (1)	Beeline Highway	2	15,200	11,100		0	11,100	Yes	No	3.0%	1,623	10.7%	12,723	0.84	Yes	N/A		2040 SERPM7, includes Minto West
Royal Palm Beach Blvd	RPB City Limit(4)	M Canal/60th Street	2/4	33,200	22,000		0	22,000	Yes	No	4.0%	2,164	6.5%	24,164	0.73	no/yes	4	33,200	2040 SERPM7, includes Minto West
	M Canal/60th Street	Orange Boulevard	4	33,200	19,200		0	19,200	Yes	No	5.5%	2,976	9.0%	22,176	0.67	Yes	N/A		2040 SERPM7, includes Minto West
Seminole Pratt Whitney Rd	Okeechobee Blvd	Sycamore Drive E	4	33,200	19,800		0	19,800	Yes	No	7.0%	3,788	11.4%	23,588	0.71	Yes	N/A		2040 SERPM7, includes Minto West
	Sycamore Drive E	Persimmon Blvd	4	33,200	23,000		0	23,000	Yes	No	7.5%	4,058	12.2%	27,058	0.82	Yes	N/A		2040 SERPM7, includes Minto West
	Persimmon Blvd	60th Street N	4	33,200	23,000		0	23,000	Yes	No	8.0%	4,329	13.0%	27,329	0.82	Yes	N/A		2040 SERPM7, includes Minto West
	60th Street N	Orange Boulevard	4	33,200	20,500		0	20,500	Yes	No	9.5%	5,141	15.5%	25,641	0.77	Yes	N/A		2040 SERPM7, includes Minto West
	Orange Boulevard	Northlake Boulevard	4	33,200	21,300		0	21,300	Yes	No	10.0%	5,411	16.3%	26,711	0.80	Yes	N/A		2040 SERPM7, includes Minto West
	Northlake Boulevard (1)	North of Northlake	2	15,200	8,300		0	8,300	Yes	No	1.0%	541	3.6%	8,841	0.58	Yes	N/A		2040 SERPM7, includes Minto West
SR 7	Okeechobee Blvd	Roebuck Rd	4	33,200	28,000		0	27,600	Yes	No	6.0%	3,247	9.8%	30,847	0.93	Yes	N/A		2040 SERPM7, includes Minto West
	Roebuck Rd	Persimmon Boulevard	4	33,200	28,000		0	27,600	Yes	No	10.0%	5,411	16.3%	33,011	0.99	Yes	N/A		2040 SERPM7, includes Minto West
	Persimmon Blvd	60th Street N	4	33,200	N/A	5,900	0	7,564	Yes	No	11.0%	5,952	17.9%	13,516	0.41	Yes	N/A		2040 Volumes per PBC MPO Email, Minto West not included, therefore added manually
	60th Street N (1)	Northlake Boulevard	4	33,200	6,900		0	6,900	Yes	No	9.0%	4,870	14.7%	11,770	0.35	Yes	N/A		2040 SERPM7, includes Minto West

(1) Uninterrupted Flow; but using the standard divided capacity
(2) LOS 8+ N/A, therefore 8 Lane LOS 67,300 + 10,000 used
(3) Link is insignificant according Table 3.5-1 footnotes on Page-74 in PBC FLUE
(4) Note: 60th to Persimmon is 2L, Requires 4L

Department of Engineering and Public Works
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November 18, 2015

Ms. Natalie Crowley
Planning & Zoning Director
City of Palm Beach Gardens
10500 North Military Trail
Palm Beach Gardens, FL 33410

RE: Avenir Concurrency Traffic Study
Project #150705
TRAFFIC PERFORMANCE STANDARDS REVIEW

Dear Natalie:

The Palm Beach County Traffic Division has reviewed the **Avenir Concurrency Traffic Study**, dated November 16, 2015, and subsequent information received in e-mails on November 17th at 1:34 and 4:53 p.m., pursuant to the Traffic Performance Standards (TPS) in Article 12 of the Palm Beach County Land Development Code. The project is summarized as follows:

Location:	North of Northlake Boulevard; East of Grapeview Boulevard, South of Beeline Highway, and approximately 1 mile southwest of North Palm Beach County Airport
Size:	Approximately 4,700 acres
Access:	Northlake Boulevard, Beeline Highway
Existing Uses:	Vacant
Proposed Uses:	3,735 Single Family dwelling units 250 Multiple Family dwelling units 300 Rooms Hotel 400,000 square feet Retail 1,800,000 square feet Office 200,000 square feet Medical Office Elementary School with 600 Students 9 Holes of Golf Course 55 Acres of Regional Park 80 Stalls of equestrian facilities
New Daily Trips:	58,171
New Peak Hour Trips:	4,733 (2,491-In/2,242-Out) AM; 5,774 (2,343-In/3,431-Out) PM
Build-out:	December 31, 2035

The purpose of this letter is to provide the City with notice that the project has met technical compliance with the TPS ordinance. As such, Avenir project traffic will be added to the database with volumes and distributions provided for in the approved study. Studies submitted after this date will have to account for the project traffic. This letter does nothing more than that.

No later than December 1, 2015, the County will follow up with a Conditional TPS Letter and a complete set of conditions of approval. The TPS Letter will be conditioned upon the developer executing a prop share agreement with the County. The TPS letter will be deemed void if the City approves the Avenir DO before Avenir and the County have a binding prop share agreement. Once the Conditional TPS Letter is issued by the County, it will supersede this letter finding technical compliance.

If you have any questions regarding this determination, please contact me at 561-684-4030 or e-mail to mtejera@pbcgov.org.

Sincerely,

María M Tejera, P.E.
Senior Professional Engineer
Traffic Division

MMT:saf
ec: Addressee
Tanya McConnell, P.E. – Deputy County Engineer
Quan Yuan, P.E. – Professional Engineer, Traffic Division
Thuha Nguyen Lyew, P.E., Via Planning, Inc.
Susan E. O'Rourke, P.E., Susan E. O'Rourke, P.E. Inc.
Shi-Chiang Li, AICP, FDOT District 4
Chon Wong, FDOT District 4

File: File: Gen-TPS-Gen
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Department of Engineering and Public Works
P.O. Box 21229
West Palm Beach, FL 33416-1229
(561) 684-4000
FAX: (561) 684-4050
www.pbcgov.com

December 4, 2015
Revised December 10, 2015

Ms. Natalie Crowley
Planning & Zoning Director
City of Palm Beach Gardens
10500 North Military Trail
Palm Beach Gardens, FL 33410

RE: Avenir Concurrency Traffic Study
Project #150705
TRAFFIC PERFORMANCE STANDARDS REVIEW

Dear Natalie:

The Palm Beach County Traffic Division has reviewed the **Avenir Concurrency Traffic Study**, dated November 18, 2015, pursuant to the Traffic Performance Standards (TPS) in Article 12 of the Palm Beach County Land Development Code. The project is summarized as follows:

Location:	North of Northlake Boulevard; East of Grapeview Boulevard, South of Beeline Highway, and approximately 1 mile southwest of North Palm Beach County Airport
Size:	Approximately 4,700 acres
Access:	Northlake Boulevard, Beeline Highway
Existing Uses:	Vacant
Proposed Uses:	3,735 Single Family dwelling units 250 Multiple Family dwelling units 300 Rooms Hotel 400,000 square feet Retail 1,800,000 square feet Office 200,000 square feet Medical Office Elementary School with 600 Students 9 Holes of Golf Course 55 Acres of Regional Park 80 Stalls of equestrian facilities
New Daily Trips:	58,171
New Peak Hour Trips:	4,733 (2,491-In/2,242-Out) AM; 5,774 (2,343-In/3,431-Out) PM
Build-out:	December 31, 2035

Based on our review, the Traffic Division has determined the proposed development meets the Traffic Performance Standards of Palm Beach County, subject to the following conditions:

1. No building permits may be issued after December 31, 2035.
2. No building permits for development generating 28 external AM outbound peak hour trips or 28 external PM inbound peak hour trips, whichever occurs first, shall be issued until the Property Owner makes a proportionate share payment of

3.47% of the construction cost of widening of Northlake Boulevard from Coconut Blvd. to Ibis Blvd. from a 4-lane divided facility to a 6-lane divided facility.

3. No building permits for development generating 29 external AM outbound peak hour trips or 29 external PM inbound peak hour trips, whichever occurs first, shall be issued until the Property Owner makes a proportionate share payment of 3.47% of the construction cost of widening of Northlake Boulevard from Ibis Blvd. to SR 7 from a 4-lane divided facility to a 6-lane divided facility.
4. No building permits for development generating 36 external AM inbound peak hour trips or 36 external PM outbound peak hour trips, whichever occurs first, shall be issued until the contract has been let for the Assured Construction of Northlake Boulevard from 140th Ave. to Coconut Blvd. as a 4-lane divided facility.
5. No building permits for development generating 67 external AM inbound peak hour trips or 67 external PM outbound peak hour trips, whichever occurs first, shall be issued until the contract has been let for the Assured Construction of Northlake Boulevard from Seminole Pratt Whitney Rd. to 140th Ave. as a 4-lane divided facility.
6. No building permits for development generating 73 external AM inbound peak hour trips or 73 external PM outbound peak hour trips, whichever occurs first, shall be issued until the contract has been let for the Assured Construction of SR 7 from Persimmon Blvd. to 60th Street as a 4-lane divided facility.
7. No building permits for development generating 73 external AM inbound peak hour trips or 73 external PM outbound peak hour trips, whichever occurs first, shall be issued until the contract has been let for the Assured Construction of SR 7 from 60th Street to Northlake Blvd. as a 4-lane divided facility.
8. No building permits for development generating 76 external PM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 21.9% of the construction cost of widening of Coconut Boulevard from Temple Blvd. to Northlake Blvd. from a 2-lane facility to a 4-lane divided facility.
9. No building permits for development generating 145 external PM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 11.67% of the construction cost of widening of Royal Palm Beach Boulevard from 60th Street to Orange Ave. from a 2-lane facility to a 4-lane divided facility.
10. No building permits for development generating 200 external PM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 8.52% of the construction cost of widening of Royal Palm Beach Boulevard from Persimmon Blvd. to 60th Street from a 2-lane facility to a 4-lane divided facility.
11. No building permits for development generating 386 external AM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 20.56% of the construction cost of widening of Coconut Boulevard from Orange Blvd. to Temple Blvd. from a 2-lane facility to a 4-lane divided facility.
12. No building permits for development generating 419 external AM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 60.41% of the construction cost of widening of Beeline

Highway/SR 710 from Northlake Blvd. to Jog Rd. from a 4-lane divided facility to a 6-lane divided facility.

13. No building permits for development generating 440 external AM inbound peak hour trips or 440 external PM outbound peak hour trips, whichever occurs first, shall be issued until the contract has been let for the Assured Construction of SR 7 from Roebuck Rd. to Persimmon Blvd. as a 4-lane divided facility.
14. No building permits for development generating 464 external PM inbound peak hour trips shall be issued until the contract has been let for the Assured Construction of the roundabout at the intersection of 60th Street and SR 7.
15. No building permits for development generating 550 external AM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 11.48% of the construction cost of widening of Seminole Pratt Whitney Road from Persimmon Blvd. to 60th Street from a 2-lane facility to a 6-lane divided facility.
16. No building permits for development generating 591 external PM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 81.4% of the construction cost of the following intersection improvements at Northlake Blvd. and SR 7:
    - One additional Eastbound thru lane (4 Total)
    - One additional Westbound thru lane (4 Total)
    - One additional Northbound left-turn lane (2 Total)
17. No building permits for development generating 657 external PM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 5.51% of the construction cost of widening of Okeechobee Boulevard from E Road to Folsom Rd. from a 2-lane facility to a 4-lane divided facility.
18. No building permits for development generating 702 external PM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 72.77% of the construction cost of widening of Northlake Boulevard from Coconut Blvd. to SR 7 from a 6-lane divided facility to a 10-lane divided facility.
19. No building permits for development generating 709 external PM inbound peak hour trips or 931 external PM outbound trips, whichever occurs first, shall be issued until the Property Owner makes a proportionate share payment of 35.5% of the construction cost of the interchange at Northlake Blvd. and Beeline Hwy/SR 710.
20. No building permits for development generating 725 external AM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 19.4% of the construction cost of the following intersection improvements at 60th Street and Royal Palm Beach Blvd.:
    - One Eastbound left-turn lane
    - One Northbound left-turn lane
    - One additional Northbound thru lane (2 Total)
    - One additional Southbound thru lane (2 Total)
21. No building permits for development generating 733 external AM inbound peak hour trips or 733 external PM outbound peak hour trips, whichever occurs first, shall be issued until the contract has been let for the Assured Construction of SR 7 from Okeechobee Blvd. to Roebuck Rd. as a 4-lane divided facility.

22. No building permits for development generating 760 external PM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 52.0% of the construction cost of the following intersection improvements at Orange Blvd. and Coconut Blvd.:
    - One Eastbound left-turn lane
    - One Westbound left-turn lane
    - One Northbound left-turn lane
    - One Northbound right-turn lane
23. No building permits for development generating 769 external AM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 63.77% of the construction cost of widening of Northlake Boulevard from SR 7 to Beeline Hwy/SR 710 from a 4-lane uninterrupted facility to a 6-lane uninterrupted facility.
24. No building permits for development generating 869 external AM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 4.08% of the construction cost of widening of Pratt Whitney Road from Indiantown Rd. to Beeline Hwy./SR 710 from a 2-lane facility to a 4-lane facility.
25. No building permits for development generating 894 external AM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 33.37% of the construction cost of widening of Beeline Hwy./SR 710 from Jog Rd. to Haverhill Rd. from a 4-lane divided facility to a 6-lane divided facility.
26. No building permits for development generating 954 external PM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 15.6% of the construction cost of the following intersection improvements at Beeline Hwy/SR 710 and PGA Blvd.:
    - Two additional Westbound right-turn lanes (3 Total)
    - One additional Northbound thru lane (3 Total)
    - One additional Southbound left-turn lane (2 Total)
    - One additional Southbound thru lane (3 Total)
27. No building permits for development generating 1,010 external AM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 26.28% of the construction cost of widening of Beeline Hwy/SR 710 from Haverhill Rd. to Blue Heron Blvd. from a 4-lane divided facility to a 6-lane divided facility.
28. No building permits for development generating 1,082 external AM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 37.65% of the construction cost of widening of Northlake Boulevard from 140th Avenue North to Coconut Blvd. from a 4-lane divided facility to a 6-lane divided facility.
29. No building permits for development generating 1,100 external PM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 60.6% of the construction cost of the following intersection improvements at Beeline Hwy/SR 710 and Jog Rd.:
    - One additional Southbound left-turn lane (2 Total – Jog Rd.)
    - One additional Westbound thru lane (3 Total – Beeline Hwy.)
    - One additional Eastbound left-turn lane (2 Total – Beeline Hwy.)

- One additional Eastbound thru lane (3 Total – Beeline Hwy.)

30. No building permits for development generating 1,167 external AM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 44.9% of the construction cost of the following intersection improvements at Persimmon Blvd. and Royal Palm Beach Blvd.:
    - One additional Southbound left-turn lanes (2 Total)
31. No building permits for development generating 1,267 external PM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 28.9% of the construction cost of the following intersection improvements at Beeline Hwy/SR 710 and Pratt Whitney Rd.:
    - One additional Eastbound left-turn lane (2 Total)
    - One additional Eastbound thru lane (3 Total)
    - One additional Westbound right-turn lane (2 Total)
    - One additional Westbound thru lane (3 Total)
    - Two additional Southbound left-turn lanes (3 Total)
32. No building permits for development generating 1,319 external AM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 40.8% of the construction cost of widening of Northlake Boulevard from Steeplechase Dr. to Military Trail from a 6-lane divided facility to an 8-lane divided facility.
33. No building permits for development generating 1,340 external AM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 28.68% of the construction cost of widening of Northlake Boulevard from Jog Rd. to Steeplechase Dr. from a 6-lane divided facility to an 8-lane divided facility.
34. No building permits for development generating 1,459 external AM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 5.32% of the construction cost of widening of 60th Street North from Royal Palm Beach Blvd. to SR 7 from a 2-lane facility to a 4-lane divided facility.
35. No building permits for development generating 1,524 external AM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 15.15% of the construction cost of widening of PGA Boulevard from Ryder Cup Blvd. to Florida's Turnpike from a 4-lane divided facility to a 6-lane divided facility.
36. No building permits for development generating 1,525 external AM inbound peak hour trips or 1,594 external PM outbound peak hour trips, whichever occur first, shall be issued until the Property Owner makes a proportionate share payment of 43.15% of the construction cost of the following intersection improvements at Northlake Blvd. and Military Tr.:
    - One additional Eastbound left-turn lane (3 Total)
    - One additional Eastbound thru lane (4 Total)
    - One additional Westbound left-turn lane (3 Total)
    - One additional Westbound thru lane (4 Total)
    - One Westbound right-turn lane
    - One additional Southbound right-turn lane (2 Total)
37. No building permits for development generating 1,563 external AM inbound peak hour trips shall be issued until the Property Owner makes a proportionate

share payment of 65.9% of the construction cost of the following intersection improvements at Blue Heron Blvd. and Military Tr.:

- One additional Southbound left-turn lane (3 Total)

38. No building permits for development generating 1,583 external AM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 13.62% of the construction cost of widening of SR 7 from Orange Grove Blvd. to Persimmon Blvd. from a 4-lane divided facility to a 6-lane divided facility.
39. No building permits for development generating 1,589 external PM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 26.0% of the construction cost of the following intersection improvements at Blue Heron Blvd. and Beeline Hwy/SR 710:
    - One additional Southbound left-turn lane (2 Total)
    - Signalization, as warranted
40. No building permits for development generating 1,688 external PM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 13.8% of the construction cost of widening of Beeline Highway/SR 710 from Caloosa Blvd. to the new Connector Road within Avenir from a 4-lane divided facility to a 6-lane divided facility.
41. No building permits for development generating 1,705 external AM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 6.89% of the construction cost of widening of SR 7 from Okeechobee Blvd. to Roebuck Rd. from a 4-lane divided facility to a 6-lane divided facility.
42. No building permits for development generating 1,726 external PM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 12.44% of the construction cost of widening of Beeline Highway/SR 710 from Pratt Whitney Rd. to Caloosa Blvd. from a 4-lane divided facility to a 6-lane divided facility.
43. No building permits for development generating 1,760 external AM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 5.82% of the construction cost of the following intersection improvements at Pratt Whitney Rd. and Indiantown Rd.:
    - Two additional Westbound left-turn lanes (3 Total)
    - One additional Northbound thru lane (2 Total)
    - One additional Northbound right-turn lane (2Total)
    - One additional Southbound thru lane (2 Total)
44. No building permits for development generating 1,922 external PM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 5.16% of the construction cost of widening of SR 7 from Belvedere Rd. to Okeechobee Blvd. from a 6-lane divided facility to an 8-lane divided facility.
45. No building permits for development generating 1,948 external AM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 8.88% of the construction cost of widening of PGA Boulevard from Beeline Highway/SR 710 to Ryder Cup Blvd. from a 2-lane facility to a 4-lane divided facility.

46. No building permits for development generating 1,974 external AM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 18.42% of the construction cost of widening of Seminole Pratt Whitney Road from Sycamore Dr. to Persimmon Blvd. from a 4-lane divided facility to a 6-lane divided facility.
47. No building permits for development generating 2,400 external PM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 20.8% of the construction cost of the following intersection improvements at Persimmon Blvd. and Seminole Pratt Whitney Rd.:
    - One Westbound left-turn lane
    - One Northbound right-turn lane
48. No building permits for development generating 2,433 external AM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 8.55% of the construction cost of widening of Beeline Highway/SR 710 from the Aviation Blvd. to PGA Blvd. from a 4-lane divided facility to a 6-lane divided facility.
49. No building permits for development generating 2,441 external AM inbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 3.52% of the construction cost of widening of Orange Boulevard from Coconut Ave. to Royal Palm Beach Blvd. from a 2-lane facility to a 4-lane divided facility.
50. No building permits for development generating 3,156 external PM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 24.0% of the construction cost of the following intersection improvements at Northlake Blvd. and I -95 East Ramp:
    - One additional Northbound right-turn lane (3 Total)
51. No building permits for development generating 3,243 external PM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 2.14% of the construction cost of widening of Military Trail from Holly Dr. to PGA Blvd. from a 6-lane divided facility to an 8-lane divided facility.
52. No building permits for development generating 3,249 external PM outbound peak hour trips shall be issued until the Property Owner makes a proportionate share payment of 4.40% of the construction cost of widening of Beeline Highway/SR 710 from new Connector Road within Avenir to Aviation Blvd. from a 4-lane divided facility to a 6-lane divided facility.
53. The Property Owner shall:
    a) Submit a trip generation analysis with any Site Plan application for approval. The trip generation analysis shall be cumulative, include all development which has received Site Plan approval, and provide calculations for AM and PM peak hour inbound and outbound traffic.
    b) Development Order Conditions shall be evaluated to determine if any conditions are triggered or are anticipated to be triggered in the 90-day period after the analysis is submitted. If additional improvements and/or payments are warranted based on the updated trip generation analysis, the improvements/payments shall be completed and/or made as required by the County Engineer.

54. No building permits shall be issued:
    a) for development generating 266 external PM inbound trips until the Internal Road connecting Northlake Boulevard and Beeline Highway/SR 710 (new Connector Road) has been constructed with 2-lanes and it is open to traffic; or
    b) after the connection of SR 7 to Northlake Boulevard, for development generating 438 external PM inbound trips until the Internal Road connecting Northlake Boulevard and Beeline Highway/SR 710 (new Connector Road) has been constructed with 2-lanes and it is open to traffic.
55. Concurrent with construction of the Internal Road connecting Northlake Boulevard and Beeline Highway/SR 710, the following lane geometry shall be constructed at the newly created intersection of Beeline Highway/SR 710 and the Internal Road:
    - Internal Road: dual left-turn lanes and a right-turn lane
    - Beeline Highway/SR 710: a right-turn lane and a left-turn lane
56. The Property Owner shall fund traffic signals where warranted and required by the County Engineer, including but not limited to intersections along Northlake Boulevard and the intersection of the Internal Road with Beeline Highway/SR 710, as determined by the County Engineer. Signalization shall be mask arm structure. The cost of signalization shall be paid by the Property Owner and shall also include all design costs and any required utility relocation and right of way and/or easement acquisition.
57. All of the conditions, numbered 1 thru 56 above, shall be incorporated into the municipal Development Order exactly as set forth above. No later than ten calendar days after approval of the Development Order, the municipality shall transmit an official, recorded copy of same to the County Engineer. In the event: 1) the municipal Development Order is not received by the County Engineer within fifteen calendar days after approval of same; or 2) the official, recorded Development Order does not contain conditions 1 thru 56 exactly as set forth above, then the Traffic Division's conditional finding that this proposed development meets the Traffic Performance Standards of Palm Beach County shall be deemed rescinded and rendered void.
58. A Proportionate Share Agreement must be fully executed, by the Property Owner seeking approval of the project and Palm Beach County, before the municipality considers approval of the proposed project. The agreement shall be in substantially the same form as set forth in ***Exhibit A***, which is attached hereto. In the event the municipality approves the proposed development before this proportionate share agreement is fully executed, then the Traffic Division's conditional finding that this proposed development meets the Traffic Performance Standards of Palm Beach County shall be deemed rescinded and rendered void.

<u>Please note roadway and intersection improvement costs have to be approved by Palm Beach County Roadway Production Department. Costs are necessary to calculate the amount of proportionate share and to prepare the Proportionate Share Agreement.</u>

Please note the receipt of a Traffic Performance Standards (TPS) approval letter does not constitute the review and issuance of a Palm Beach County Right-of-Way (R/W) Construction Permit nor does it eliminate any requirements that may be deemed as site

related. For work within Palm Beach County R/W, a detailed review of the project will be provided upon submittal for a R/W permit application. The project is required to comply with all Palm Beach County standards and may include R/W dedication.

The approval letter shall be valid no longer than one year from date of issuance, unless an application for a Site Specific Development Order has been approved, an application for a Site Specific Development Order has been submitted, or the approval letter has been superseded by another approval letter for the same property.

If you have any questions regarding this determination, please contact me at 561-684-4030 or e-mail to mtejera@pbcgov.org.

Sincerely,

María M. Tejera, P.E.
Senior Professional Engineer
Traffic Division

MMT:saf
Attachment
ec: Addressee
Tanya N. McConnell, P.E. – Deputy County Engineer
Quan Yuan, P.E. – Professional Engineer, Traffic Division
Thuha Nguyen Lyew, P.E., Via Planning, Inc.
Susan E. O'Rourke, P.E., Susan E. O'Rourke, P.E. Inc.
Shi-Chiang Li, AICP, FDOT District 4
Chon Wong, FDOT District 4

File: File: Gen–TPS-Gen
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EXHIBIT A

PROPORTIONATE SHARE AGREEMENT

This Proportionate Share Agreement (hereinafter "Agreement") is made and entered into this _____ day of _____, 20__, by and between Palm Beach County, a political subdivision of the State of Florida (hereinafter "County"), and *identify and describe developer* (hereinafter "Developer").

WITNESSETH

WHEREAS, the Board of County Commissioners has implemented the Proportionate Share Program as required by and in a manner consistent with section 163.3180(5)(h), Florida Statutes; and

WHEREAS, the Proportionate Share Program allows developers to proceed with development notwithstanding a failure of transportation concurrency, by contributing their proportionate share to one or more regionally significant transportation facilities; and

WHEREAS, in order to conform to the requirements of this Program, the County and the Developer agree to the conditions, rights and obligations established in this Agreement; and

WHEREAS, To the extent that any of the conditions of this Agreement constitute monetary or property exactions that are subject to Nollan v. California Coastal Comm'n, 483 U. S. 825 (1987), and Dolan v. City of Tigard, 512 U. S. 374 (1994), the applicant/owner, and successors and assigns (a) agrees that there is a nexus and rough proportionality between such conditions and the impacts of this project/development, and that such conditions are necessary to ensure compliance with the criteria of the Palm Beach County Unified Land Development Code and Comprehensive Plan that are applicable to this approval, and (b) waives any claims based on such conditions; and

WHEREAS, the Board of County Commissioners of Palm Beach County has delegated to the County Engineer the authority to enter into this Agreement on behalf of the County; and

NOW, THEREFORE, in consideration of the promises, mutual covenants, and conditions contained herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties to this Agreement agree as follows:

Section 1. Recitals

The above recitals are true and correct and form a part of this Agreement.

Section 2. Project Identification

The proposed Project is known as *include the name of the Project here if it is known at this point; if not, provide location* and is located at *provide property location*. When zoning petition number is known, it should be described and included here.

Section 3. Proportionate Share Payment

The total amount of proportionate share payment for the required road improvement(s) shall be _____ and no/100 Dollars ($_____). This amount was calculated in accordance with the methodology provided for in section 163.3180(5)(h), Florida Statutes, and based on the Developer's Traffic Study (hereinafter "the Study"), dated _____, and approved by the Palm Beach County Traffic Division on _____(date of letter). As applicable, add here: Payment/contribution of land(right of way)/required construction and posting of surety/ shall be submitted to Palm Beach County no later than XX, or if phased, pursuant to the following phasing schedule.

If it is cash, insert amount here; if contribution of land, describe generally here, and indicate that the land contributed is described more particularly by the legal description attached as an exhibit to this Agreement, and include the agreed upon value of the land here; if the fair share turns out to be construction of a facility, describe generally here, but again include a more detailed description of the project, its limits, timing, etc., as an attachment to this Agreement. If it is a phased development, this needs to be done for each phase.

Several sections must be added to the form agreement if the contribution involves road construction. These sections are included in the attached appendix, but should be inserted immediately after section 4, renumbering the remaining sections accordingly.

If prop share includes cash, add this at the end of section 3: While the Proportionate Share payment(s) set forth in the Study are based on the proportionate costs of specific road improvements, the parties hereto understand and agree that the Palm Beach County, in its sole discretion, may apply such payment(s) to one or more mobility improvements to regionally significant transportation facilities that will benefit the Project.

Section 4. Term of concurrency approval

In consideration for entering into this binding Proportionate Share Agreement with Palm Beach County, the Developer shall receive a certificate of concurrency approval; provided, however, if the Developer fails to apply for a development permit within twelve months of the date of this Agreement, then this Agreement and, the certificate of concurrency approval, shall be considered null and void, and the applicant shall be required to reapply to meet Palm Beach County Traffic Performance Standards.

Section 5. Increase in Project Trips

Any change to the Project could result in an increase in trips that impact one or more of Palm Beach County's Major Thoroughfares, as defined by Unified Land Development Code, Article 1.I.2.M.6. The Developer understands and agrees that it is precluded from asserting that those additional trips are vested or otherwise permitted under this Agreement. In addition, Developer understands and agrees that any such changes resulting in an increase in trips may cause his Agreement to be null and void, or may require the application for and execution of an additional Proportionate Share Agreement, along with any other traffic study or additional documentation.

Section 6. Road Impact Fee Credit

Proportionate Share contributions shall be applied as a credit against road impact fees to the extent that the Proportionate Share contribution is used to address the same improvements contemplated by ULDC Article 13, Impact Fees. The Developer understands and agrees that in no event shall the Developer be entitled to road impact fee credits in excess of the Proportionate Share contribution and in the event the contribution exceeds the amount of road impact fees owed by the Project through buildout, Developer shall not be entitled to a refund for the Proportionate Share contribution in excess of such road impact fees.

Section 7. No refund

Proportionate Share contributions are non-refundable.

Section 8. Governing Law

The Agreement and the rights and obligations created hereunder shall be interpreted, construed and enforced in accordance with the laws of the United States and the State of Florida. If any litigation should be brought in connection with this Agreement, venue shall lie in Palm Beach County, Florida.

Section 9. Attorneys' Fees and Costs

The parties hereto agree that in the event it becomes necessary for either party to defend or institute legal proceedings as a result of the failure of either party to comply with the terms and provisions of this Agreement, each party in such litigation shall bear its own costs and expenses incurred and expended in connection therewith including, but not limited to, reasonable attorneys' fees and court costs through all trial and appellate levels.

Section 10. Severability

If any provision of this Agreement or the application thereof to any person or circumstance shall be invalid or unenforceable to any extent, the remainder of this Agreement and the application of such provisions to other persons or circumstances shall not be affected thereby and shall be enforced to the greatest extent permitted by law.

Section 11. Agreement

This Agreement contains the entire agreement between the parties. No rights, duties or obligations of the parties shall be created unless specifically set forth in this Agreement.

Section 12. Amendment

No modification or amendment of this Agreement shall be of any legal force or effect unless it is in writing and executed by both parties.

Section 13. Binding Agreement

This Agreement shall inure to the benefit of and shall bind the parties, their heirs, successors and assigns.

Section 14. Assignment

This Agreement may not be assigned without the prior written consent of the other party, and all the terms and conditions set forth herein shall inure to the benefit of and shall bind all future assignees.

Section 15. Waiver

Failure to enforce any provision of this Agreement by either party shall not be considered a waiver of the right to later enforce that or any provision of this Agreement.

Section 16. Notices

Any notice, request, demand, instruction or other communication to be given to either party under this Agreement shall be in writing and shall be hand delivered, sent by Federal Express or a comparable overnight mail service, or by U.S. Registered or Certified Mail, return receipt requested, postage prepaid, to County and to Developer at their respective addresses below:

As to County:

With a copy to County's Legal Representative:

As to Developer:

With a copy to Developer's Legal Representative:

Section 17. Effective Date

The effective date of this Agreement shall be _____.

Section 18. Counterparts

This Agreement may be executed by the parties in any number of counterparts, each of which shall be deemed to be an original, and all of which shall be deemed to be one and the same Agreement.

[Remainder of page intentionally blank.]

IN WITNESS WHEREOF, the parties hereunto have executed this Agreement on the date and year first above written.

ATTEST:

SHARON R. BOCK,
CLERK & COMPTROLLER

By: _____
Deputy Clerk

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY:

_____
County Attorney

APPROVED AS TO TERMS
AND CONDITIONS:

By:_____

PALM BEACH COUNTY, FLORIDA, BY ITS
COUNTY ENGINEER

By:_____
County Engineer

ATTEST:

_____
Witness

DEVELOPER

By:_____

[Agreement shall be executed in a manner and form consistent with PPM CW-F-049]

APPENDIX A

In the event the Proportionate Share contribution consists of constructing a road facility, the following provisions need to be inserted into this Agreement immediately after Section 4:

Section 5. <u>Construction of Improvements</u>

The Developer shall commence construction of the required improvements before the first building permit may be issued. If the contract for the required road improvements has not been let and construction has not commenced by *<u>insert date</u>*, the County shall have the right but not the obligation to draw on the performance security and take over the Developer's responsibility to construct the required improvement. If the County exercises its rights under this Section, upon written request by the County, the Developer agrees to deliver to the County all plans and permits related to the required improvements which are in the Developer's possession.

Developer recognizes that it is an independent contractor and not an agent or a service of the County. No person employed by any party to this Agreement shall in connection with the performance of the required improvement, be considered the employee of the other party, nor shall any employee claiming a right in or entitlement to any pension, workers' compensation benefit, unemployment compensation, civil service, or other employee rights or privileges granted by operation of law or otherwise, except through and against the entity by whom they are employed. The Developer shall protect, defend, reimburse, indemnify and hold the County, its agents, employees, and elected officers harmless from and against all claims, liability, expense, loss, cost, damages, or causes of action of every kind or character including attorneys' fees and costs, whether at trial or appellate levels or otherwise, arising during or out of construction of the required improvements contemplated by this Agreement.

The Developer shall maintain and require its contractor to maintain workers' compensation coverage in accordance with Florida Statutes. The Developer and contractor shall carry insurance naming the County as an Additional Insured Party, with minimum limits of one million dollars per occurrence and three million dollars general aggregate insurance, and shall carry automobile liability insurance with minimum limits of one million dollars per occurrence combined single limits.

To ensure faithful performance of the construction of the required improvements, the Developer shall also require all contractors performing work on the required improvements to execute and deliver to the Developer a payment and performance bond in an amount equal to one hundred ten percent (110%) of the certified cost estimate of the improvement prior to the issuance of any permit authorizing commencement of construction of the improvement. The bond shall be issued by a company authorized to do business in this State and which has a current valid certificate of authority issued by the United States Department of Treasury under 31 USC §9304-9308.

PTC
Transportation Consultants

2005 Vista Parkway, Suite 111
West Palm Beach, FL 33411-6700
(561) 296-9698 Fax (561) 684-6336
Certificate of Authorization Number: 7989

December 2, 2015

Ms. Natalie Crowley
Director of Planning & Zoning Department
City of Palm Beach Gardens
10500 North Military Trail
Palm Beach Gardens, Florida 33410

Re: Avenir - #PTC13-002M

Dear Ms. Crowley:

Pinder Troutman Consulting, Inc. (PTC) has completed our review of the updated Land Use Amendment Traffic Study dated November 30, 2015 for the above referenced project. All of our comments have been addressed.

The submitted transportation analysis included a five-year short-term and long-term analysis to the planning horizon for the Comprehensive Plan. The transportation analysis shows that there are several transportation deficiencies in both the five-year short-term and long-term analyses. Many of these deficiencies on the State and County roadway networks are projected to occur without the proposed Avenir PCD. These deficiencies in both the five-year and long-term analysis are presented on the attached table with the Applicant's proposed mitigation and our comments.

For those deficiencies caused by the proposed Avenir PCD, a substantial mitigation program should be established which includes land use strategies, roadway construction, transit improvements and Transportation Demand Management (TDM) strategies.

Please contact this office if you have any questions or need any additional information.

Sincerely,

Andrea M. Troutman, P.E.
President

ec: Dawn Sonneborn

Attachment 1
Avenir - Land Use Amendment Review
LOS Deficiencies

Roadway	Link	Prog. Lanes	LOS Deficiency 2020	LOS Deficiency 2040	Imp.	Req'd without Project	Applicant's Proposed Mitigation	PTC Comments
60th Street	Royal Palm Beach Blvd to SR 7	2L	No	Yes	4LD	Yes	Proportionate Share Payment.	Mitigation is adequate. Improvement required without project.
Beeline Highway	Haverhill Rd to Blue Heron Blvd	6LD	No	Yes	8LD	No	Detailed peak hour concurrency analysis shows that 6 lanes is sufficient.	Detailed analysis showed that improvement was not required, therefore no mitigation is required.
Blue Heron Blvd	Military Trail to I-95	6LD	No	Yes	8LD	Yes	Detailed peak hour concurrency analysis shows that 6 lanes is sufficient.	Detailed analysis showed that improvement was not required, therefore no mitigation is required.
Coconut Blvd	Orange Blvd to Northlake Blvd	2L	Yes	Yes	4LD	Yes	Proportionate Share Payment.	Mitigation is adequate. Improvement required without project.
Northlake Blvd	140th Avenue to Coconut Blvd	4LD	No	Yes	6LD	No	Proportionate Share Payment.	Additional mitigation should be provided because project causes deficiency. (1)
Northlake Blvd	Coconut Blvd to Ibis Blvd	4LD	Yes	Yes	8LD	Yes	Proportionate Share Payment.	Mitigation is adequate. Improvement required without project.
Northlake Blvd	Ibis Blvd to SR 7	4LD	Yes	Yes	8LD+	Yes (2)	Proportionate Share Payment.	Additional mitigation should be provided because project causes additional deficiency. (1)
Northlake Blvd	SR 7 to Beeline Highway	4LD	Yes	Yes	8LD	Yes	Proportionate Share Payment.	Mitigation is adequate. Improvement required without project.
Northlake Blvd	Jog Rd to Steeplechase Dr	6LD	No	Yes	8LD	No	Proportionate Share Payment.	Additional mitigation should be provided because project causes deficiency. (1)
Northlake Blvd	Steeplechase Dr to Military Trail	6LD	No	Yes	8LD	No	Proportionate Share Payment.	Additional mitigation should be provided because project causes deficiency. (1)
Northlake Blvd	Military Trail to I-95	6LD	No	Yes	8LD	No	CRALLS Designation.	Additional mitigation should be provided because project causes deficiency. (1)
Orange Blvd	Coconut Blvd to Royal Palm Beach Blvd	2L	No	Yes	4LD	No	Proportionate Share Payment.	Additional mitigation should be provided because project causes deficiency. (1)
Persimmon Blvd	Coconut Blvd to Royal Palm Beach Blvd	2L	No	Yes	4LD	Yes	Detailed peak hour concurrency analysis shows that 2 lanes is sufficient.	Detailed analysis showed that improvement was not required, therefore no mitigation is required.
Royal Palm Beach Blvd	Persimmon Blvd to 60th St	2L	Yes	No	4LD	No	Improvement in long range plans. Proportionate Share Payment.	Additional mitigation should be provided because project causes deficiency. (1)
Royal Palm Beach Blvd	60th St to Orange Blvd	2L	Yes	No	4LD	Yes	Improvement in long range plans. Proportionate Share Payment.	Mitigation is adequate. Improvement required without project.

(1) Additional mitigation should include dedication of the environmental land; commitment to a mixed use project that will capture traffic and reverse flow of traffic; multi-modal strategies including commitment to Palm Tran transit center, Park-N-Ride and/or bike sharing; and roadway construction.

(2) Only 8LD improvement required without project.