

**PROPOSED LARGE SCALE
FUTURE LAND USE MAP (FLUM) AMENDMENT**



OVERVIEW

ORDINANCE: 2014-530

APPLICATION: 2014A-001-6-11

APPLICANT: THOMAS INGRAM

PROPERTY LOCATION: 2591 & 2595 Arnold Road

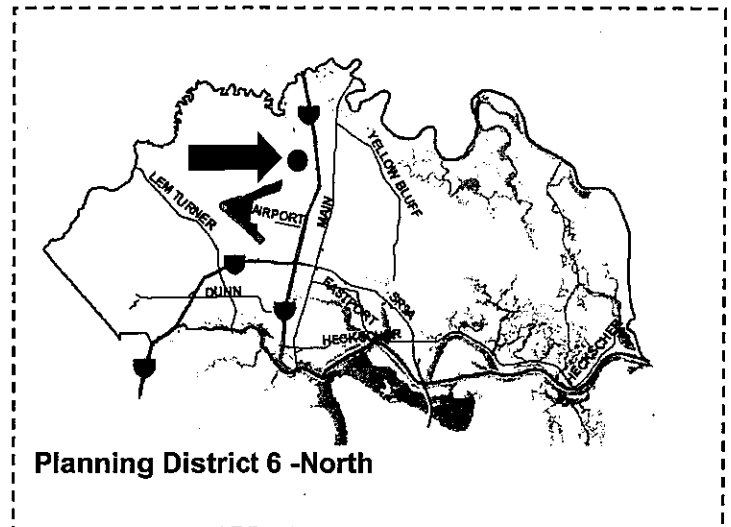
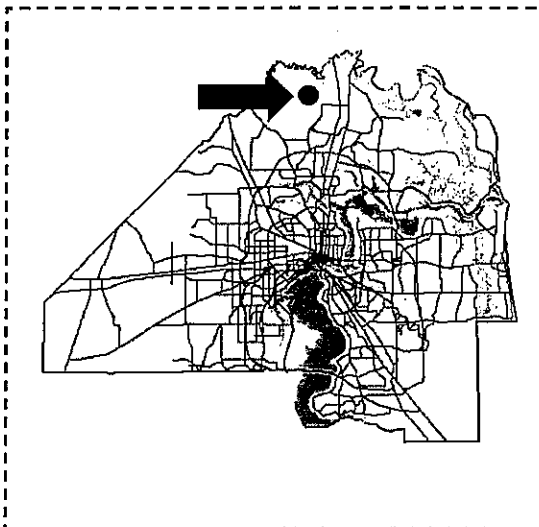
Acreege: 392 acres

Requested Action:

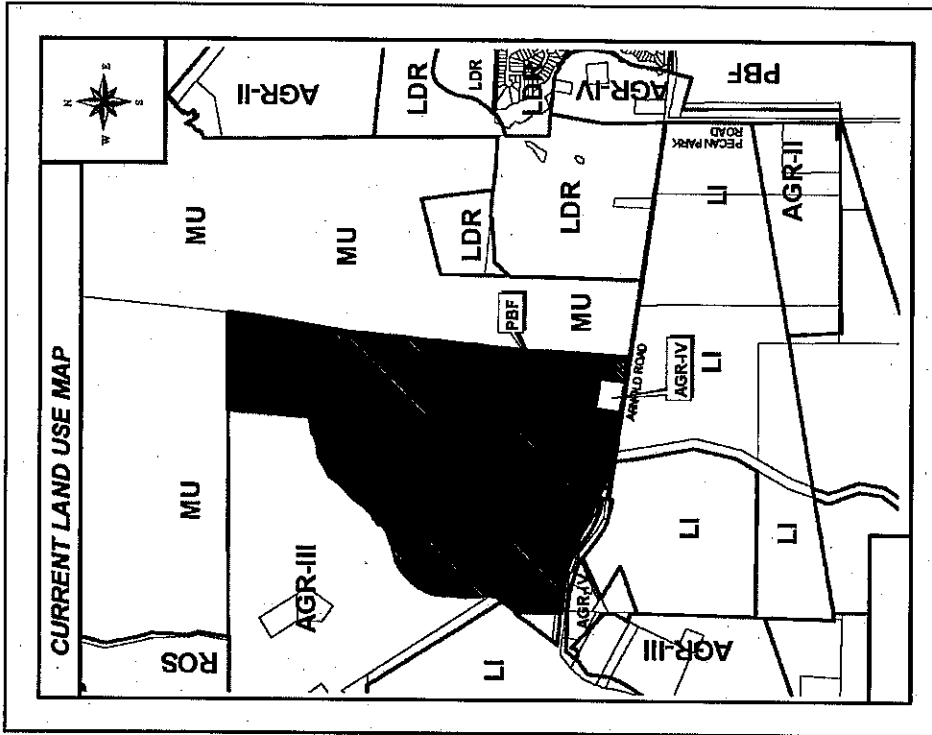
		Current				Proposed	
LAND USE		AGR II, AGR III, AGR IV & PBF, Rural Area				LDR, Suburban Area	
ZONING		AGR & PBF-3				PUD	
Existing FLUM Category	Proposed FLUM Category	Existing Maximum Density (DU/Acre)	Proposed Maximum Density (DU/Acre)	Existing Maximum Intensity (FAR)	Proposed Maximum Intensity (FAR)	Net Increase or Decrease in Maximum Density	Non-Residential Net Increase or Decrease in Potential Floor Area
AGR II, AGR III, AGR IV, PBF	LDR	52 DUs at AGR II - 1 DU/40 Acres, AGR III - 1 DU/10 Acres, AGR IV - 1 DU/2.5 Acres	1,960 DUs at 5 DU/Acre	104,544 sf at PBF-.30 FAR	N/A	Increase of 1908 DUs	Decrease of 104,544 sf of PBF uses

PLANNING AND DEVELOPMENT DEPARTMENT'S RECOMMENDATION: APPROVAL

LOCATION MAPS:

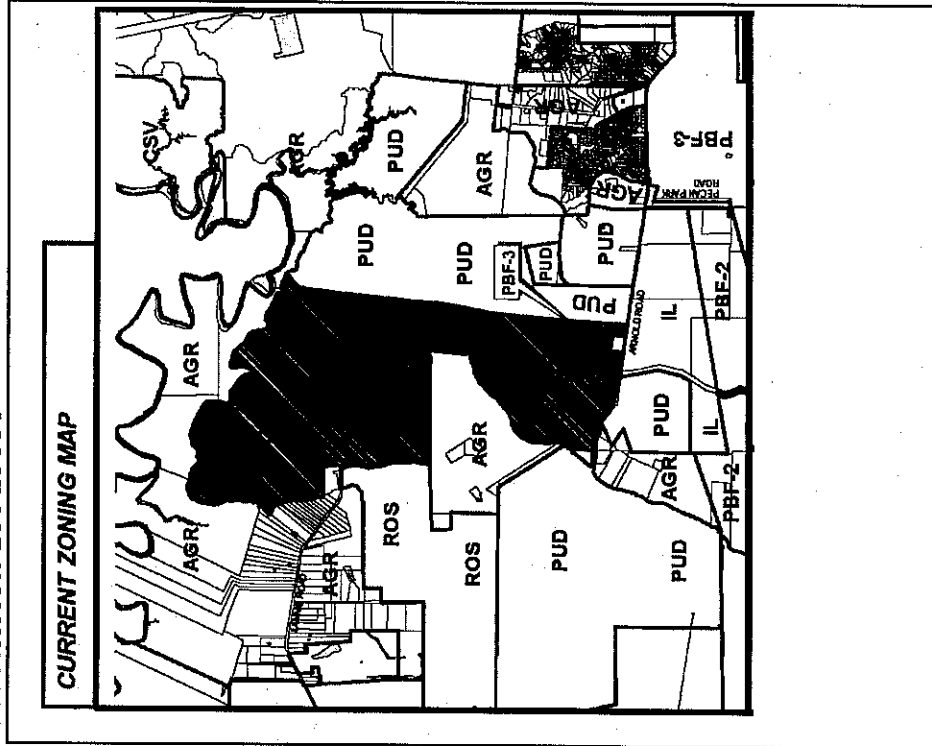


LARGE-SCALE LAND USE APPLICATION 2014A-001



Existing FLUM Land Use Categories: Agriculture-II (AGR-II), Agriculture-III (AGR-III), Agriculture-IV (AGR-IV) and Public Buildings and Facilities (PBF)

Requested FLUM Land Use Category: Low Density Residential (LDR)



Current Zoning District(s): Agriculture (AGR), Public Buildings and Facilities-3 (PBF-3) and Planned Unit Development (PUD)

Requested Zoning District(s): Planned Unit Development (PUD)

ANALYSIS

Background:

The subject property is located off of Arnold Road, west of Main Street, in the North Planning District and the Rural Development Area of Jacksonville, within the boundaries of Council District 11. The 392 acre land use amendment site consists of predominantly silviculture land with a few large lot single family residential properties. The southwestern portion of the property includes eight (8) acres that is part of a designated drainage easement for the Jacksonville International Airport; the drainage easement is currently designated Public Buildings and Facilities (PBF) on the Future Land Use Map.

The applicant proposes an amendment to the Future Land Use Map from Agriculture-II, III, IV (AGR-II, AGR-III, AGR-IV) and Public Buildings and Facilities (PBF) to Low Density Residential (LDR) and a rezoning of over 1,311 acres from Agriculture (AGR), Public Buildings and Facilities-3 (PBF-3) and Multi-Use (MU) to Planned Unit Development (PUD). This Large Scale Future Land Use Amendment is being considered for adoption along with its companion rezoning, Ordinance 2014-531.

The AGR functional land use categories accommodate mostly agriculture activities with some single family dwellings. The PBF functional land use category allows for major public uses or community service activities. The proposed LDR land use category allows for mostly single-family residential developments.

The area surrounding the site is primarily vacant to the north, west and south in the Light Industrial (LI), MU, LDR and AGR land use categories. The lands to the south of the property were designated LI in 2009 (Ordinances 2009-146-E, 2009-150-E, 2009-152-E, 2009-154-E) with the thought that the land would be used to serve JaxPort; the land remains vacant today. Likewise, in 2009, (Ordinance 2009-148-E) with the intent for a mixed use development, 1,760 acres of land to the east and north of the subject property was designated as the Palmetto Bay Regional Activity Center with an MU future land use designation. Abutting the eastern boundary of the site, over 800+ acres of the land currently designated MU was recently opened as the Seaton Creek Historic Preserve by the City of Jacksonville. North of the site and part of the companion PUD rezoning, the remaining 900+ acres of the land designated MU is vacant; the applicant intends a cohesive rezoning to PUD of the land designated MU and the 392 acres of the subject land use amendment in order to accommodate the development of single family homes.(See Dual Map, Page 2) (See Land Utilization, Attachment A)

According to the Capital Improvements Element of the 2030 Comprehensive Plan, the site is located within the "Rural Area" of the City. However, due to the surrounding land use amendments approved in 2009 for MU and LI, the site is located adjacent to and is surrounded by the Suburban Development Area. The proposed land use amendment is a logical extension of these land uses. Extending the Suburban Development Area boundary to incorporate the subject property will continue the pattern of urbanized development proposed

in the surrounding area. The boundary change would not provide additional density/intensity to the site. (See Current Development Area Boundary Map, Attachment D)

Impacts Assessment:

Potential impacts of a proposed land use map amendment have been analyzed by comparing the Development Impact Standards for the subject site's existing vs. proposed land use categories unless maximum density/intensity is noted on the Annotated FLUM or is in a site specific policy. Development Impact Standards are detailed in FLUE Policy 1.2.16, *Development Standards for Impact Assessment*. These standards produce development potentials as shown in this Section.

Utility Capacity

The calculations to determine the water and sewer flows contained in this report and/or this spreadsheet have been established by the City of Jacksonville Planning and Development Department and have been adopted by JEA solely for the purpose of preparing this report and/or this spreadsheet. The method of calculating water and sewer flows in order to properly size infrastructure shall continue to be based on JEA's Water, Sewer and Reuse for New Development Projects document (latest edition).

Transportation

The Planning and Development Department completed a transportation analysis (see Attachment B) and determined that the proposed amendment results in an increase of 15,585 net new daily trips. This analysis is based upon the comparison of what potentially could be built on that site given the proposed land use category (as detailed in FLUE Policy 1.2.16 *Development Standards for Impact Assessment*) versus the maximum development potential. Potential traffic impacts will be addressed through the Concurrency and Mobility Management System Office.

Archaeological Sensitivity

According to the Duval County Preliminary Site Sensitivity Map, the subject property is located within an area of mostly low, with some medium and high probability for the presence of archaeological resources. Section 654.122 of the Code of Subdivision Regulations should be followed if resources are discovered during development of the site.

School Capacity

The proposed land use map amendment has a potential development of 1,920 single-family dwelling units. This development was analyzed to determine whether there is adequate school capacity, for each school type (elementary, middle, and high school), to accommodate the proposed development, based on the LOS standards (105% of permanent capacity), concurrency service areas (CSAs) for elementary, middle and high schools, and other standards set forth in the City of Jacksonville School Concurrency Ordinance.

In evaluating the proposed residential development for school concurrency, the following results were documented:

School Impact Analysis

LUA 2014A-001

Development Potential:1,920 Single-Family Units

School Type	CSA	2013-14 Enrollment/CSA	Current Utilization (%)	New Student/ Development	5-Year Utilization (%)	Available Seats
Elementary	1	19,840	71%	321	65%	6,902
Middle	1	11,338	84%	140	78%	2,650
High	1	10,328	74%	179	66%	3,306
Total New Students				640		

Total Student Generation Yield: 0.333

Elementary: 0.167

Middle: 0.073

High: 0.093

The analysis of the proposed residential development does not reveal any deficiency for school capacity.

Department of Parks and Recreation

The Parks and Recreation Department reviewed the proposed amendment with a concern to the proposal regarding an access easement over City land from the subject property across the Seaton Creek Preserve to an eastern land locked parcel owned by the same owner of the subject amendment. See Attachment E for the Department of Parks and Recreation’s full review.

Florida Department of Agriculture and Consumer Services

The Florida Department of Agriculture and Consumer Services reviewed the proposed amendment with some comments regarding the forest management tool of prescribed burning in the area. The Department is concerned that residences in the area could be impacted from the smoke of nearby prescribed burns and asks that homeowners be made aware of these activities. See Attachment F for the Florida Department of Agriculture and Consumer Services full review.

Wetlands

A wetlands survey map has been prepared for the application site with the use of the City’s GIS system and photogrammetric analysis. (See Wetlands Map, Attachment G) According to the survey approximately 112 acres of the 392 acre land use amendment application site is wetlands. The Florida Land Use Classification System (FLUCCS) classifies the wetlands on the subject site as “Wetland Forested Mixed” and of those wetlands approximately eighty

percent (80%) are Category II wetlands. The remaining Category III wetlands of the property are either isolated or far removed from the riverine wetland system that they would only have an indirect impact to the City's waterways. The Category III wetlands appear to have a medium functional value while the Category II wetland systems have an extremely high value due to their high storm water attenuation and water filtration capabilities. Some of the drier wetlands have been altered from silvicultural practices. Under both state and federal laws silviculture and agriculture activities are exempt from wetlands permitting as long as they are normal and customary for a particular area provided such operations do not impede or divert the flow of surface waters. There appears to be no evidence of that occurring on the application site.

The wetlands are found throughout the application site. However, the two main Category II riverine wetland systems are in two locations of the property and in different sub-drainage watershed basins. The southernmost riverine wetland system is located in the southern portion of the site and drains in a northeasterly direction. This wetland drains into Seaton Creek and its sub-drainage watershed basin. The much larger riverine wetland system is found along the north and northwestern portion of the property and it also drains in a northeasterly direction but drains into an unnamed creek and its sub-drainage watershed basin. Both wetland systems drain into Thomas Creek and into the Nassau River and drainage watershed basin.

Presently, the applicant is working towards getting a high order wetlands boundary and the necessary wetland permits for the proposed subdivision.

The United States Department of Agriculture, Natural Resource Conservation Service "Soil Survey" classifies the wetlands as Surrency loamy fine sand, Yulee clay depressional, Yulee clay frequently flooded, and Yonges fine sandy loam. The Surrency series consists of level, very poorly drained soils formed in thick sandy and loamy marine sediments. The wetlands area has a water table near the ground surface are often subjected during periods brief flooding. In areas of depressions, the high water table is generally at or above the soil surface for very long times. The Yulee series consists of nearly level, very poorly drained soils formed in thick clayey marine sediments. These soils are found in floodplains and have a high water table at or above the ground surface. The Yonges series consist of nearly level poorly drained soils formed in sandy and loamy sediments. They are found on flats and have a high water table at a depth of less than twelve inches from the ground surface.

Any proposed development of the site will need to meet Goal 4 and Objective 4.1 of the Conservation and Coastal Management Element (CCME) of the Comprehensive Plan to achieve no further net loss of the natural functions of the City's remaining wetlands, improve the quality of the City's wetland resources over the long-term, improve the water quality, and improve fish and wildlife values of wetlands. It is expected that there will be some necessary alterations of wetlands due to subdivision road construction and other necessary infrastructure improvements. It is recommended that the alteration of Category II riverine wetlands be done on site within the same sub-drainage basin so the integrity of the immediate watershed remains intact.

Other general requirements for development in wetlands including permitted uses, maintenance of water quality, maintenance of vegetation, and hydrology are specified in Policy 4.1.3 of the CCME, 2030 Comprehensive Plan.

Goal 4 To achieve no further net loss of the natural functions of the City's remaining wetlands, improve the quality of the City's wetland resources over the long-term and improve the water quality and fish and wildlife values of wetlands.

Objective 4.1 The City shall protect and conserve the natural functions of its existing wetlands, including estuarine marshes.

Wildlife

The applicant submitted a wildlife report for the application site and according to the report a large portion of the property, and surrounding properties, have been managed for silviculture activities. (See Attachment H, Wildlife Assessment) The remaining forested communities have been influenced by these silviculture activities in the form of trail roads and drainage ditches. Due to these influencing factors, large portions of the property are anticipated to support only common wildlife species.

The majority of wetlands on-site could be classified as contiguous (minus trail road crossings) and have the ability to be utilized as wildlife corridors. Although suitable habitat for wading bird foraging exists in portions of the on-site wetland areas, no wading bird rookeries or nests were observed. Characterized by large tracts of natural and undisturbed land, wildlife corridors may function as shelter, foraging habitat, nesting and breeding habitat, and cover during migration for many wildlife species. According to the report, the flora within the upland areas have a limited potential to provide food, protection and nesting materials for wildlife other than common species due to the continuing silvicultural activity.

IMPACT ASSESSMENT

DEVELOPMENT ANALYSIS		
	CURRENT	PROPOSED
Site Utilization	Predominantly silviculture and some residential	Residential
Land Use Category	AGR-II, AGR-III, AGR-IV, PBF	LDR
Development Standards For Impact Assessment	AGR-II – 1du/40 acres; AGR-III – 1du/10 acres; AGR-IV – 1du/2.5 acres; PBF - .30 FAR	5 DU/Acre
Development Potential	52 Dwelling Units; 104,544 sf of PBF uses	1,960 dwelling units
Population Potential	138 people	5,213 people
SPECIAL DESIGNATIONS AREAS		
	YES	NO
Aquatic Preserve		X
Airport Environ Zone	150-foot civilian height zone	
Industrial Preservation Area		X
Cultural Resources		X
Archaeological Sensitivity	X	
Historic District		X
Coastal High Hazard Area		X
Ground Water Aquifer Recharge Area		X
Well Head Protection Zone		X
PUBLIC FACILITIES		
Potential Roadway Impact	Increase of 15,585 daily trips	
Water Provider	JEA	
Potential Water Impact	Increase of 500,192 gallons per day	
Sewer Provider	JEA	
Potential Sewer Impact	Increase of 375,144 gallons per day	
Potential Solid Waste Impact	Increase of 4,793.5 tons per year	
Drainage Basin / Sub-Basin	Unnamed Branch Stream; Seaton Creek Stream	
Recreation and Parks	Seaton Creek Park; Bear Branch Preserve	
Mass Transit	None	
NATURAL FEATURES		
Elevations	10 - 20 Feet	
Soils	Mascotte fine sand (38); Pelham fine sand (51); Sapelo fine sand (63); Surrency loamy fine sand (66); Yonges fine sandy loam (78); Yulee clay (79); Yulee clay depressional (86)	
Land Cover	Residential, low density (1100); Field crops (2150); Pine flatwoods (4110); Upland mixed coniferous hardwood (4340); Coniferous plantations (4410); Forest regeneration areas (4430); Wetland forest mixed (6300)	
Flood Zone	AE inundated by 100-year flood, base flood elevation determined; AE-Floodway, and .2 PCT Annual Chance Flood Hazard	
Wet Lands	Mixed wetland hardwoods (6170); Wet pinelands/hydric pine (6250); Wetland forest mixed (6300)	
Wild Life	N/A	

PROCEDURAL COMPLIANCE

Signs, Notices and Preview Workshop

Upon site inspection by the Planning and Development Department on February 21, 2014, the required public hearing signs were posted. Thirteen (13) notices were mailed out to adjoining property owners informing them of the proposed land use change and pertinent public hearing and meeting dates. In addition, the Northlake Homeowners Association and the North CPAC were notified of the proposed land use amendment.

The Planning and Development Department held a Preview Workshop on February 24, 2014. There were no attendees from the public present to speak for or against the proposed amendment.

CONSISTENCY EVALUATION

2030 Comprehensive Plan

The proposed amendment is **consistent** with the following Goals, Objective and Policies of the 2030 Comprehensive Plan, Future Land Use Element:

- Objective 1.1** Ensure that the type, rate and distribution of growth in the City results in compact and compatible land use patterns, an increasingly efficient urban service delivery system and discourages the proliferation of urban sprawl through implementation of regulatory programs, intergovernmental coordination mechanisms, and public/private coordination.
- Policy 1.1.10** Gradual transition of densities and intensities between land uses in conformance with the provisions of this element shall be achieved through zoning and development review process.
- Policy 1.1.12** Promote the use of Planned Unit Developments (PUDs), cluster developments, and other innovative site planning and smart growth techniques in all commercial, industrial and residential plan categories, in order to allow for appropriate combinations of complementary land uses, and innovation in site planning and design, subject to the standards of this element and all applicable local, regional, State and federal regulations.
- Policy 1.1.20** Development uses and densities shall be determined by the Development Areas described in the Operational Provisions for the Central Business District (CBD); Urban Priority Area (UPA); the Urban Area (UA); the Suburban Area (SA); and the Rural Area (RA) as identified in the 2030 Comprehensive Plan, in order to prevent urban sprawl, protect agricultural lands, conserve natural open space, and to minimize the cost of public facilities and services.

Policy 1.1.20A

Extensions of the Development Areas will be noted in each land use amendment where an extension is needed or requested concurrent with a Future Land Use Map Amendment. In addition, plan amendments shall meet the requirements as set forth in Policy 1.1.21 and 1.1.22.

Policy 1.1.20B

Expansion of the Development Areas shall result in development that would be compatible with its surroundings. When considering land areas to add to the Development Areas, after demonstrating that a need exists in accordance with Policy 1.1.21, inclusion of the following areas is discouraged;

1. Preservation Project Lands
2. Conservation Lands
3. Agricultural Lands, except when development proposals include Master Planned Communities or developments within the Multi-Use Future Land Use Category, as defined in this element

The following areas are deemed generally appropriate for inclusion in Development Areas subject to conformance with Policy 1.1.21:

1. Land contiguous with the Development Area and which would be a logical extension of an existing urban scale and/or has a functional relationship to development within the Development Area.
2. Locations within one mile of a planned node with urban development characteristics.
3. Locations within one-half mile of the existing or planned JTA RTS.
4. Locations having projected surplus service capacity where necessary facilities and services can be readily extended.
5. Public water and sewer service exists within one-half mile of the site.
6. LargeScale Multi-Use developments and Master Planned Communities which are designed to provide for the internal capture of daily trips for work, shopping and recreational activities.
7. Low density residential development at locations up to three miles from the inward boundary of the preservation project lands. Inward is measured from that part of the preservation project lands closest to the existing Suburban Area such that the preservation lands serves to separate suburban from rural. The development shall be a logical extension of residential growth, which furthers the intent of the Preservation Project to provide passive recreation and low intensity land use buffers around protected areas. Such sites

should be located within one-half mile of existing water and sewer, or within JEA plans for expansion.

Policy 1.1.21 Future amendments to the Future Land Use Map series (FLUMs) must be based on the amount of land required to accommodate anticipated growth and the projected population of the area. The projected growth needs and population projections must be based on relevant and appropriate data which is collected pursuant to a professionally acceptable methodology. In considering the growth needs and the allocation of land, the City shall also evaluate land use need based on the characteristics and land development pattern of localized areas. Land use need identifiers include but may not be limited to, proximity to compatible uses, development scale, site limitations, and the likelihood of furthering growth management and mobility goals.

Policy 1.1.22 Future development orders, development permits and plan amendments shall maintain compact and compatible land use patterns, maintain an increasingly efficient urban service delivery system and discourage urban sprawl as described in the Development Areas and the Plan Category Descriptions of the Operative Provisions.

Policy 1.1.24 The City will encourage new development to locate in the Urban Core, Southwest, North, and Northwest planning districts through such measures as economic incentives, greater marketing assistance, etc.

Objective 3.1 Continue to maintain adequate land designated for residential uses which can accommodate the projected population and provide safe, decent, sanitary and affordable housing opportunities for the citizens. Protect single-family residential neighborhoods by requiring that any other land uses within single-family areas meet all applicable requirements described in the Development Areas and the Plan Category Descriptions of the Operative Provisions of the 2030 Comprehensive Plan and Land Development Regulations.

Generally, all agricultural land use categories within the City provide for agricultural uses such as farming, horticulture, forestry and logging, storage, processing and wholesale distribution of farm supplies and products. The PBF future land use category accommodates major public use or community service activities.

According to the category description of the Future Land Use Element (FLUE), Low Density Residential (LDR) in both the Rural and Suburban Development Areas permit a maximum gross density of 7 units/acre when full urban services are available. Generally, single-family detached housing will be the predominant land use in this category, although mobile homes,

patio homes, townhomes and multi-family dwellings may also be permitted in appropriate locations. Additionally, certain secondary and supporting uses are permitted in all residential categories including supporting commercial and service establishments and home occupations.

The land use categories surrounding the property include Multi-Use, Low Density Residential and Light Industrial; therefore, the amendment continues this pattern of anticipated urbanized development. The land is contiguous with and would be a logical extension of the Suburban Development Area boundary. The density for the property will not exceed the maximum 7 dwelling units per acre set forth in the LDR, Suburban Development Area characteristics. Acting as a natural buffer, the Seaton Creek Historic Preserve runs along the eastern property line of the amendment furthering the proposed as a logical extension of residential growth. The proposed amendment demonstrates the need for the change in the Development Area boundary meeting Policies 1.1.20, 1.1.20A and 1.1.20B

Additionally, residential development would complement the other non-residential employment based development in that area including the Jacksonville International Airport. The applicant proposes to increase the opportunity for residential development with low density residential lots through the use of a Planned Unit Development, thereby maintaining the character and trend of the area satisfying Policy 1.1.12 and Objective 3.1 and creating a transition between surrounding uses as recommended under Policy 1.1.10. The proposed land use amendment also satisfies FLUE Policy 1.1.24, as the proposed development is located within the North Planning District.

North Vision Plan

The subject site is located within the boundaries of the North Jacksonville Vision and Master Plan. There are no specific recommendations for this area within the Plan. However, the proposed residential development providing a variety of housing alternatives will influence the economic growth in the area and is encouraged within the boundaries of the North Jacksonville Vision Plan.

Strategic Regional Policy Plan

The proposed amendment is consistent with the following Policy of the Strategic Regional Policy Plan:

Policy 3 Local governments are encouraged to offer incentives of make development easier in areas appropriate for infill and redevelopment.

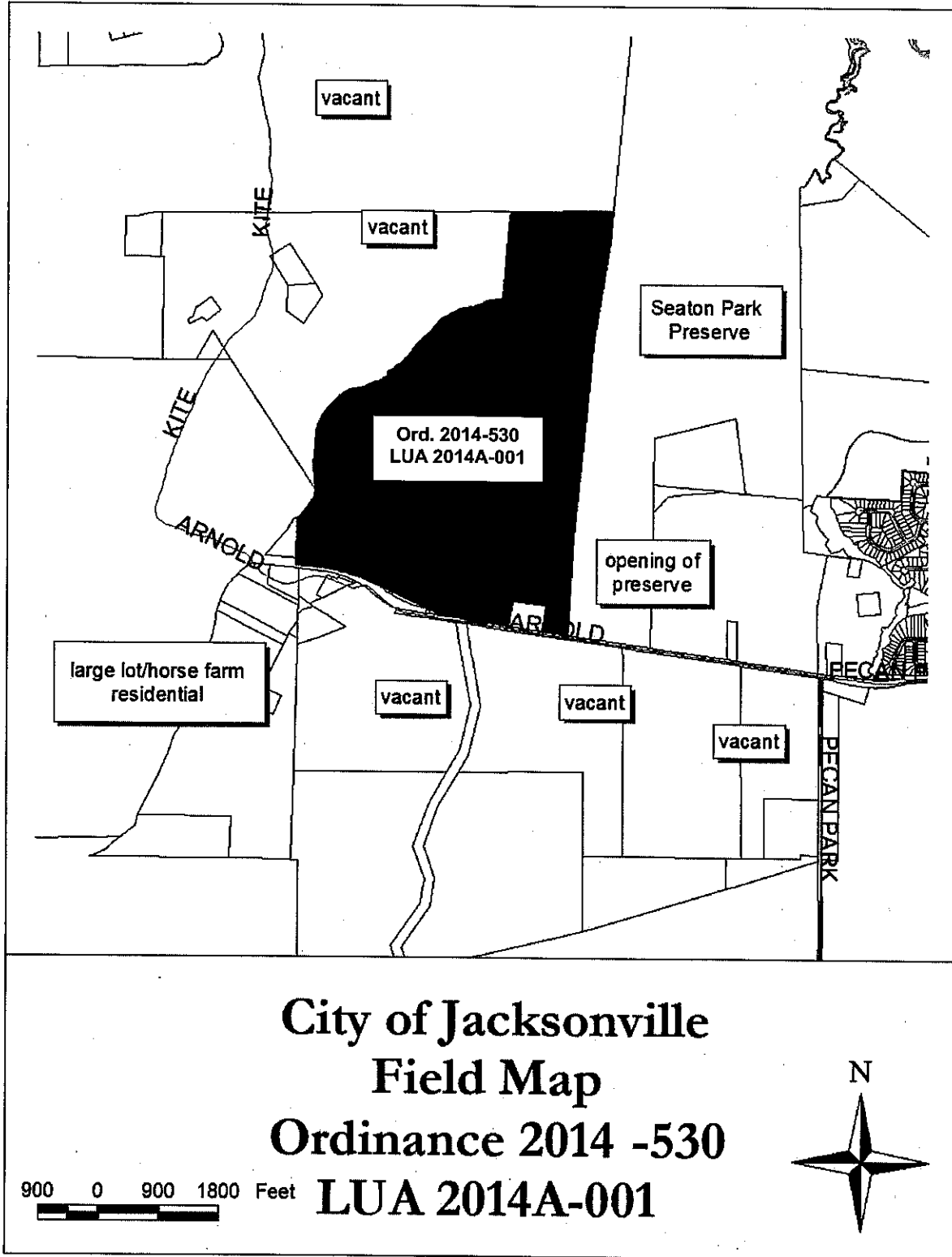
The proposed amendment to LDR would increase opportunities for residential development providing a wider range of housing needs to meet different income levels for a workforce that would serve and support the emerging industrial and commercial businesses in Northeast Florida. Broadening the opportunity for employment in turn creates the opportunity and demand for improved housing. Therefore, the proposed amendment is consistent with the aforementioned Strategic Regional Policy Plan.

RECOMMENDATION

The Planning and Development Department recommends **APPROVAL** of this application based on its consistency with the 2030 Comprehensive Plan and the Strategic Regional Policy Plan.

ATTACHMENT A

Existing Land Utilization:



City of Jacksonville Field Map

Ordinance 2014 -530

LUA 2014A-001



ATTACHMENT B

Transportation Analysis:

Produced by: Planning and Development Department
 Application Number: 2014A-001

LB
 Date: 7/9/2014
 Mobility Zone / Development Area: 3 / RURAL
 Planning District: 6
 Council District: 11

Table A

Generation Estimation
Section 1

Existing Development	Number of Acres	ITE Land Use Code	Existing Number of Units (X)	Independent Variable (Units)	Estimation Method (Rate or Equation)	Gross Trips	Less Internal Trips	Less Pass-By Trips	Net New Daily Trip Ends
AGR-II / AGR	35	210							
AGR-III / AGR	287	210							
AGR-IV / AGR	62	210							
PBF	8	210							
Total Section 1									0

Section 2

Current Land Use	Number of Acres	ITE Land Use Code	Potential Number of Units (X)	Independent Variable (Units)	Estimation Method (Rate or Equation)	Gross Trips	Less Internal Trips	Less Pass-By Trips	Net New Daily Trip Ends
AGR-II / AGR	35	210	1	DUs	$T = 9.52 (X)$	10	0.00%	0.00%	10
AGR-III / AGR	287	210	29	DUs	$LnT = 0.92 Ln(X) + 2.72$	336	0.00%	0.00%	336
AGR-IV / AGR	62	210	25	DUs	$LnT = 0.92 Ln(X) + 2.72$	293	0.00%	0.00%	293
PBF	8	210	0	DUs	$LnT = 0.92 Ln(X) + 2.72$	0	0.00%	0.00%	0
Total Section 2									639

Section 3

Proposed Land Use	Number of Acres	ITE Land Use Code	Potential Number of Units (X)	Independent Variable (Units)	Estimation Method (Rate or Equation)	Gross Trips PM/Daily	Less Internal Trips	Less Pass-By Trips	Net New Daily Trip Ends
LDR / PUD	392	210	1,960	DUs	$LnT = 0.92 Ln(X) + 2.72$	16,224	0.00%	0.00%	16,224
Total Section 3									16,224
*Net New Trips = Section 3 - Section 2 - Section 1									15,585

Source: Trip Generation Manual, 9th Edition, Institute of Engineers

ATTACHMENT B(cont.)

Transportation Analysis:

7/9/2014

Produced by: Planning and Development Department
 Application Number: 2014A-001

LB
 Date: 7/9/2014
 Mobility Zone / Development Area: 3 / RURAL
 Planning District: 6
 Council District: 11

Table B

Net New Daily External Trip Distribution

	a 15,585	= Total Net New External Trips (Table A)	b	(a*b)
Link ID Number	Roadway Name	From / To	Percent of Total Net New Daily Amendment Trips	Net New Daily External Amendment Trips
367	PECAN PARK RD	DIXIE CLIPPER DR TO BRADDOCK BLVD/ARNOLD RD	37.51%	5846
689	PECAN PARK RD	BRADDOCK BLVD/ARNOLD RD TO JIA NORTH ACCESS RD	61.14%	9,529

BOLD 8 210
Indicates Directly Accessed Segment(s)

ATTACHMENT B(cont.)

Transportation Analysis:

Produced by: Planning and Development Department
 Application Number: 2014A-001

LB
 7/9/2014 7/9/2014
 Mobility Zone / Development Area: 3 / RURAL
 Planning District: 8
 Council District: 11

Table C

Roadway Link Analysis

Link ID Number	Road Name	Terminus	Roadway Classification	State or City Road	Number of Lanes	Applied Service Volume	Background Traffic			Adjusted Trips Daily Estimate	Total Trips Daily Estimate	Percent Capacity Used with Adjusted Trips
						Daily	1 Year Growth %	Volumes w/ 5 yr Growth	a	f		
387	PECAN PARK RD	DIXIE CLIPPER DR TO BRADDOCK BLVD/ARNOLD RD	Collector	City	2/U	11,880	2,889	1.00%	3,015	5,846	8,961	74.59%
689	PECAN PARK RD	BRADDOCK BLVD/ARNOLD RD TO JIA NORTH ACCESS RD	Collector	City	2/U	12,744	2,272	1.00%	2,388	8,528	11,817	93.51%

* As determined from Traffic Analysis of FDOT LOS Report, dated 01/12/2013
 Data from City of Jacksonville Road Most recent Link Status Report dated 11/1/2013
BOLD indicates Directly Accessed Segment(s)

Major Intersections List

SIG Interchanges
SHG Intersections
WAM Intersect Area

ATTACHMENT C

Land Use Amendment Application:



APPLICATION FOR LARGE SCALE LAND USE AMENDMENT TO THE FUTURE LAND USE MAP SERIES - 2030 COMPREHENSIVE PLAN

Date Submitted:	1/12/14	Date Staff Report is Available to Public:	8/29/2014
Land Use Adoption Ordinance #:	2014-530	Planning Commission's LPA Public Hearing:	9/4/2014
Rezoning Ordinance #:	2014-531	1st City Council Public Hearing:	9/9/2014
JPDD Application #:	2014A-001	LUZ Committee's Public Hearing:	9/16/2014
Assigned Planner:	Helena Parola	2nd City Council Public Hearing:	9/23/2014

GENERAL INFORMATION ON APPLICANT & OWNER

Applicant Information:

THOMAS INGRAM
AKERMAN LLP
50 NORTH LAURA ST, STE 3100
JACKSONVILLE, FL 32202
Ph: 904-798-3700
Fax: 904-798-3730
Email: THOMAS.INGRAM@AKERMAN.COM

Owner Information:

WILLIAM WRIGHT
2591 ARNOLD ROAD
JACKSONVILLE, FL 32218
Ph: 904-591-9860
Fax: 904-751-1757

JAMES GRICE
2595 ARNOLD ROAD
JACKSONVILLE, FL 32218
Ph: 904-469-1499

DESCRIPTION OF PROPERTY

Acres: 392.00
Real Estate #(s): 019576 0000 019577 0100
019577 0050 019577 0200
019600 0060, a portion of

General Location:

NORTH SIDE OF ARNOLD ROAD, WEST OF PECAN PARK ROAD

Planning District: 6
Council District: 11
Development Area: SUBURBAN AREA

Address:

2591 ARNOLD ROAD
2595 ARNOLD ROAD

Between Streets/Major Features:
ARNOLD ROAD and LANNIE ROAD

LAND USE AMENDMENT REQUEST INFORMATION

Current Utilization of Property: SILVICULTURE AND RESIDENTIAL

Current Land Use Category/Categories and Acreage:

AGR-II 35.00
AGR-III 287.00 PBF 8.00
AGR-IV 62.00

Requested Land Use Category: LDR

Surrounding Land Use Categories: AGR-III, LI, MU

Justification for Land Use Amendment:

- PROMOTE AND FURTHER SINGLE FAMILY RESIDENTIAL DEVELOPMENT IN THE NORTH PLANNING DISTRICT, APPROPRIATE IN SCALE AND INTENSITY TO THE AREA
- ACHIEVE AN APPROPRIATE MIXTURE OF RESIDENTIAL AND NON-RESIDENTIAL USES IN AN AREA THAT HAS BEEN TARGETED FOR DEVELOPMENT, INCLUDING THROUGH THE EXTENSION OF THE JIA NORTH ACCESS ROAD (SR 243)
- PROVIDE DEVELOPMENT AREA CONTIGUOUS TO THE LANDS APPROVED FOR DEVELOPMENT TO THE SOUTH, NORTH AND WEST

UTILITIES

Potable Water: JEA

Sanitary Sewer: JEA

COMPANION REZONING REQUEST INFORMATION

Current Zoning District(s) and Acreage:

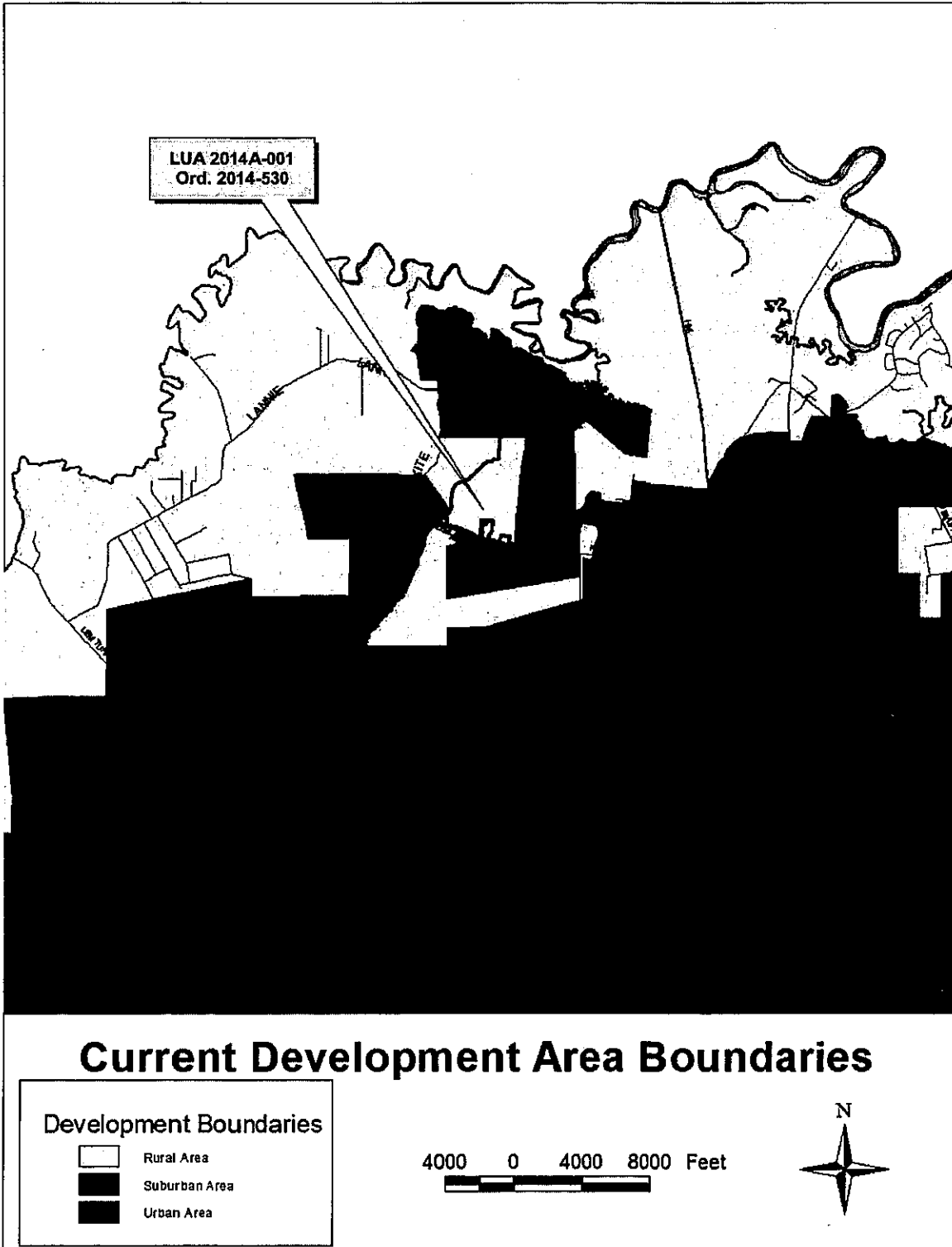
AGR 384.00
PBF-3 8.00
PUD 919.05

Requested Zoning District: PUD

Additional Information is available at 904-255-7888 or on the web at <http://maps.col.net/luza/>

ATTACHMENT D

Current Development Area Boundary Map:



ATTACHMENT E

Department of Parks and Recreation Review:

DEPARTMENT OF PARKS AND RECREATION



March 26, 2014

MEMORANDUM

TO: Helena Parola
Planning and Development Department

FROM: Kelley Boree, CPRP
Director *K. Boree*

RE: Ordinance 2014-197 Arnold Road Use Change Agricultural to Residential

After review of the aforementioned Ordinance, please be advised that the Parks and Recreation Department has an objection to this proposal.

The western property boundary of the subject property abuts City owned Preservation Park property known as Seaton Creek Preserve (parcel # 019575 0100) that was purchased by the City of Jacksonville in 2013. The City owned property has a 60' access easement running east-west from the subject property across the City owned Seaton Creek Preserve to the eastern land-locked parcel #019574 0000 which is also owned by the applicant, Mr. William Wright.

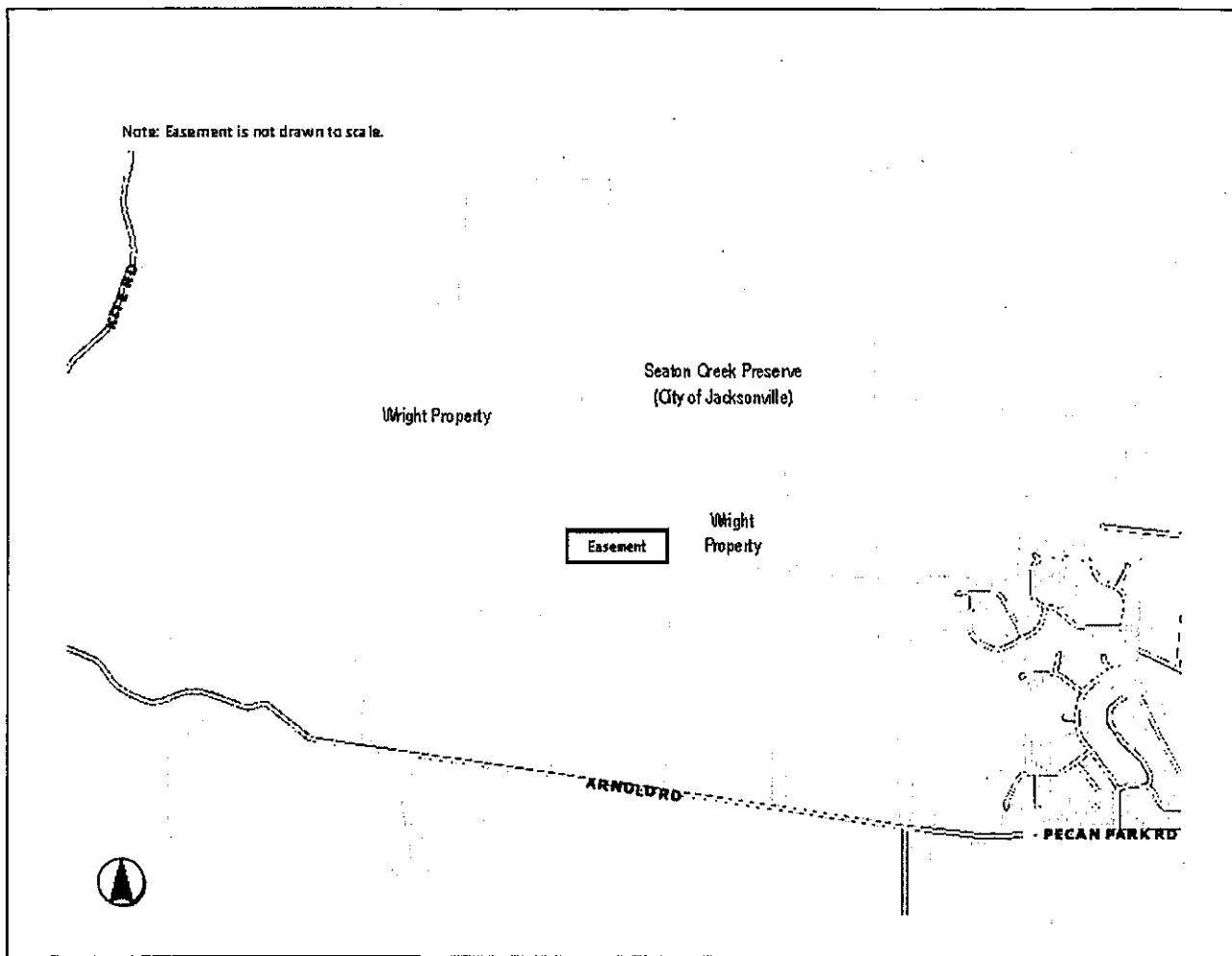
As of 3/18/14, Mr. Wright has approached the City about alternatives for an alternate access easement from Arnold Road to the land-locked parcel # 019574 0000 on the City owned Seaton Creek Preserve Parcel. One of the alternatives presented to Mr. Wright is to place an access easement on the subject property from Arnold Road to join into the existing easement on City land.

The Department of Parks and Recreation is commenting to make the review committees aware that the subject parcel is currently the only point of access for parcel # 019574 0000 which is located to the east of the subject parcel. As of today, 3/18/14 an alternative access easement on City park land has not been agreed to.

If you have questions or need further information, please contact Michelle Weinbaum at mweinbaum@coj.net or at 255-7907.

ATTACHMENT E (cont.)

Department of Parks and Recreation Review:



ATTACHMENT F

Florida Department of Agriculture and Consumer Services Review:

OFFICE OF THE COMMISSIONER
(850) 617-7700



THE CAPITOL
400 SOUTH MONROE STREET
TALLAHASSEE, FLORIDA 32399-0800

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES COMMISSIONER ADAM H. PUTNAM

June 11, 2014

VIA EMAIL (GKresel@COJ.net)

Mr. Gary L. Kresel
City of Jacksonville Planning and Development
Division of Community Planning
214 North Hogan Street, Suite 300
Jacksonville, Florida 32202

Re: DACS Docket # -- 20140512-403
Duval/Jacksonville County CP 2030
Submission dated May 6, 2014

Dear Mr. Kresel:

The Florida Department of Agriculture and Consumer Services (the "Department") received the above-referenced proposed comprehensive plan amendment on May 12, 2014 and has reviewed it pursuant to the provisions of Chapter 163, Florida Statutes to address any potential adverse impacts to important state resources or facilities related to agricultural, aquacultural, or forestry resources in Florida if the proposed amendment(s) are adopted. Based on our review of the amendment(s) submitted by your county, the Department has the following comments regarding the proposed changes:

Thank you for the opportunity to comment on the recently proposed Duval County Comp. Plan amendments that included 2014A-001; a proposal to allow for development of additional subdivision/homes located in the northern part of the county. The Florida Forest Service manages forest property close to the site (Four Creeks State Forest) and helps manage forest property adjacent to the site (Seaton Creek Preserve). Part of the management of this forest land includes using the forest management tool of prescribed burning for resource enhancement and to reduce the potential impacts of devastating wildfires. We are concerned residences in this location could be impacted from the smoke resulting from prescribed burning and request potential homeowners be made aware of these forest management activities prior to purchasing lots/homes.

1-800-HELPFLA



www.FreshFromFlorida.com

ATTACHMENT F (cont.)

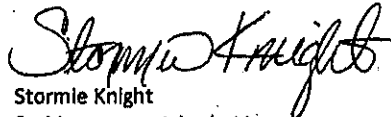
Florida Department of Agriculture and Consumer Services Review:

Duval/Jacksonville County CP 2030
June 11, 2014
Page Two

In Addition, the Florida Forest Service assists with the management of the Seaton Creek Preserve under a Memorandum of Agreement with the City of Jacksonville. The proposed amendment raises concerns with our ability to continue fulfilling our obligations to the City of Jacksonville in regards to prescribed fire and forest management activities in the Preserve. We would also encourage any subdivision constructed at the proposed site to seek "Firewise" accreditation upon build out and to include "Firewise" details in the actual development of the overall layout/design of the subdivision where possible. The Florida Forest Service is willing to discuss and support the "Firewise" accreditation with Duval County and/or the site developer. Please contact Jennifer Hart, Jacksonville Forestry District Manager, at 904-266-5001 for assistance or if you have any questions.

If we may be of further assistance, please do not hesitate to contact me at 850-410-2289.

Sincerely,

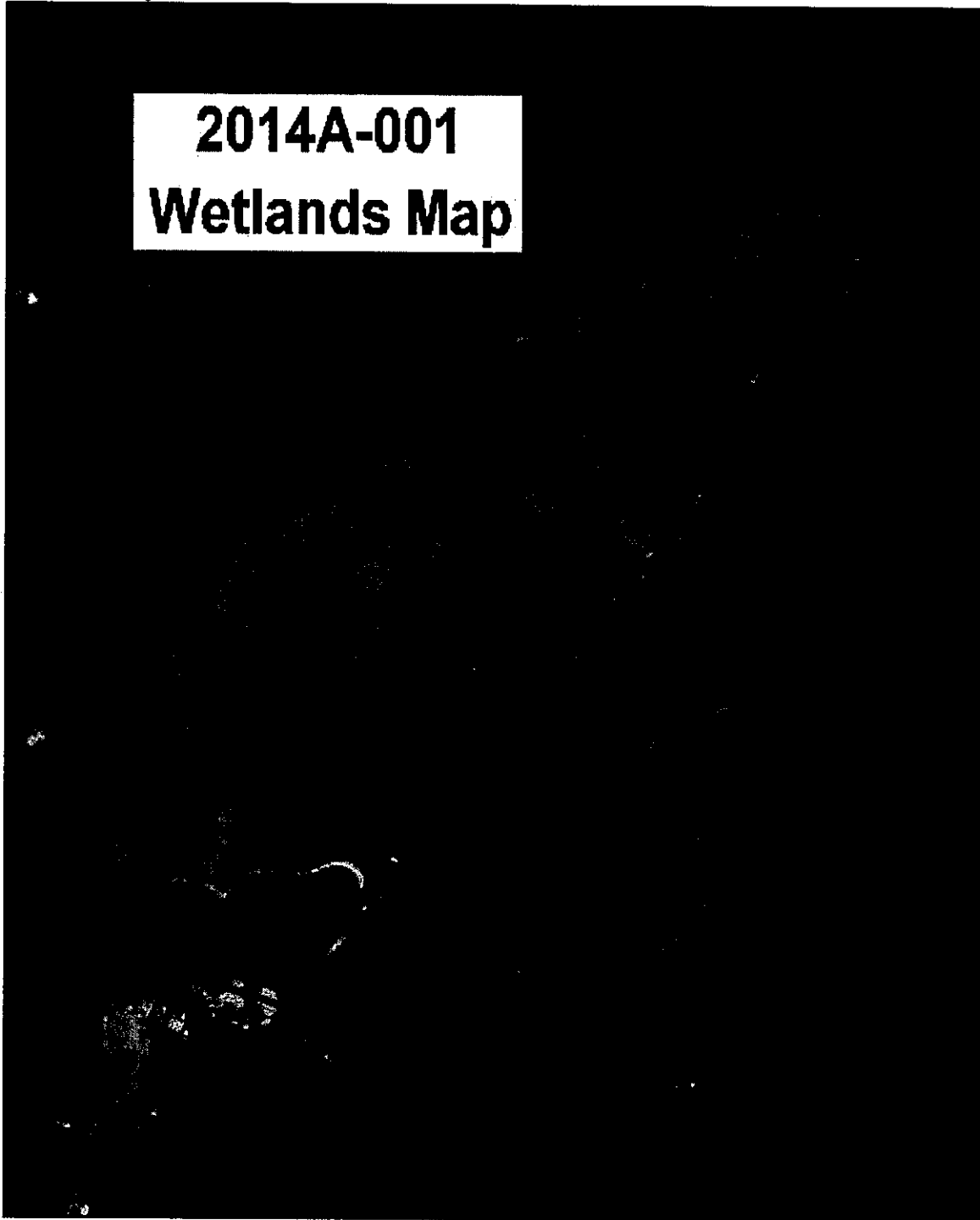


Stormie Knight
Sr. Management Analyst I
Office of Policy and Budget

cc: Florida Department of Economic Opportunity
(SLPA #: Duval/Jacksonville County 14-7 ESR)

ATTACHMENT G

Wetlands Map:



ATTACHMENT H

Wildlife Assessment:

**Listed Wildlife and Habitat Assessment
Wright, Arnold Road Property
Jacksonville, Duval County, Florida**

Prepared for:

**BHK Capital, LLC
1548 The Greens Way, Ste 6
Jacksonville Beach, FL 32250**

Prepared by:

**LG² Environmental Solutions, Inc.
14785 Old St Augustine Rd., Suite 4
Jacksonville, Florida 32258**

March 21, 2014

ATTACHMENT H (cont.)

Wildlife Assessment:

LG² Environmental Solutions, Inc.

1.0 INTRODUCTION

LG² Environmental Solutions, Inc. (LG²ES) has conducted a listed species and habitat assessment of the Pecan Park Road property. The purpose of this assessment was to assess the onsite habitats and determine the potential presence and extent of wildlife species listed as endangered, threatened or Species of Special concern by the Florida Fish and Wildlife Conservation Commission (FFWCC) and U.S. Fish and Wildlife Service (USFWS) within the project site. This report documents natural resources on-site including soil types, vegetation communities, and common and potentially occurring sensitive wildlife species. Sensitive wildlife species include fauna listed as endangered, threatened, or species of special concern (SSC) by federal and/or state regulatory agencies.

The project site (Pecan Park Road) is approximately 350 acres and is located northwest where Pecan Park Road turns into Arnold Road. Geographically, the site is located within the US Geological Survey (USGS) 7.5-minute *Italia* Quadrangle; Sections 39 & 42, Township 1 North, Range 26 East (Figure 1). The site is located northwest of Pecan Park Rd. The property is bordered to the north by undeveloped land, to the south by residential development and undeveloped land, to the east by undeveloped land, and to the west by undeveloped land (Figure 2).

2.0 METHODOLOGY

Prior to the site assessment, aerial orthophoto satellite images, U. S. Geological Survey (USGS) topographic maps, and U.S. Department of Agriculture (USDA) soil survey maps, were reviewed to determine potential natural resources on-site. The *Soil Survey of City of Jacksonville, Duval County, Florida* was consulted in an effort to evaluate suitable habitat for sensitive species depending on substrate requirements (USDA 1998). Databases from FFWCC (2013), the Florida Natural Areas Inventory (FNAI 2012), the bald eagle (*Haliaeetus leucocephalus*) nest locator (FFWCC 2012), and the USFWS Threatened & Endangered Species System (TESS) (USFWS 2012) were accessed to determine potential for sensitive species suitable habitat.

During the site assessment, pedestrian transects were conducted within each vegetative community. Within each transect, data collected included, but was not limited to, plant species, wildlife species, weather conditions, time assessment commenced and terminated, and any anthropogenic activity. All vegetative communities were identified according to the *Florida Land Use, Cover and Forms Classification System (FLUCCS)*. Special attention was given to locate sensitive habitats known to support listed plant and wildlife species within the scope of this assessment area, with special attention on locating any onsite gopher tortoise burrows. These methods are consistent with recognized FFWCC survey guidelines for a general wildlife assessment.

3.0 NRCS & USDA SOIL SUREVEY

The *Soil Survey of City of Jacksonville, Duval County, FL* (USDA 1998) indicates seven soil types as occurring within the property (Figure 3).

Mascotte fine sand (38) – This series consists of nearly level, poorly drained soils. These soils formed in thick sandy and loamy marine sediments and are located in flatwoods. The soils are

LG²PN: 2014-007

1

Pecan Park Rd Property

ATTACHMENT H (cont.)

Wildlife Assessment:

LG² Environmental Solutions, Inc.

moderately slowly permeable and moderately permeable. Generally, the high water table is at a depth of 6 to 18 inches. Slopes are linear and range from 0 to 2 percent.

Pelham fine sand (51) – This series consists of nearly level, poorly drained soils. These soils formed in thick deposits of sandy and loamy marine sediments and are located on flats. The soils are moderately permeable and moderately slowly permeable. Generally, the high water table is at a depth of less than 12 inches on flats and at or above the surface in depressions. Slopes are linear and range from 0 to 2 percent.

Sapelo fine sand (63) – This series consists of nearly level, poorly drained soils. These soils formed in thick loamy and sandy sediments and are located in flatwoods. The soils are moderately slowly permeable. Generally, the high water table is at a depth of 6 to 18 inches. Slopes are linear and range from 0 to 2 percent.

Surrency loamy fine sand, depressional (66) – This series consists of nearly level, very poorly drained soils. These soils formed in thick sandy and loamy marine sediments. They occur on flood plains and in depressions. The soils are moderately permeable and moderately slowly permeable. In areas on flood plains, the high water table generally is at or near the surface and the areas are subject to frequent flooding for brief periods. In areas in depressions, the high water table generally is at or above the soil surface for very long periods. Slopes are concave and range from 0 to 2 percent.

Yonges fine sandy loam (78) – This series consists of nearly level, poorly drained soils. These soils formed in sandy and loamy sediments and are located on flats. The soils are moderately permeable and moderately slowly permeable. Generally, the high water table is at a depth of less than 12 inches. Slopes are convex and range from 0 to 2 percent. The Yonges soils are fine-loamy, mixed thermic Typic Endoaqualls.

Yulee clay, frequently flooded (79) – This series consists of nearly level, very poorly drained soils. These soils formed in thick clayey marine sediments. These soils are located on flood plains and in depressions. The soils are very slowly permeable. In areas in depressions, the high water table generally is at or above the surface for very long periods. In areas on flood plains, the high water table generally is at or near the surface and the areas are subject to frequent flooding for long periods. Slopes are concave and range from 0 to 2 percent.

Yulee clay, depressional (86) – This series consists of nearly level, very poorly drained soils. These soils formed in thick clayey marine sediments. These soils are located on flood plains and in depressions. The soils are very slowly permeable. In areas in depressions, the high water table generally is at or above the surface for very long periods. In areas on flood plains, the high water table generally is at or near the surface and the areas are subject to frequent flooding for long periods. Slopes are concave and range from 0 to 2 percent.

4.0 SITE VISIT SUMMARY

A site visit was conducted on March 07, 2014, to determine the natural resources on-site with emphasis on the presence of sensitive plant communities and listed wildlife species. No formal surveys per FFWCC guidelines for listed and sensitive species were conducted within the scope of this assessment.

ATTACHMENT H (cont.)

Wildlife Assessment:

LG² Environmental Solutions, Inc.

The weather conditions during the site inspections consisted of partly cloudy skies, a westerly breeze of 5-7 knots, and an average high of 60°F. These conditions, along with time of day and season, as well as the scope of inspection, may have influenced the wildlife species observed. During the site visit, wildlife assessment guidelines provided by FFWCC were used. The presence of specific wildlife species was determined visually, audibly, or by evidence of tracks, scat, nests, burrows, or dens. General wildlife species observed were recorded and detailed in Section 4.2.

4.1 Observed Vegetative Communities

During the site assessment, LG²ES conducted a series of pedestrian transects throughout the subject property to determine the presence and extent of any State of Florida or Federally listed wildlife species. The location of any natural resource issue of concern, and any occurrences worth noting, were located utilizing sub-meter rated global positioning system technology (GPS) for later use in generating report graphics and recommendations. Below is a brief description of the habitat communities observed (Figure 4):

Pine Flatwoods (FLUCCS 411) – This vegetative community is composed of a canopy dominated by slash pine (*Pinus ellottii*). The subcanopy consists of wax myrtle (*Myrica cerifera*), loblolly bay (*Gordonia lasianthus*), bitter gallberry (*Ilex glabra*) and saw palmetto (*Serenoa repens*). The ground cover consists of braken fern (*Pteridium aquilinum*) and reindeer lichen (*Cladonia rangiferina*).



Pine-Mesic Oak (FLUCCS 414) – This vegetative community is composed of a canopy of slash pine in association with scattered red maple (*Acer rubrum*), sweet gum (*Liquidambar styraciflua*) and water oak (*Quercus nigra*). The subcanopy consists of bitter gallberry and saw palmetto.



ATTACHMENT H (cont.)

Wildlife Assessment:

LG² Environmental Solutions, Inc.

Coniferous Plantations (FLUCCS 441) - This vegetative community is almost exclusively pine forests artificially generated by planting seedling stock or seeds. Dominant canopy vegetation is primarily a monoculture of slash pine. The subcanopy consists of wax myrtle, loblolly bay, bitter gallberry and saw palmetto. The ground cover consists of bracken fern.



Stream & Lake Swamps (FLUCCS 615) - This community, often referred to as bottomland or stream hardwoods, is composed of a wide variety of predominantly hardwood species including red maple, bald cypress (*Taxodium distichum*), black gum (*Nyssa sylvatica var. biflora*), water oak, sweetgum, and sweet bay (*Magnolia virginiana*). The subcanopy consisted of fetterbush (*Lyonia lucida*) and scattered saw palmetto.



Mixed Wetland Hardwoods (FLUCCS 617) - This community is characterized by a mixture of hardwood tree species with an open to dense understory. Dominant vegetation includes slash pine, scattered bald cypress, sweet bay, loblolly bay, red maple, fetterbush, Virginia chain fern (*Woodwardia virginica*), and cinnamon fern (*Osmunda cinnamomea*).



ATTACHMENT H (cont.)

Wildlife Assessment:

LG² Environmental Solutions, Inc.

4.2 Observed Wildlife Species

Observations for all wildlife were made visually, audibly, or by evidence of tracks, scat, nests, burrows, or dens. Observed wildlife and potentially occurring listed species are detailed in the following sub-sections. No evidence of any State and/or Federally listed wildlife species utilization of on-site natural resources was identified within the duration of the site assessment. During the course of the assessment, the following wildlife species were observed on site:

Species	Listing Status*
Invertebrate	
Garden spider (<i>Argiope aurantia</i>)	
Golden orb-weaver (<i>Nephila clavipes</i>)	
Spinybacked orbweaver (<i>Gasteracantha cancriformis</i>)	
Reptile	
Cuban brown anole (<i>Anolis sagrei sagrei</i>)	
Green anole (<i>Anolis carolinensis</i>)	
Florida box turtle (<i>Terrapene Carolina bauri</i>)	
Amphibian	
Oak toad (<i>Bufo quercicus</i>)	
Southern leopard frog (<i>Rana utricularia</i>)	
Southern toad (<i>Bufo terrestris</i>)	
Avian	
Black vulture (<i>Coragyps atratus</i>)	
Blue-gray gnatcatcher (<i>Poliopitila caerulea</i>)	
Blue-jay (<i>Cyanocitta cristata</i>)	
Brown thrasher (<i>Toxostoma rufum</i>)	
Carolina wren (<i>Thryothorus ludovicianus</i>)	
Common nighthawk (<i>Chordeiles minor</i>)	
Mourning dove (<i>Zenaidura macroura</i>)	
Northern cardinal (<i>Cardinalis cardinalis</i>)	
Northern mockingbird (<i>Mimus polyglottos</i>)	
Red-bellied woodpecker (<i>Melanerpes carolinus</i>)	
Red-shouldered hawk (<i>Buteo lineatus</i>)	
Pine warbler (<i>Dendroica pinus</i>)	
Sharp-shinned hawk (<i>Accipiter striatus</i>)	
Turkey vulture (<i>Cathartes aura</i>)	
Mammal	
Eastern gray squirrel (<i>Sciurus carolinensis</i>)	
Feral pig (<i>Sus scrofa</i>)	
Nine-banded armadillo (<i>Dasyopus novemcinctus</i>)	
Raccoon (<i>Procyon lotor</i>)	
White-tailed deer (<i>Odocoileus virginianus</i>)	

ATTACHMENT H (cont.)

Wildlife Assessment:

LG² Environmental Solutions, Inc.

***Key**

SSC – State of Florida Species of Special Concern

ST – State of Florida Threatened

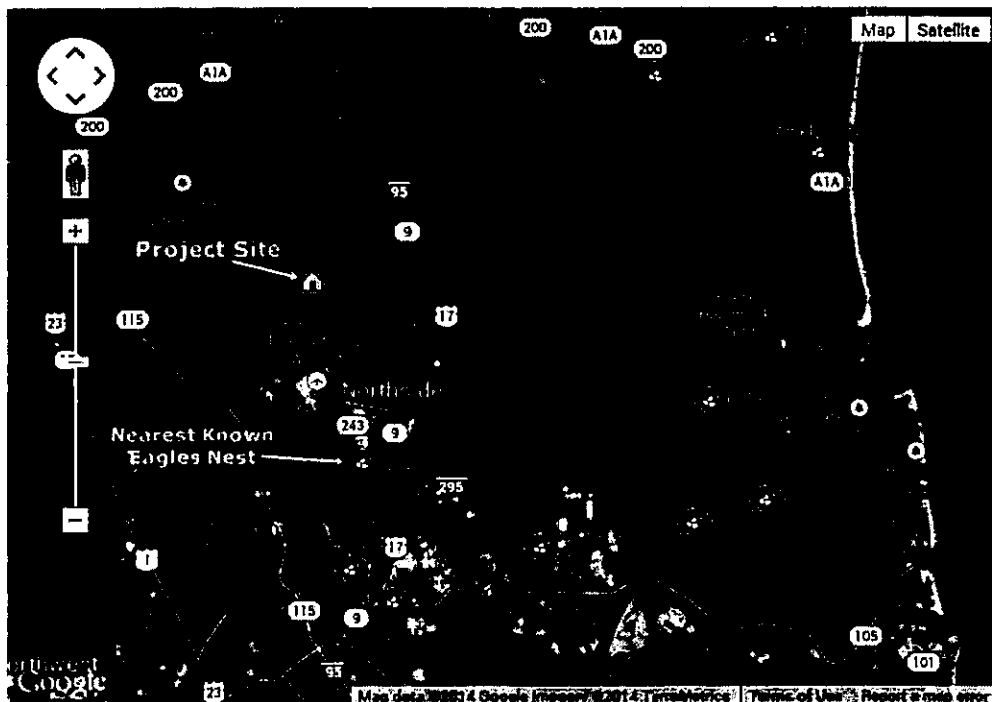
FT – Federal Threatened

FE – Federal Endangered

4.2.1 Sensitive Species and Supporting Habitats

Sensitive species are those species deemed Endangered (FE), Threatened (ST & FT), or Species of Special Concern (SSC) by the FFWCC or USFWS. During the wildlife survey, no species listed as endangered, threatened or Species of Special Concern were observed onsite. Included in this survey was a review for the gopher tortoise, listed as a threatened species by FFWCC. Although the property contains large areas of upland pine plantations and pine flatwoods, which have been known to support gopher tortoise burrows, the general topography, soils characteristics and onsite vegetation are not suitable for gopher tortoise burrow formation. Onsite seasonal high water levels within the upland soils range between 6 and 18 inches. No onsite gopher tortoise habitat was observed during the assessment.

Attention was also given during the scope of this assessment to investigate onsite habitats for nesting trees of the bald eagle. During site visits no eagles were witnessed utilizing the property and no nest trees were observed. An FFWCC database search for surrounding eagle nests showed the nearest eagle nest to be more than 5 miles south of the subject property (see below).



LG²PN: 2014-007

6

Pecan Park Rd Property

ATTACHMENT H (cont.)

Wildlife Assessment:

LG² Environmental Solutions, Inc.

5.0 CONCLUSION & RECOMMENDATIONS

A large portion of the property, and surrounding properties, have been managed for silviculture activities. The remaining forested communities have been influenced by these silviculture activities in the form of trail roads and drainage ditches. Due to these influencing factors, large portions of the property are anticipated to support only common wildlife species.

The majority of wetlands on-site could be classified as contiguous (minus trail road crossings) and have the ability to be utilized as wildlife corridors. Although suitable habitat for wading bird foraging exists in portions of the on-site wetland areas, no wading bird rookeries or nests were observed. Characterized by large tracts of natural and undisturbed land, wildlife corridors may function as shelter, foraging habitat, nesting and breeding habitat, and cover during migration for many wildlife species. The flora within the upland areas have a limited potential to provide food, protection and nesting materials for wildlife other than common species due to the continuing silvicultural activity.

On March 07, 2014, LG²ES conducted a series of pedestrian transects over the subject property to determine the presence and extent of State of Florida and/or Federally listed wildlife species. No State and/or Federally listed species were observed onsite. Due to the nature of the proposed development and the current surrounding land use, impacts to sensitive flora and fauna are not anticipated. If a listed species nest or burrow are found on-site prior to construction, mitigation measures may be recommended by FWC or USFWS.

ATTACHMENT H (cont.)

Wildlife Assessment:

LG² Environmental Solutions, Inc.

6.0 REFERENCES

FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) 1999. Florida Land Use Cover Classification System (FLUCCS) Third Edition: January 1999

FLORIDA FISH & WILDLIFE CONSERVATION COMMISSION (FFWCC) 2012. Wildlife Technology Services in the Division of Habitat and Species Conservation, Eagles Nest Locator by County, modified: December 12; online at <http://myfwc.com/eagle/eaglenests/Default.asp>

FLORIDA FISH & WILDLIFE CONSERVATION COMMISSION (FFWCC) 2013. Florida's Endangered Species, Threatened Species, or Species of Special Concern, updated January 2013 online at http://myfwc.com/media/1515251/threatened_endangered_species.pdf

FLORIDA NATURAL AREAS INVENTORY (FNAI) & FLORIDA DEPARTMENT OF NATURAL RESOURCES (FDNR) 2012. Field Guide to the Rare Animals of Florida. Online flora & fauna search at http://www.fnai.org/FieldGuide/search_001.cfm

DUVAL COUNTY, FLORIDA 2007. March, 2007 GIS Data Library DVD, ESRI Shapefiles and Compatible Formats

UNITED STATES DEPARTMENT OF AGRICULTURE (USDA) 1998. Soil Survey of City of Jacksonville, Duval County, Florida; National Resources Conservation Service.

UNITED STATES FISH & WILDLIFE SERVICE (USFWS) 2012. Threatened & Endangered Species System (TESS); listings by state and territory as of October; online at http://ecos.fws.gov/tess_public/StartTESS.do

