

**Nassau County 2030 Comprehensive Plan
Future Land Use Element**

Background Data and Analysis

TABLE OF CONTENTS

I. Introduction.....	3
II. Recommendations Incorporated from the 2008 EAR & Vision 2032 Final Report.....	4
III. Inventory and Description of Existing Land Uses.....	7
Conservation.....	7
Recreation.....	7
Agriculture.....	7
Residential.....	8
Commercial.....	8
Industrial.....	8
Public Buildings and Facilities.....	8
Historic Resources.....	9
IV. Factors That Affect Development.....	10
Natural Features.....	10
Population Growth.....	12
Availability of Public Facilities.....	13
Economy and Labor Force.....	17
Land Use in Adjacent Jurisdictions.....	18
V. Land Use Need Analysis.....	21
Background.....	21
Development and Preservation Framework.....	22
Need Assessment Approach.....	26
Land Use Allocation (Multiplier).....	27
Jobs-to-Housing Balance.....	29
Conclusions.....	35
VI. Impact Analysis of Amendments to the 2030 Future Land Use Map.....	37
Description of Amendments.....	37
Assumptions and Methodology.....	37
Transportation.....	42
Potable Water and Sanitary Sewer Systems.....	44
Public School Facilities.....	46
Recreation and Open Space.....	47
Solid Waste Disposal.....	48

LIST OF TABLES

Table FL-1	Estimated Existing Land Use by Area, Nassau County, 2009
Table FL-2	Permanent Population Estimates & Projections, 2007-2030
Table FL-3	Seasonal Population Estimates & Projections, 2007-2030
Table FL-4	Estimated and Projected Number of Households, 2010-2030
Table FL-5	Non-Farm Employment by Industry, 2007
Table FL-6	Nassau County Residence-Workplace Flow, Out-Commuters 2007
Table FL-7	Relationship Matrix btw Vision 2032 and Development and Preservation Framework
Table FL-8	2030 Residential FLUM Categories (Acres)
Table FL-9	Residential Capacity of Vacant Land
Table FL-10	Existing and Projected Population / Dwelling Units in the Unincorporated Area
Table FL-11	2030 Residential Demand
Table FL-12	2030 Residential Supply
Table FL-13	2030 Allocation Ratio
Table FL-14	2010 Estimated Nassau County Jobs-to-Housing Ratio
Table FL-15	Existing and Entitled Non-Residential Development Capacity
Table FL-16	Projected 2030 Countywide Households
Table FL-17	Projected 2030 Countywide Housing Units
Table FL-18	Projected 2030 Countywide Employed Residents
Table FL-19	Typical Square Feet per Employee by Land Use
Table FL-20	Projected 2030 Countywide Jobs-to-Housing Balance Ratio (by Appropriate Range)
Table FL-21	2030 Countywide Jobs-to-Housing Balance Ratio Goal
Table FL-22	Projected 2030 Development Supply and Capacity, UDA and Adjacent EDOAs
Table FL-23	Projected 2030 Jobs-to-Housing Balance Ratio, UDA and Adjacent EDOAs
Table FL-24	Projected 2030 Jobs-to-Housing Balance, ENCPA
Table FL-25	ENCPA Maximum Development Program
Table FL-26	Development Potential of Proposed Amendments (Series 10-2ER)
Table FL-27	ENCPA Phased Development Program
Table FL-28	Long Term Transportation Needs: Improvements to Existing Roadway Segments
Table FL-29	Long Term Transportation Needs: New Roadway Segments w/in Urban Development Area
Table FL-30	Long Term Transportation Needs: Long Range Transit Improvements
Table FL-31	ENCPA Potable Water Demand, 2015
Table FL-32	ENCPA Cumulative Potable Water Demand, 2030
Table FL-33	2030 Demand Analysis With ENCPA, JEA Nassau Grid
Table FL-34	ENCPA Sanitary Sewer Demand, 2015
Table FL-35	ENCPA Cumulative Sanitary Sewer Demand, 2030
Table FL-36	2030 Demand Analysis with ENCPA, JEA Yulee WRF
Table FL-37	ENCPA Park Demand, 2015
Table FL-38	ENCPA Cumulative Park Demand, 2030
Table FL-39	ENCPA Student Generation , 2015
Table FL-40	ENCPA Cumulative Student Generation, 2030
Table FL-41	ENCPA Solid Waste Generation, 2015
Table FL-42	ENCPA Solid Waste Generation, 2030

LIST OF MAPS

Map FL-1	Current County and Municipal Boundaries
Map FL-2	Existing Land Use Map (ELUM)
Map FL-3	USGS Topological Map, Nassau County
Map FL-4	Wetlands
Map FL-5	100- Year Floodplain
Map FL-6	Development and Preservation Framework
Map FL-7	Amendments to 2030 Future Land Use Map (FLUM)

I. Introduction

The Future Land Use Element and its accompanying Future Land Use Map (FLUM) series are key components of the Comprehensive Plan. They provide the County with direction for the use of land during the planning period based upon housing needs, the infrastructure required to support, these needs and the identified sources of funding that will finance infrastructure costs.

The FLUM is the focus of the Comprehensive Plan. It indicates the proposed location, densities, intensities, and distribution of land uses to the year 2030. All goals, objectives and policies contained within this plan must be consistent with the Future Land Use Map. All land development regulations in effect subsequent to the adoption of this plan must also be revised to be consistent with the Future Land Use Map and the goals and objectives of this Element.

Location and Description of the County

Nassau County is a coastal county located in the far northeastern corner of Florida. It is part of the Census-designated Jacksonville Metropolitan Statistical Area (MSA) which includes Baker, Clay, Duval, Nassau, and St. Johns counties. The County is bordered to the north by Camden County, Georgia, the south by Duval County (i.e. the City of Jacksonville); the west by Charlton County, Georgia and Baker County; and to the east by the Atlantic Ocean. There are three incorporated municipalities within the county. The City of Fernandina Beach, the official county seat, is the largest. It is located on the northern end of Amelia Island. The towns of Hilliard and Callahan are small municipalities located in the northwest and southwest areas of the county respectively.

At the time of adoption of the 2000 Evaluation and Appraisal Report, unincorporated Nassau County consisted of approximately 617 square miles, out of a total area of approximately 650 square miles. Since October 2000, the three municipalities annexed approximately 226 acres of land, decreasing the unincorporated area less than one square mile. The current County and municipal boundaries are depicted on Map FL-1.

A substantial amount of development has occurred in eastern Nassau County since 2000. While there are opportunities for infill development in the City of Fernandina Beach and the unincorporated areas of Amelia Island, the island's land development patterns are largely settled. The Yulee area, roughly defined as the eastern portion of the County between the Amelia River and I-95, is where the greatest amount of new development has taken place in the past decade. This trend is likely to continue due to the area's proximity to major transportation corridors and existing and planned regional water and wastewater infrastructure. Modest residential and non-residential development has occurred in the immediate areas surrounding the smaller municipalities in the western area of the county, and scattered residential development on large lots (i.e. one acre or larger) can be found throughout the rural areas of the County.

II. Recommendations Incorporated from the 2008 EAR & Vision 2032 Final Report

Public Participation

- Elected officials, advisory board members, stakeholders, and local residents from each of the four communities should consult the Vision 2032 Final Report when making community development decisions. Development decisions must consider financial feasibility, availability of infrastructure, and private property interests. *(Vision 2032, IGM Issue 1: Growth Management)*
- Support greater regional collaboration and participate in efforts undertaken by the Northeast Florida Regional Council to develop a regional vision in the northeast Florida region. *(EAR, Issue 1: Update the future land use plan)*
- Implement an educational campaign geared to help citizens better understand the County's planning process. Educational methods might include pamphlets, project-specific community workshops and internet-based activities. *(EAR, Issue 1: Update the future land use plan)*

Efficient Development Patterns

- Using land development regulations, encourage an effective mix of business and family entertainment uses in close proximity to residential areas, with buffers and other features, sufficient to ensure no impact to the peace and enjoyment of residents in their homes. *(Vision 2032, QOL Issue 5: Culture and the Arts)*
- Accommodate new development in a more compact growth pattern with more land use diversity, where there is improved interrelationship of living, working, shopping, education and recreational activities, where there are expanded travel choices, and where the vitality and revitalization of older neighborhoods and commercial areas can be sustained. *(EAR, Issue 1: Update the future land use plan)*
- Define bonuses and other incentives for adoption into the Land Development to direct commercial and multi-family residential development into "cluster" development patterns, eliminating or reducing strip or ribbon development which follows major County or state roads. *(EAR, Issue 1: Update the future land use plan)*
- Higher density areas should be defined in proximity to existing towns and rural villages, based on the suitability of the land for development and the availability of essential public services and support services. *(EAR, Issue 5: Preserve rural lifestyle choices)*

Master Planned and Mixed Use Development

- Provide density and intensity bonuses for new, mixed-use developments where facilities and services are available. Bonuses should be tied to the inclusion of workforce housing, the provision of connecting or alternative transportation corridors, and the clustering of development to reduce the impact of development and preservation of natural areas; or through the acquisition of off-site development rights through transfer of development rights from designated sending areas. *(Vision 2032, IGM Issue 1: Growth Management)*
- Review the land development regulations and zoning maps to identify revisions required to provide opportunities for high-value, non-residential developments, and mixed-use developments with employment centers for targeted industries. *(Vision 2032, IGM Issue 3: Economic Development and Tourism)*

- Through the Local Planning Agency, establish design guidelines, dimensional criteria, and incentives to promote compact mixed-use development patterns. Characteristics of mixed-use zoning include multiple uses dispersed vertically, shared parking located behind buildings, public amenities such as schools and parks as community focal points, and extensive pedestrian connectivity. *(Vision 2032, IGM Issue 4: Mixed Use Development)*
- Determine and implement incentives to development that will help balance the tax base, such as the high technology and high value mixed-use developments or industry, office, research, and education facilities that provide new employment opportunities and support the existing major employment sectors. *(Vision 2032, IGM Issue 4: Mixed Use Development)*
- Define bonuses and other incentives for adoption into the Land Development Code to promote construction of master planned and mixed use development. *(EAR, Issue 1: Update the future land use plan)*
- Establish minimum percentages of “mixed-uses” for projects within Multi-Use land use categories and/or above certain thresholds that also support the development of self-sustaining communities. *(EAR, Issue 9: Create a financially sustainable community)*

Changes to FLUM Series

- Review existing FLUM land use categories to and amend them as necessary to ensure that they promote efficient development patterns. *(EAR, Issue 1: Update the future land use plan)*
- Provide effective and measurable density and intensity standards. *(EAR, Issue 1: Update the future land use plan)*
- Establish specific criteria for changes in land use. *(EAR, Issue 1: Update the future land use plan)*
- Remove wetlands (Conservation I & II) as a separate land use category on the FLUM. A separate map generally identifying wetlands as a limited development overlay should be included in the Plan, utilizing the most recent data from SJRWMD. Lands determined by the Board of County Commissioners with the advice of the St. Johns River Water Management District that not to be jurisdictional wetlands should be allowed to be developed at the underlying densities and intensities shown on the FLUM. *(EAR, Issue 1: Update the future land use plan)*

Special Areas

- Adopt Plan Objectives and Policies and/or provisions in the Land Development Code that protect areas with special economic, environmental, recreational or cultural value from intrusion of incompatible commercial, industrial or residential land uses. *(EAR, Issue 1: Update the future land use plan)*
- Define the role of the County in protecting the integrity of agricultural land, and define what actions, if any, will be taken to protect agriculture. *(EAR, Issue 1: Update the future land use plan)*
- Consider identifying wildlife corridors as part of the FLUM series. Wildlife corridors create habitat linkages between existing preserves and environmentally sensitive areas. Preservation techniques within mapped corridors include full fee and less than fee

acquisition, clustering of permitted development, density transfers and wildlife crossings at roadways. *(EAR, Issue 1: Update the future land use plan)*

Job-Creating Land Uses

- By 2010, review the land development regulations and zoning maps to identify revisions required to provide opportunities for high-value, non-residential developments, and mixed-use developments with employment centers for targeted industries. *(Vision 2032, IGM Issue 3: Economic Development and Tourism)*
- Create a public-private partnership to prepare shovel ready industrial and business/office park sites having a minimum of 200 acres, backbone infrastructure including central water, wastewater and stormwater, road and rail transportation, and telecommunications. *(Vision 2032, IGM Issue 3: Economic Development and Tourism)*
- Provide adequate land designated for industrial, business/office park and employment centers. To address this issue, a number of elements must be addressed to guide policy such as location, size, type, distribution and compatibility requirements of existing and new employment centers. *(EAR, Issue 4: Protect and expand land designated for job generating land uses)*
- Maintain the inventory of existing and planned industrial and business park areas. Develop performance criteria for the conversion of the County's inventory of industrial land to other land use categories. *(EAR, Issue 4: Protect and expand land designated for job generating land uses)*
- Develop strategies to remove and/or address the existing obstacles in developing "shovel-ready" industrial sites to support economic development efforts. Economic development activities move quickly, and this requires the County and its partners to be in a position to meet these challenges in a timely manner. *(EAR, Issue 4: Protect and expand land designated for job generating land uses)*
- Coordinate with developers on establishing land uses for medical clinics, doctor's offices, and other medical facilities within existing and new communities and large-scale development projects. *(Vision 2032, QOL Issue 3: Health and Well-Being)*

Rural Development

- Support efforts of health care providers to expand hospital capacity in Nassau County, particularly west of I-95 and provide community satellite medical treatment and care facilities. *(Vision 2032, QOL Issue 3: Health and Well-Being)*
- Require residential development in rural areas to meet mandatory clustering and open space provisions for subdivisions in the Agriculture land use categories. Bonus provisions should encourage additional permanent open space and density allowances. *(EAR, Issue 5: Preserve rural lifestyle choices)*
- Develop a system which measures the appropriateness of the conversion of Agriculture designated areas to other land uses. The County should evaluate the benefits of developing a performance standard point system that would assist decision makers assess conversion of Agriculture areas into other land uses. Such a system would allow equal treatment across the county, be transparent and predictable, while allowing land use conversions in those areas where sufficient points can be accumulated to justify the land use change. *(EAR, Issue 5: Preserve rural lifestyle choices)*

III. Inventory and Description of Existing Land Uses

This section describes the location and distribution of current land uses in Nassau County. They are summarized in Table FL-1 and depicted on the Existing Land Use Map included as Map FL-2. The following land use inventory was prepared from a parcel-based identification system of the Nassau County Property Appraiser information in coordination with County GIS applications.

Table FL-1 Estimated Existing Land Use by Area, Nassau County, 2009

Land use	acres	sq. mi.	%
Agriculture/Forestry	227,293.34	355.15	52.89%
Jurisdictional Wetlands*	106,243.78	166.01	24.72%
Residential	33,102.97	51.72	7.70%
Public Conservation Lands	15,907.00	24.85	3.70%
Commercial	1,258.79	1.97	0.29%
Public Buildings & Facilities	1,141.56	1.78	0.27%
Recreation	977.63	1.53	0.23%
Industrial	436.93	0.68	0.10%
Vacant	22,401.86	35.00	5.21%
Incorporated Areas**	11,675.67	18.24	3%
Water	9,347.26	14.61	2%
Total	429,786.80	671.54	100%

Sources: Nassau County Property Appraiser, Nassau County GIS Dept.

**based on SJRWMD estimates, 2004*

*** includes City of Fernandina Beach, Town of Hilliard & Town of Callahan*

Conservation

The 2010 Plan included all jurisdictional wetlands as Conservation land use (i.e. Conservation I and II); it designated public (mostly state-owned) lands as Conservation IV. "Conservation III" was actually an overlay district (not a FLUM designation) that included all areas within the FEMA-defined 100-year floodplain, although the overlay did not require any additional restrictions on development other than those included in the County's adopted Floodplain Ordinance. The combined 2010 Conservation I, II and IV categories contained approximately 122,150 acres.

Recreation

This category includes open space and active recreation areas. Uses included in this category include active recreation facilities such as ball fields, basketball courts and tennis courts; water-based recreational uses such as boat launching ramps public marinas. It also includes those sites used for passive recreation such as picnic areas and nature trails. At present, the County's park system includes 20 parks with a total area of approximately 165 acres. However, state parks, and other open space accounts for the majority of this existing land use category. Existing recreation uses cover approximately 977 acres.

Agriculture

Lands classified as Agriculture includes ranching, dairy farming, cropland, and other agricultural activities. Although a variety of agricultural activities are dispersed throughout the County, silviculture (i.e. forestry) is by far the most prevalent practice in the County. Land dedicated to

timber production comprises the vast majority (80+ percent) of Agriculture lands. In total, Agriculture uses cover approximately 227,293 acres, encompassing nearly 53 percent of the County.

Residential

Residential land use includes all land associated with structures utilized for permanent residential occupancy. Dwelling unit types included in this category are single family units, mobile homes, and multi-family structures. Residential land use areas are separated in the Existing Land Use Map into three categories defined by their densities as follows:

Low Density- Up to 2 dwelling units per acre

Medium Density- 2 to 3 dwelling units per acre

High Density over- 3 dwelling units per acre

Existing low, medium and high density residential uses cover a total of approximately 33,102 acres.

Commercial

This category includes all retail and wholesale sales and service facilities and their ancillary facilities such as parking, driveways and landscaped areas. Approximately 1,259 acres were reported in this category. Uses in this category include: shopping centers, commercial strip development, wholesale warehouse and open storage yards, professional buildings, theaters, over-night tourist and travel lodging, gas and oil storage, and cemeteries. The intensity of land use permitted under the Commercial category varies according to zoning regulations in the Land Development Code.

Most commercial land use serves the resident population on a retail level and is located in or near the municipalities and in the east-central Yulee area around arterial roads like SR 200/A1A and US 17. A small of commercial activity occurs around the smaller rural communities that are often located at principal intersections of collector or arterial roads.

Industrial

Industrial land uses include light and heavy manufacturing plants, warehousing, food, mineral, or timber processing facilities, surface or subsurface mining and their ancillary facilities such as parking, driveways and landscaped areas. Like commercial land use, the intensity of industrial land use varies by type of industrial activity and is controlled by the County's Land Development Code. There are approximately 437 acres of existing industrial uses located in Nassau County.

Public Buildings and Facilities

These land uses are primarily governmental, educational, religious, health and military facilities. Included under this category are major utility and transportation facilities such as power generating stations and transmission lines, water supply plants and towers, sewage treatment plants and pumping stations, and solid waste landfills, transfer stations and incinerators; Airports, terminals, and auto parking facilities (this does not include roads); and medical/health related facilities such as hospitals, clinics and nursing homes. There are approximately 1,141 acres of public buildings and facilities located in unincorporated Nassau County.

Historical Resources

This description of properties includes historic structures or archaeological sites which have been recorded in the Florida Master Site File (FMSF) maintained by the Florida Dept. of State. It should be noted that recording a site in the FMSF does not warrant special protective status. The County has a wealth of historic sites; however, a large portion of the historic structures are located within two historic districts in the City of Fernandina Beach. A listing of recorded structures of historical significance recorded in the Florida Master Site File (FMSF) in the unincorporated area is included in Table CS- 2 in the Conservation Element.

In addition to historical structures, the unincorporated area of Nassau County has numerous recorded archaeological sites. The locations of these sites are available by contacting the County Planning Department but are omitted from this Plan to preclude unauthorized scavenging for artifacts.

IV. Factors That Affect Development

This section describes existing conditions and potential development trends based upon factors that affect development including, natural features, population growth, the availability of urban services (potable water, sanitary sewer, solid waste, and roadways), economic conditions, and land use in adjacent jurisdictions

Natural Features

Topography

Nassau County is located within the Coastal Lowlands landform region. This region covers the entire Florida coastline and may reach inland as much as 60 miles. The western portion of Nassau County is astride the central Florida highland ridge line running in a north-south direction. Topographic elevations in Nassau County typically ranges from slightly above sea level feet around at the edge of the Coastal Lowlands and rising to approximately 25 feet in the western portion of the County . There are some older dunes on Amelia Island that rise as high as 60 feet above sea level. The lack of topographic relief combined with an abundance of poorly drained soils in many areas (see below) is an important factor in dealing with the planning and engineering of stormwater management facilities in the County. The USGS topological map of the County is included as Map FL-3.

Soils

Soils in Nassau County are depicted on the Composite Soils Map, shown in the Conservation Element, Map CS-2. This map depicts soil categories throughout the County. The Soils Map denotes land units that have a distinct pattern of soils, relief and drainage.

Knowledge of soil conditions is necessary in planning for the use and management of soils for crops and pasture, woodland, woodland grazing, and as wildlife habitat. Also, knowledge of soil conditions and the ability of soil to absorb moisture are extremely important when planning for the use of septic tanks for sanitary wastewater disposal. Soil suitability is a significant potential development indicator. A significant percentage of households currently use septic systems. Many continue to do so in the near future if central water and sewer systems remain unavailable. The placement of systems in soils that are suited for absorption is critical.

Soil suitability depends on its properties that influence the minimum rate of infiltration obtained for a bare soil after prolonged wetting. These properties are: depth to seasonably high water table, intake rate and permeability after prolonged wetting, and depth to a layer or layers that slow or impede water movement. A hydric soil is a soil that in its natural (undrained) condition is saturated, flooded, or ponded long enough during the growing season (March – October in north Florida) to develop anaerobic conditions that favor the growth and regeneration of hydrophytic (wetland) vegetation. Hydric soils have severe limitations for septic tank operation.

Wetlands

Wetlands are considered to be an important natural resource that should be conserved because of the significant natural functions which wetland systems provide. These include their ability to enhance water quality through filtration; their ability to store stormwater runoff; and their function as wildlife habitat for diverse species. Hydric soils (see above) are closely associated with wetlands and present severe limitations to the function of septic tanks.

Map FL-4 displays the general location of wetlands based on information collected by the St. Johns River Water Management District (SJRWMD). Nassau County has an abundance of wetland areas scattered throughout its borders. According to SJRWMD Landuse/Landcover data

from 2004, wetlands cover approximately 106,243 acres of in the County. This represents roughly 25 percent of the total County land area. Many of these wetlands are associated with the estuarine systems of the Nassau and St. Marys River. The Conservation Element provides additional data regarding the function and types of wetlands in the County.

Floodplains

As expected in a County with a large percentage of its land in wetlands or other water bodies, extensive flood plains exist. Floodplains and flood hazard zones are generally more extensive than areas categorized as wetlands. Flooding is a natural occurrence, and only becomes a hazard when the natural floodplains have been altered through urbanization and development. As urbanization increases in the low-lying areas, property damage and loss of life increase due to flooding. Flooding is a problem in several areas of Nassau County where development has occurred within floodplains. As part of the County-wide Stormwater Drainage Master Plan, the County is identifying all areas which experience repetitive flooding and erosion and developing a plan to reduce or eliminate these problems. The description of the master plan and flooding areas is described in detail in the Stormwater Drainage sub-element of the Public Facilities Element.

A map of flood prone areas taken from USGS and FEMA studies is shown on Map FL-5. Significant problems arise when natural drainage patterns are altered disrupting the natural system and stressing the land's ability to function as a drainage storage, recharge, and conveyance facility. Impervious surface associated with development decreases the land area available for infiltration and increases runoff rates. Construction of structural water control facilities can change fragile natural drainage patterns and may cause severe flooding and water quality problems reaching far downstream.

Nassau County participates in the National Flood Insurance Program (NFIP) administered by the Federal Emergency Management Agency. The purpose of the program is to protect lives and property through the implementation of floodplain management measures, which requires development to be constructed above the 100-year base flood elevation. This is the elevation the water will rise to if a storm occurs that has one chance in one hundred of occurring in any given year.

Any development in floodplains is subject to the restrictions in the County's adopted Land Development Code.

Natural Groundwater Recharge

The majority of water used in the County is from the Floridan aquifer. Nearly all of the water recharging the Floridan aquifer in the St. John's River Water Management District (SJRWMD) is derived from rainfall. Rainfall percolating downward from land surface to the Floridan aquifer must move through the unsaturated soil zone, the surficial aquifer, and the semi-confining layers to recharge the Floridan aquifer. The amount of water stored in the aquifer systems is determined by a balance between recharge, evapotranspiration, runoff, leakage to or from adjacent aquifers, natural discharge, and withdrawals from water wells.

In Nassau County, potentiometric highs occur on the northern part of Amelia Island and in the far western portions of the County. These areas are known recharge points for the Floridan Aquifer. Recharge occurs from rainfall, and from lakes and other aquifers that have elevations above the potentiometric surface of the Floridan Aquifer. Discharge occurs from lateral groundwater outflow and by pumpage.

Land uses in the recharge areas need to be controlled to insure that groundwater is not contaminated. The two largest uses of groundwater are for domestic self-supply and agriculture

followed by commercial and industrial uses. Uses located within the cone of influence that could affect the quality or quantity of water taken from a producing well must be restricted or monitored so as to retain the water quality of the aquifer. JEA defines the protection zone around its public wells as a 750-foot radial setback distance around a potable water wellhead and this should be Nassau's minimum default wellfield protection radius.

Areas of Critical State Concern

There are no areas of Critical State Concern, pursuant to 380.05 F.S., recorded in Nassau County.

Population Growth

Population growth is the driving force behind future facility needs and land requirements. As the county grows, it will need new housing units, new commercial services, new employment centers, and the resources to provide public services to accommodate the new population. In 2010, the county's total population is projected to be 73,100. It is predicted to increase by 42 percent to 104,000 people in 2030, a raw numerical increase of 30,900 people. This is an average of approximately 2.1percent per year, which is a more modest growth rate than the County has seen in previously, with annual rates often approaching 4 percent per year. Table FL-2 shows the permanent population estimates and projections for the County from 2007 through 2030 (*Note: this table is identical to Table DEM-1*).

Table FL-2 Permanent Population Estimates and Projections, 2007-2030

	2007	2008	2009	2010	2015	2020	2025	2030
Total Population	69,569	71,915	72,567	73,100	80,000	88,200	96,100	104,000
Callahan	1,171	1,105	1,163	1,197	1,388	1,682	1,970	2,258
Fernandina Beach	11,911	11,998	12,055	12,212	12,609	13,037	13,523	14,010
Hilliard	2,967	2,947	2,949	2,953	3,057	3,207	3,333	3,459
Unincorporated Area	53,520	55,842	56,130	56,738	62,946	70,274	77,314	84,273

Sources: Bureau of Economic and Business Research (BEBR), University of Florida.; Nassau County Growth Mgmt. Dept.

In order to estimate the seasonal population, the permanent population estimates and projections for 2007-2030 were subject to a multiplier of 1.095 in order to obtain the maximum population projection for permanent and seasonal residents. This multiplier is based on analysis of information from the University of Florida's Shimberg Center for Affordable Housing and the U.S. Census Bureau American Communities Survey (ACS) (2007) that found housing units for seasonal population will account for approximately 9.5 percent of the County total housing inventory. Also, based on this data it was assumed that the majority of seasonal residents (82 percent) would be residing in unincorporated areas of the County, with the remainder (18 percent) assigned to the City of Fernandina Beach. Seasonal population estimates are shown in Table FL-3 below (*Note: this table is identical to Table DEM-2*).

Table FL- 3 Seasonal Population Estimates & Projections, 2007-2030

	2007	2008	2009	2010	2015	2020	2025	2030
<i>Perm. Population</i>	69,569	71,915	72,567	73,100	80,000	88,200	96,100	104,000
Callahan	0	0	0	0	0	0	0	0
Fernandina Beach	1,132	1,140	1,145	1,160	1,198	1,239	1,285	1,331
Hilliard	0	0	0	0	0	0	0	0
Unincorporated Area	5,084	5,305	5,332	5,390	5,980	6,676	7,345	8,006
Total Perm. + Seasonal	75,785	78,360	79,045	79,650	87,178	96,115	104,730	113,337

Sources: Bureau of Economic and Business Research (BEBR) and Shimberg Center for Affordable Housing, University of Florida.; U.S. Census Bureau American Communities Survey (ACS) (2007); Nassau County Growth Mgmt. Dept.

The U.S. Census Bureau defines a household as all the people who occupy a housing unit. A household is a single family, one person living alone, two or more families living together, or any group of people who live together. The projected number of households provides an indicator of how many housing units will be needed as the county grows, as well as the future need for public services. Table FL-4 shows the projected number of permanent households by jurisdiction through 2030 (*Note: this table is identical to Table DEM- 4*).

Table FL-4 Estimated and Projected Number of Households, 2010-2030

	2010	2015	2020	2025	2030
Total Households	29,476	32,787	36,750	40,894	44,828
Callahan	483	569	701	838	973
Fernandina Beach	4,924	5,168	5,432	5,754	6,039
Hilliard	1,191	1,253	1,336	1,418	1,491
Unincorporated Area	22,878	25,798	29,281	32,900	36,325

Source: Shimberg Center for Affordable Housing, University of Florida, US Census Bureau

Availability of Public Facilities

It is important to ensure that public facilities and services necessary to support development are available concurrent with the impact of that development. The existing and future conditions of the seven (7) public services for which concurrency is required by Ch. 163, Florida Statutes are briefly summarized below.

1. Transportation

Roadway Level of Service (LOS) standards are established in the Transportation Element to ensure that adequate facility capacity for future development is concurrent with the impact of development orders and development permits. These standards are established for each roadway link consistent with the facility type, and current Florida Department of Transportation (FDOT) LOS guidelines. A complete listing of the LOS for all segments of the County's road network can be found in Table T-5 of the Transportation Element. A detailed analysis of the impacts of proposed amendments to the 2030 FLUM on the County's transportation facilities is shown in Part VI.

The dependency upon A1A/S.R. 200 as the primary east-west connector and also as the primary hurricane evacuation route has resulted in severe consequences to the County's transportation network, including the creation of constrained and backlogged facilities, reduction in levels of service (LOS), and increased commute times.

There is a major need for additional roadway facilities which are intended to alleviate existing network deficiencies, improve east-west connectivity, maintain acceptable hurricane evacuation times, and encourage local economic development to reduce the need to commute outside the County for work.

The Future Land Use Element should support the Transportation Element by encouraging the development of compact urban areas that considers various modes of transportation, encouraging the development of alternative transportation corridors, reducing vehicle miles traveled, promoting energy efficient development patterns, and protecting air quality.

2. Public Schools

The school age population in Nassau County is predicted to continue to grow steadily, though it will not grow at as high a rate as the population in general, and will represent a declining percentage of the population as a whole. The school population seems to be shifting to the west, particularly between Fernandina Beach and Yulee. The school enrollment in the Fernandina Beach area is declining, while the Yulee schools report the greatest increase in school population. Schools in the western area of the County (i.e. Callahan, Hilliard and Bryceville) show slight to moderate enrollment increases, with West Nassau High School showing a more substantial increase than the other schools.

The overall average utilization for each school type is under 100 percent. The school district is currently in year 1 of the most recent Educational Plant Survey period (2009-2014). As detailed in the Public School Facilities Element, the Nassau County School Board should be able to eliminate any deficits in student capacity and maintain the adopted levels of service during the next 5-year period. A detailed analysis of the impacts of proposed amendments to the 2030 FLUM on the County's public school facilities is shown in Part VI.

Through prudent use of capital outlay funds and appropriate student scheduling methods, the school district is currently in compliance with class size reduction requirements. The Nassau County School District does not desire to use nor have any demonstrated need to implement any of the following for the purpose of increasing school capacity: Busing, year-round schools, charter schools, magnet schools, public-private partnerships, multi-track schedules, block scheduling, or any other scheduling alternatives.

At the older schools, remodeling and additions have updated and expanded original facilities. Although aging facilities are well-maintained, replacement of old facilities may be required in addition to construction of any new facilities needed to add capacity.

3. Recreation and Open Space

As of June 2009, the County's park system includes 20 developed parks and recreational facilities encompassing approximately 165 acres. The vast majority (95 percent) of parks built and maintained by the County are either classified as community or regional parks. Because the County has limited resources and a large number of small facilities would be inefficient to manage, a LOS standard for publicly-managed neighborhood parks has not been adopted. Approximately 76 percent of the County's parks are water-dependent facilities such as boat ramps and beach accesses.

In Nassau County's Five-Year Capital Improvements Program (2010-2015) there are several projects planned that will improve the County's park system. These projects include improvements to active facilities at community parks, improvements to several boat ramp facilities, development of a new neighborhood park (as part of a development agreement) in the Nassau Lakes neighborhood, and a conceptual plan for development of a new regional park on the West side of the County.

Based on the adopted LOS, the needs analysis presented in the Recreation and Open Space Element indicates a present and continuing deficit of land needed for community and regional park lands (including water-dependent facilities) based on the projected permanent population in the unincorporated area. Acquisition of land and subsequent development of community and regional parks should be a primary focus of the County during the planning period. A detailed analysis of the impacts of proposed amendments to the 2030 FLUM on the County's parks and recreation facilities is shown in Part VI.

4. Potable Water

It is clear from the analysis in the Potable Water sub-element of the Public Facilities Element that sufficient capacity would be available from existing and planned water treatment facilities serving the unincorporated areas of the County to serve a much larger percentage of the County's future population than the 2008 WSA projects. However, this capacity does not of itself guarantee a larger percentage of users for regional systems. In order for potable water systems to expand, it must be cost-effective for both providers and developers to build the necessary infrastructure (water lines, pump stations, etc.) and an adequate water supply from the Floridan aquifer or alternative sources must be readily available. It will be important for the County and the Water Management District to cooperate in order to manage available water resources, which will ensure an adequate supply of potable water.

In order to promote more efficient development patterns, The County should adopt strategies that encourage compact, higher density and/or intensity development in areas that are either currently served by central water and/or sewer systems or are planned to be served in the short term (i.e. 3-5 years). Strategies the County should consider include the establishment of minimum densities that make connection to central water supplies economically feasible; policies requiring connection at density thresholds; and establishment of a minimum lot area for the use of private wells.

The Urban Development Area (UDA), as defined in the Future Land Use Element, is that portion of Nassau County which is located within the existing JEA water and sewer service area. Because of the current and future availability of urban services, including regional potable water supply systems, the UDA is the area that should experience the greatest amount of population growth and urban-level development in the unincorporated area through the 2010-2030 planning period. As a result, this is where higher densities, mixed use development and employment centers should be encouraged. A detailed analysis of the impacts of proposed amendments to the 2030 FLUM on the County's water supply and potable water systems is shown in Part VI.

In order to promote more efficient development patterns, all urban-level development within the UDA should be served by central water and wastewater service in order to discourage urban sprawl; maximize existing and planned infrastructure; preserve environmental resources; and create a greater diversity of housing types and prices.

5. Sanitary Sewer

It is clear from the analysis in the Sanitary Sewer sub-element of the Public Facilities Element that sufficient capacity would be available from existing and planned water treatment facilities serving the unincorporated areas of the County to serve a much larger percentage of the County's future population than the 2008 WSA projects. However, unlike the analyses for potable water supply, the analyses of sanitary sewer capacity indicate that additional capacity beyond that which would be available from existing or planned regional wastewater treatment facilities to serve a percentage of the County's future population equal to or greater than the 2008 WSA projects. As with regional water systems, however, available capacity is not of itself a guarantee of a larger percentage of users for regional systems. In order for regional wastewater treatment systems to expand, it must be cost-effective for both providers and developers to build the necessary infrastructure (sewer lines, pump stations, etc.) and an adequate and environmentally sound methods of effluent disposal or reuse of wastewater must be readily available. These issues are discussed in detail below.

For the target projection of 65 percent of residents using a regional wastewater treatment system, shown in Table SEW-6, the analysis predicts a shortfall in capacity of 0.9 MGD. Assuming that the required improvements to NAU's facilities mentioned above are made, it is reasonable to assume that the remainder of the projected shortfall at this target level will be located in JEA's service area. This shortfall could be eliminated by the expansion of JEA's Nassau WRF from 2.0 to 4.0 MGD in the latter part of the planning period between 2020 and 2030. The Nassau WRF will have a permitted capacity of 1.865 MGD by the end of 2011 (the actual treatment capacity is 2.0 MGD).

For the target projection of 80 percent of residents using a regional wastewater treatment system, the analysis predicts a shortfall in capacity of 2.3 MGD. This may require additional capacity beyond that potentially available from JEA's Nassau WRF and would require the construction and operation of additional facilities between 2020 and 2030.

In order to promote more efficient development patterns, The County should adopt strategies that encourage compact, higher density and/or intensity development in areas that are either currently served by central water and/or sewer systems or are planned to be served in the short term (i.e. 3-5 years). Strategies the County should consider include the establishment of minimum densities that make connection to central water supplies economically feasible; policies requiring connection at density thresholds; and establishment of a minimum lot area for the use of private wells.

The Urban Development Area (UDA), as defined in the Future Land Use Element, is that portion of Nassau County which is located within the existing JEA water and sewer service area. Because of the current and future availability of urban services, including regional potable water supply systems, the UDA is the area that should experience the greatest amount of population growth and urban-level development in the unincorporated area through the 2010-2030 planning period. As a result, this is where higher densities, mixed use development and employment centers should be encouraged. A detailed analysis of the impacts of proposed amendments to the 2030 FLUM on the County's sanitary sewer systems is shown in Part VI.

In order to promote more efficient development patterns, all urban-level development within the UDA should be served by central water and wastewater service in order to discourage urban sprawl; maximize existing and planned infrastructure; preserve environmental resources; and create a greater diversity of housing types and prices.

6. Solid Waste Disposal

In September 2009, the County closed its only Class I landfill (the West Nassau Landfill, located north of the Town of Callahan) and signed an interlocal agreement with Camden County, Georgia to transport Nassau County's solid waste to Camden County's landfill for disposal. An agreement was also signed with Waste Management, Inc., to allow the county to dispose of its waste at its Chesser Island Road facility in Charlton County, Georgia.

It is projected that the county will produce between 137 and 169 tons per day of solid waste requiring landfilling in the next 10 years, leaving a significant surplus of capacity. A detailed analysis of the impacts of proposed amendments to the 2030 FLUM on the County's solid waste disposal facilities is shown in Part VI.

7. Stormwater Management

Stormwater management is the planned control of surface water runoff resulting from rainfall in order to prevent flooding and pollution.

Flooding, a natural occurrence; it only becomes a hazard when the natural floodplains have been altered through urbanization and development. As urbanization increases in the low-lying areas, property damage and loss of life also increases.

Erosion of dirt roads is a problem in numerous areas of western Nassau County. The development and the construction of roads have modified natural drainage in Nassau County. As is the case with most counties and municipalities in north Florida, growth came slowly and structures and roads were located without concern for the impact of development on drainage. These communities are faced with problems of identifying needs and implementing a comprehensive program to correct the drainage problems caused by past development by setting in place a master plan for managing drainage to accommodate projected growth.

Nassau County is preparing a Countywide Stormwater Master Drainage Plan. This plan will identify existing natural and man-made drainage features, sites which exhibit flooding problems, causes inhibiting drainage from these sites, data on sources of surface water pollution from storm water run-off, solutions for managing Countywide stormwater run-off, and a rationale for prioritizing implementation of the plan based upon County financial resources and projected patterns of growth.

Economy and Labor Force

Nassau County's economy is diverse, ranging from agricultural activity in the west and central areas (mostly silviculture), to a variety of urban activities closer to, and on, Amelia Island.

According to the Nassau County Economic Development Board (NCEDB), 18,210 people were employed in Nassau County In 2006. Tourism-based industries are the largest employers in Nassau County - providing approximately 21 percent of all jobs. The top employment sectors in Nassau County are the leisure and hospitality industry (21.4 percent); trade, transportation and utilities (21.3 percent); government (20.9 percent); construction (6.9 percent); professional and business services (6.7 percent); and the manufacturing sector (6.4 percent.). Table FL- 5 lists all employment in all industry sectors (*Note: this table is identical to Table DEM- 9).*

Table FL-5 Non-Farm Employment by Industry, 2007

Industry Sector	Employment	% of Total
Average Annual Employment	18,889	100%
Trade/Transportation/Utilities	4,609	24%
Leisure/Hospitality	4,042	21%
Construction	1,303	7%
Professional/Business Services	1,266	7%
Public Administration	1,247	7%
Manufacturing	1,209	6%
Education/Health Services	1,114	6%
Other Services	774	4%
Financial Activities	642	3%
Information	132	1%
Unclassified	19	0.1%

Source: U.S. Bureau of Labor Statistics, Nassau County Economic Development Board

Approximately 46 percent of Nassau County's employed workforce commute outside of the county for work. Approximately 38 percent of the total workforce is heading south to employment centers located in the Jacksonville MSA in Duval, Clay or St. Johns Counties. Approximately 4.5 percent of the total workforce is heading north to employment in Camden or Charlton County, Georgia. High out-of-county commuter rates contribute to traffic congestion, and are considered an indicator of a lack of high paying job sectors within the county. Table FL-6 displays out-commuter rates for the County (*Note: this table is identical to Table DEM-10*).

Table FL-6 Nassau County Residence-Workplace Flow, Out-Commuters 2007

Workplace Co.	Count	% of Co. Workforce
Nassau Co. FL	15,289	55.4%
Duval Co. FL	10,423	37.8%
Camden Co. GA	1,081	3.9%
Charlton Co. GA	165	0.6%
Clay Co. FL	163	0.6%
St. Johns Co. FL	103	0.4%
Baker Co. FL	90	0.3%
Other	282	1.0%

Source: U.S. Census Bureau, Nassau County Economic Development Board

Land Use in Adjacent Jurisdictions

There are three incorporated municipalities in Nassau County (see Map FL-1). The largest of these is the *City of Fernandina Beach*, located on the northern end of Amelia Island. Its covers approximately 11 square miles of land area and had an estimated 2008 population of 11,610. There are two small municipalities located in the western part of the county: the *Town of Hilliard*, which covers approximately 5 square miles with an estimated 2008 population of 2,921; and the *Town of Callahan*, which covers approximately 1 square mile with an estimated 2008 population of 1,058. Each municipality operates its own water and wastewater system. Details on the size and scope of these systems can be found in the Public Facilities Element. The municipalities

within the County are fairly small and are often limited in their ability to expand through annexation due to geographic or fiscal restraints.

Nassau County is bounded by lands in four other counties and two states. The County is part of the Northeast Florida region which includes Clay, Duval, Nassau, Baker and St. Johns counties (see Map RC-1). While Duval County and the consolidated City of Jacksonville remain the center of population in the region, Nassau and the other surrounding counties are growing relatively faster. Jacksonville's percentage of the regional population has declined over the past several decades. This trend will continue and accelerate. Jacksonville's share of the population is projected to be only 63 percent of the region in 2030.

Since the mid 1990's, Jacksonville has sought to encourage new development in the north and northwest areas of Duval County. Between 2001 and 2007, Jacksonville's north planning district, adjacent to Nassau County's southern border, had the fastest rate of population growth in the City. Due to recent economic conditions, several proposed master-planned developments in the north and northwest areas, including the now defunct Timucuan and Brent's Cove DRI proposals, have been abandoned or broken into smaller projects.

The new port facilities constructed in 2008 by Jacksonville Port Authority (JAXPORT) will enable northeast Florida businesses to export directly to nations throughout Asia. These advantages will create new opportunities in manufacturing, distribution and warehousing, all linked to trade with these new markets. Related rail infrastructure improvements planned by Jacksonville-based CSX railroad may make Nassau County more attractive to warehouse and distribution facilities.

Many areas bordering Nassau County in Jacksonville have been acquired for conservation and recreation use through Preservation Project Jacksonville (PPJ), an ambitious land acquisition program begun in 1999. The project is moving into a phase to provide public access to these areas while continuing to protect the lands.

In May 2008 Baker County adopted a FLUM amendment (DCA No. 08-D1) concurrently with the DRI development order for the 3,200-acre Cedar Creek DRI. The approved development program for the Cedar Creek DRI includes 5,500 age-restricted residential dwelling units (4,000 detached single-family units, 1,375 attached single-family units, and 125 multifamily units), 500,000 square feet of commercial, and 300,000 square feet of office.

In 2009, a FLUM amendment (series 08-2) was adopted for 1056.5 acres of agricultural land which border the subject property to the west along the Baker-Nassau county line. This amendment would create 710 acres of industrial, 40 acres of commercial, and 475 acres of conservation land uses. This amendment is to facilitate the development of an industrial park that will contain a maximum of 6,000,000 square feet of industrial uses, 300,000 square feet of commercial development, 190 hotel rooms, and 475 acres of conservation lands. Among the improvements required to develop this project to its potential is the design and construction of a new interchange with Interstate 10. The feasibility of an interchange at this location is presently under review by FDOT. If constructed, the interchange would eventually provide connection to parallel east-west road corridors which will provide alternatives to I-10. This amendment borders Nassau County to the east, and is adjacent to a recently adopted FLUM amendment (series 09-1) located in the far southwestern corner of Nassau County that created approximately 487.19 acres of Industrial and Commercial land uses.

Although relatively small in size, the adjacent Georgia counties, particularly Camden County, have the potential for growth and development that may have a significant impact on Nassau County.

The Kings Bay Naval Submarine Base is located in Camden County, Georgia, near the Florida-Georgia border adjacent to Nassau County. The 16,000 acre Kings Bay facility has become one of the Navy's most important submarine bases, and currently employs approximately 9,000

military and civilian personnel. It is likely that, considering the potential for growth on vacant land on the base, additional personnel may be transferred to Kings Bay in the future. In anticipation of such growth, a planned development known as The Villages of Kingsland recent sought local and state approvals for development on 15,000 acres recently annexed into the City of Kingsland in Camden County, west of U.S. 17 and north of SR 40. On the 15,000 acres, of which approximately one-third is wetlands, the developer had planned to build approximately 40,000 residential units, 13.5 million square feet of industrial development, and 9.5 million square feet for commercial use. Economic considerations have presently put this project on hold, however, and it has not completed the Georgia Development of Regional Impact review as of July 2009.

V. Land Use Needs Analysis

Background

Nassau County has prepared this land use need analysis based in part on previous Florida Department of Community Affairs (DCA) Recommendations, "Vision 2032" (the adopted Nassau County Vision Document), "Reality Check First Coast Final Report" (the Northeast Florida Regional Vision Document) and the 2008 Nassau County Evaluation and Appraisal Report (EAR). These items recognize the importance of a different planning philosophy in Nassau County, as opposed to the historical short-term philosophy that resulted in the unintended and unsustainable consequences of encouraging sprawl.

In 2003, the County proposed ±30,000-acre Area-wide Development of Regional Impact (ADRI) in the Yulee area of the County. In a 2003-04 Objections, Recommendations and Comments (ORC) Report involving that proposal, DCA indicated that the Nassau County (2010) Comprehensive Plan:

- Encouraged a low jobs-to-housing balance ratio
- Provided for too little residential product;
- Deferred traffic and hurricane evacuation issues; and
- Lacked affordable housing

The report also encouraged Nassau County to undertake a visioning process to assist in developing a "big picture" planning approach with greater emphasis on protecting natural resources like the St. Mary's River. DCA further recommended that Nassau County address these issues during the next Evaluation and Appraisal Report (EAR) process and through a new economic development rationale that seeks to improve the County's existing jobs-to-housing balance. While the proposed ADRI was eventually abandoned in 2005, these issues remained relevant to the County's growth management challenges.

In 2008-09 Nassau County, with support from the Dept. of Community Affairs, conducted a visioning process exceeding the standards of Sec. 163.3177(13), F.S. As a 25-year strategic vision, *Vision 2032* was completed by Nassau County in 2009 and identified existing conditions and recommendations for future action. Reality Check First Coast was organized by the Northeast Regional Planning Council, the Urban Land Institute (ULI) and several other regional partners. By bringing together key business, political, community and non-profit leaders from the region's seven (7) counties, Reality Check First Coast created a consensus on how and where the region's growth should occur.

The Evaluation and Appraisal Report and the local and regional visioning processes identified similar key issues to be addressed by Nassau County, including:

- More than 45 percent of employed residents commute to work outside the County. This percentage is directly linked to a lack of high paying job sectors and contributes to traffic congestion and high energy consumption
- The County's dependence on tourist-related employment does not generate high wage job opportunities and is highly susceptible to fluctuations in the economy.
- The current budget structure relies heavily on residential property taxes, and is not sustainable in the long term from either a capital or operational perspective.

- Nassau County presently has very limited “shovel-ready” (i.e. infrastructure in place) industrial lands. The lack of industrially designated land is an impediment to job creation and prevents the ability to adequately accommodate the targeted industry clusters (aviation-aerospace; corporate headquarters, pharmaceuticals and biotechnology; electronics and semiconductors; medical equipment and technologies; customer service and technical support centers; internet technology; and motor vehicle parts and accessories).
- In order to change the existing “bedroom community’ development pattern in Nassau County, and increase long-range economic development opportunities, Nassau County will need to diversify its economy and redefine its regional presence as a “regional employment center”. This will require a stronger jobs-to-housing balance and a higher non-residential sq. ft. / per person ratio.
- The 2010 Comprehensive Plan encouraged low-density development and rural sprawl. The County should establish a new development framework that discourages low-density development in rural areas, while concentrating mixed-use development and urban densities in areas where services and infrastructure exist or are planned.

In response, Nassau County is implementing a new development framework that emphasizes the following:

- Directing future growth and development to east Nassau County, but outside the Coastal High Hazard Area (CHHA);
- Providing targeted economic development in appropriate locations;
- Inventorying green infrastructure and protecting and linking existing natural resources; and
- Discouraging patterns of sprawl, particularly in areas west of Interstate 95.

Development and Preservation Framework

In theory, the comprehensive plan is the foundation for the valid exercise of land use restrictions. In practice, local governments in Florida have more often engaged in a comprehensive planning exercise that follows existing zoning or designates land uses in a random fashion. For Nassau County in particular, the comprehensive planning process has historically been perceived as a top down burden rather than an opportunity for shaping inevitable growth pressures.

The current (2010) Comprehensive Plan does not provide an overall direction as to where and how communities will develop. Since the Plan provides little direction for the location and form of new developments, development occurs in a random fashion that may result in a leapfrog pattern where development is often uncoordinated with the planned expansion of utilities or roadways. Conversely, the current Comprehensive Plan offers few incentives or strategies for road networks, extension of services or a coordinated network of conservation and recreation sites. The abundance of land in the low density Agriculture designation encourages land consumption and conversion of timber growing and grazing land into residential uses. This state of affairs has existed since the 2002 EAR-based amendments were found in compliance. In September 2008, this approach was reaffirmed by the Board of County Commissioners by permitting the post facto creation of lots with a density entitlement of one (1) dwelling unit per gross acre, within parcels of less than 320 acres, in areas designated Agriculture on the Future Land Use Map.

The Development and Preservation Framework attempts to lay a foundation for land development decision-making by offering incentives for a more sustainable development pattern and discouraging urban sprawl. The Framework is a core strategy, based in part on the Vision 2032 process that will guide the legally binding goals, objectives and policies and FLUM designations.

It is the 30,000 foot perspective for assisting the Local Planning Agency with EAR-based and future FLUM decisions. The Framework is shown on Map FL-6. It divides the County into six areas:

The *Coastal Development Area* consists of the unincorporated portions of Amelia Island, lands adjacent to the Amelia River, and the lands surrounding the estuarine system of the Nassau and St. Mary's Rivers. It is generally bound on the east by the Atlantic Ocean and the west by Blackrock Road north of S.R. A1A and C.R. 107 south of S.R. A1A. It also includes the southern area of Nassauville and Holly Point, an established community lying outside of the JEA utility service area. This portion of the County is the most highly urbanized, is mostly located in a Level 1-3 hurricane evacuation zone, is subject to transportation limitations, and contains significant archaeological, historic and environmental resources. Because these factors create development limitations, significant increases in residential densities in the Coastal Development Area should not be allowed. The Area should be encouraged build out at densities presently permitted by the 2010 FLUM. EAR-based or future FLUM amendment applications that would increase residential density or transfers of development rights from outside sending areas should be discouraged.

The *Urban Development Area* is generally west of the Coastal Development Area and bound on the west by Interstate 95, north of S.R. A1A and the Three Rivers DRI, south of S.R. A1A. This portion of Nassau County is located within the JEA water and sewer service area, generally lies outside of Level 3 hurricane evacuation zone, has good north-south transportation routes and the ability to accommodate alternate east-west corridors and alternative modes of transportation, and is the logical progression of the early coastal development pattern. Because of the availability of urban services and the reduced vulnerability to hurricane damage, the Urban Development Area is where higher densities, mixed use and employment centers should be encouraged both as part of the EAR-based amendments initiated by the County and future FLUM amendments initiated by property owners.

Rural Transitioning Areas are those areas that generally lie within a 5-mile radius of the corporate boundaries of the Towns of Hilliard and Callahan. For the most part these areas were designated as Low or Medium Density Residential by the 2010 FLUM and the extension of central water and wastewater services from the Towns may be feasible within the 2010 - 2030 planning horizon. Rural Transitioning Areas should incorporate subdivision and design standards that provide for stabilized local roads providing safe and adequate vehicular access, the future expansion of central water and wastewater, parks, emergency services, polling places and schools; strategic placement of neighborhood commercial areas and sub-regional medical facilities in a central nodal pattern; preservation of open space and maintenance of a rural community character.

Rural Areas generally include existing agricultural operations and very low density dwellings areas. The present level of services for development in Rural Areas varies widely. Some residential areas are located on inadequately constructed or antiquated farming plats that are not served by paved local streets or adequate drainage systems and rely exclusively on private well and septic systems. Residents typically require lengthy vehicle trips to commute to and from employment or to acquire basic goods and personal services. Working with experts such as the Agricultural Extension Agency and others, the plan should recognize the economic importance of the agricultural and forest products industry to the local economy. New product development and market support opportunities should be an integral goal of the Agriculture land use category. When lands in the Rural Area are converted from agriculture to residential development it should be encouraged in a clustered rural hamlet design pattern which yields the same number of lots as "subdivisions" of uniform one-acre lots. Rural hamlets provide large areas of open space, including continuation of working agriculture, surrounding clustered building sites adjacent to preserved natural features; forested buffers adjacent to arterial and collector roads; and the provision of infrastructure to permit telecommuting. Rural areas are suitable for preservation efforts such as transfer of development rights or transferable rural land use credits.

The *Conservation and Habitat Network* consists of natural corridors that provide linkages between existing public and preserved lands and otherwise represent the most valuable natural habitats, support critical environmental functions and meet the recreational needs and lifestyle choices of current and future generations. By understanding the 'green infrastructure' of Nassau and surrounding counties, the framework can provide conservation priorities that provide linkages and greenways that best support the natural environment and improve the quality of life for the community as a whole. Environmental preservation on private property requires incentives such as transfer of development rights, wetland and open space credits and public acquisition, in whole or in part, through fee simple or less than fee acquisition.

Economic Development Opportunity Areas provide land for business creation and expansion for targeted industries and major employment opportunities. Expansion and diversification of the County economic base is important for fiscal sustainability and high skill, high wage job opportunities. Targeted businesses generally exhibit the multiplier effect, i.e. derive significant income from goods and services sold outside the local economy which is then reinvested into local purchases which grow the local economy. Economic Development Opportunity Areas are located on major highways, rail lines or airports, with multi-modal sites preferred. Economic Development Opportunity Areas contain a minimum of 100 developable acres and require supporting infrastructure. Economic Development Opportunity Areas may be combined in mixed use communities where regional employment, housing and commercial opportunities where multi-modal transportation and transit options can be provided.

The Vision 2032 process, undertaken in 2008, had several strategic planning purposes, including the community vision pursuant to Sec. 163.3177(13), F.S. Vision 2032 developed shared community values and strategies for sustainable development, fiscal discipline and protection of natural resources. Economic development, mixed use communities and the provision of infrastructure were also high priority items for stakeholders and the community at large. Table FL-7 identifies the relationship matrix between Vision 2032 and the six areas of the Framework.

Table FL-7 Relationship Matrix between Vision 2032 and Development and Preservation Framework

VISION 2032 GOAL	Coastal Development Area	Urban Development Area	Rural Transitioning Areas	Rural Areas	Conservation and Habitat Network	Economic Development Opportunity Areas
Conserve and/or protect existing natural areas, including wetlands, floodplains, river corridors (such as the St. Mary's River), streams, creeks and wildlife habitats.	■	■			■	
Promote effective local planning processes at the County and incorporated community level that coordinate the funding and location of identified infrastructure needs, such as recreation facilities, school sites, port landside and waterside facilities, and roads (including emergency evacuation routes) with associated land uses and available funds to pay for these facilities.		■	■			■
Expand the economic base and create a fiscal sustainable community by attracting high technology and high value industry, office, research, and educational facilities that provide new employment opportunities and support the existing major employment centers.		■				■
Encourage mixed-use developments designed to accommodate multiple community activities and services in close proximity. By reducing infrastructure demand, mixed-use developments can generate a positive fiscal impact on the County's financial resources.		■	■			■
Preserve existing and expand outdoor recreation areas, publicly-owned natural and open space areas, recreational facilities and services throughout Nassau County.					■	
Achieve a network of safe and efficient multi-modal transportation that is capable of meeting the transportation needs of residents and visitors at an acceptable level of service in a safe and efficient manner.	■	■	■			■
Coordinate with the Nassau County Economic Development Board and Florida State College to continue workforce development, post-secondary education and job training programs and integrate youth and adult education.						■
Increase availability of health care services, providers, and facilities throughout Nassau County.			■			■

Need Assessment Approach

Consistent with State provisions for developing alternative land use need assessments, Nassau County has prepared this economic-driven analysis to clearly alter past development trends. Chapter 163.3177(6) (a), F.S. provides the ability for rural communities, like Nassau County, to designate industrial lands that are based less on the projected population and more on the need for job creation, capital investment and economic diversity. Therefore, this assessment reflects the County's goal of establishing a stronger presence in the region by designating adequate land for economic growth and diversification and significantly improving the countywide jobs-to-housing balance. A secondary benefit of this goal is to reduce the County's Vehicular Miles Traveled (VMT) average and future Green House Gas (GHG) emissions by directing non-residential development to strategically planned employment centers and communities.

One of the major issues identified in the Nassau County Evaluation and Appraisal Report (EAR) was protecting and expanding land designated for job-generating land uses, especially industrial and business park-type uses that typically provide higher wages. A key initiative of the County is to provide additional non-residential sites that will attract or retain targeted industries and businesses. Since the EAR was found sufficient in July 2008, the County has added 2,221.58 acres of industrial area at strategic locations along rail lines. There remains, however, a lack of industrial sites where concurrency issues have been addressed with available infrastructure. Further, these industrial sites were not reviewed in the context of providing jobs in close proximity to housing and supporting services.

Section 163.3177(6)(a), F.S., provides: "The future land use plan shall be based upon surveys, studies, and data regarding the area, including the amount of land required to accommodate anticipated growth; the projected population of the area" The County has provided a complete, documented conventional needs analysis in the background data and analysis for the Future Land Use Element that includes the transmitted FLUM amendments. The following basic 4-step process was used to conduct the required needs analysis:

1. Project future growth using BEBR medium population projections.
2. Project future development, primarily dwelling units assumed to build at maximum density during the planning period.
3. Project future land use demand.
4. Determine the appropriate supply of land uses necessary to accommodate demand (need).

Nassau County has also consulted the Draft Rule for Population Projections and Land Use Analysis Requirements promulgated by the Dept. of Community Affairs on August 20, 2010. In particular, the County has considered the proposed changes to Rule 9J-5.006(2) regarding Land Use Analysis requirements. The detailed analysis that follows (see Tables FL-8-13) supports and refines the initial conclusion that accompanied the transmittal: The critical issue that must be addressed is that, while the standard methodological approach for determining need would indicate that sufficient residential capacity is available through the planning period, the location of these residential units is so dispersed that the resulting development pattern would not be sustainable for Nassau County or the region. The County simply does not have the financial means to provide services to such a dispersed development pattern.

The Development and Preservation Framework described above seeks to direct a majority of future development to a designated Urban Development Area (UDA) and adjacent Economic Development Opportunity Areas (EDOAs), and away from the County's Coastal Development Area (CDA) and Rural Areas. The Framework lays the foundation for land development decision-making by offering incentives for a more sustainable development pattern and discouraging urban sprawl. The Framework is a core strategy, based in part on the 2008 Vision 2032 process, founded upon and supported by relevant studies and data, including the amount of land required to accommodate anticipated growth; the character of undeveloped land including topography,

environmental resources and the coastal high hazard area; the availability of water supplies and other public facilities and services; the discouragement of urban sprawl; energy efficient land use patterns; and greenhouse gas reduction strategies. The adopted EAR-based amendments will allow the County to control urban sprawl; diversify and strengthen the local economy; create areas of mixed uses with specific policies to implement cost-effective growth; and reduce vehicle miles traveled. In particular, the East Nassau Community Planning Area (ENCPA) will:

1. Permit the preservation of large uninterrupted natural areas;
2. Create economic development and employment opportunities with a variety of housing options in close proximity to those jobs;
3. Provide for an east-west transportation corridor parallel to S.R. 200, a road that will be over capacity with or without ENCPA;
4. Significantly increase the percentage of dwelling units connected to central water and wastewater disposal service as compared to the pre-ENCPA projection incorporated in the latest Water Supply Assessment;
5. Allow for large-scale land planning; and
6. Provide for aesthetic control at the eastern gateway to the State of Florida.

The ENCPA represents that area of Nassau County best suited for urban scale development because the area lies outside of the CHHA and within the established utility service area. By working with a single landowner, the proposed amendment is of sufficient size and tied to a set of specific, measurable and enforceable policies (FLUE 13.01 et. seq.) that will allow Nassau County to realize the requirements of Section 163.3177(6)(a), F.S. The ENCPA development program, as adopted, ensures that adequate housing opportunities will be provided near the workplace, as opposed to less appropriate areas of the County with no planned services or guaranteed mix of land uses and longer travel distances. Development within the ENCPA Employment and Regional Center land use subcategories will provide employment opportunities and help redefine the County's presence in the regional marketplace. The remaining Residential Neighborhood, Resort Development and Village Center sub-categories will support future housing demand in Nassau County while easing pressure to approve residential single use development in less appropriate areas. These sub-categories will also diversify the housing supply and provide greater work force housing choices. The ENCPA represents Nassau's best opportunity to address several major issues identified in the 2008 Evaluation and Appraisal Report. These are:

1. Change the existing FLUM to promote efficient development patterns;
2. Encourage master-planned communities;
3. Identify wildlife corridors as part of the FLUM series;
4. Promote compact growth by encouraging the use of [utility] facility extension policies;
5. Provide land for industry and employment;
6. Amend the FLUM categories to provide a greater variety of residential densities;
7. Establish minimum percentages of "mixed-uses" that support the development of [fiscally] self-sustaining communities.

Land Use Allocation (Multiplier)

In the updated Land Use Need Analysis, the previously identified multiplier of 1.89 has been revised. The revisions are based upon DCA's determination that local government should calculate only the incremental supply and demand. We have also included the potential residential increase from ENCPA within the calculations set forth in Tables FL-8 through FL-13, below. The result is an incremental multiplier of 4.09. The data tables have also been expanded to include the capacity within each respective residential FLUM designation. The housing unit allocation multipliers reflect an unrealistic development scenario that is simply unsustainable given their widely dispersed residential densities. In reality, the maximum amount of residential development suggested by these allocation multipliers is unrealistic due to lack of existing or planned public services and infrastructure, particularly west of Interstate 95.

DCA has recommended an allocation ratio of 1.25 with the additional 25% beyond 1:1 being available for market flexibility. However, DCA also indicates that this ratio has universally been exceeded. For example, the department reports allocation ratios for counties as high as 331.9 (Jackson County), 32.8 (Marion County) and 17.7 (St. Lucie County). Even though Nassau County's analysis indicates an allocation ratio of 4.09 based upon the projected population ratio, the supply of residential units is inflated and other planning criteria supersede the population projection factor. These criteria are described in Table FL-8, below.

Table FL-8 2030 Residential FLUM Categories (Acres)

Designation	Acres
Low Density Residential (LDR)	20,140*
Medium Density Residential (MDR)	15,267*
High Density Residential (HDR)	701*
Multi-Use (MU)	21,097
Total	57,205

*Gross acres, excludes NWI wetlands

Source: Nassau County Growth Management Dept.

Table FL-9 Residential Capacity of Vacant Land

Designation	Vacant Acres	Maximum Density	Maximum Unit Yield
LDR	8,455	2 du / ac	16,910
MDR	4,979	3 du / ac	14,936
HDR	155	10 du / ac	1,552
MU	20,998	Varies	27,680
Total	34,781		61,078

Source: Nassau County Growth Management Dept.

Table FL-10 Existing and Projected Population / Dwelling Units in the Unincorporated Area

	2010	2030	Net Increase
Unincorporated Nassau Permanent Population ¹	56,738	84,273	27,535
Unincorporated Nassau Seasonal Population ²	5,390	8,006	2,616
Persons per Household ³	2.48	2.32	(.16)
Dwelling Units, Permanent ⁴	22,878	36,325	13,447
Dwelling Units, Seasonal ⁵	2,561	4,058	1,497
Dwelling Units, Total	25,439	40,383	14,944

¹ BEBR, Medium Projection ⁴ Shimberg Center

² Nassau County ⁵ Nassau County

³ Shimberg Center

Source: Nassau County Growth Management Dept.

Table FL-11 2030 Residential Demand

2010 Dwelling Units	25,439
2030 Incremental Need	14,944
Total Demand:	40,383

Source: Nassau County Growth Management Dept.

Table FL-12 2030 Residential Supply

2010 Residential Units	25,439
2030 Residential Capacity	61,078
Total 2030 Residential Supply:	86,517

Source: Nassau County Growth Management Dept.

Table FL-13 2030 Allocation Ratio

Incremental 2010- 2030 Residential Supply	61,078
Incremental 2010- 2030 Residential Demand	14,944
Incremental 2010-2030 Residential Allocation Ratio	4.09

Source: Nassau County Growth Management Dept.

The perceived planning problems created by over allocation include urban sprawl, fragmentation of environmental assets and inefficient service delivery. Even though it is a useful tool that provides an aggregate quantitative measure, the traditional needs analysis in and of itself cannot achieve the planning objectives of promoting compact urban land use patterns, environmental preservation and cost-effective service delivery. This is because site suitability, service availability, economic diversification and sustainability, continuation of agriculture and the benefits of large scale planned developments cannot be addressed solely through the traditional needs analysis.

Jobs-to-Housing Balance

In order to address these issues in a more meaningful way, the background data and analysis for the Future Land Use Element supplements the conventional numerical analysis shown above with a qualitative jobs-housing analysis that emphasizes economic development and job creation. A jobs-to-housing balance is a metric of economic sustainability, measuring the relationship between jobs and employment seekers in a specific area. While there are several employment and housing measures available, Nassau County has chosen jobs to housing balance because it is generally superior to the other options and is easier to understand because parity can be expressed as a one-to-one ratio, i.e. one local job to one local worker (California Planning Roundtable, “Deconstructing Job-Housing Balance” 2008, p. 8). With this metric, a low jobs-to-housing balance indicates a housing rich “bedroom community” while a high jobs-to-housing balance indicates that the community is a regional employment center. Although there is no single perfect balance, an area is generally considered to be in balance if it maintains a jobs-to-housing balance (ratio) of 0.8 to 1.2 (Cervero, Robert, “Jobs-Housing Balance Revisited: Trends and Impacts in the San Francisco Bay Area”, Journal of the American Planning Association, Vol. 62 No. 4, 1996, pp. 492-511).

A jobs-to-housing balance ratio expresses quantitatively the relationship between where people work (the “jobs” side) and where they live (the “housing” side). The terminology “jobs-to-housing balance” implies a direct correlation between an area’s supply of jobs and housing units; however, it is recognized as more of a metric of economic sustainability that measures the relationship between the number of working opportunities (jobs) and employment seekers. When an area has a low job-to-housing balance, it indicates that on average, the majority of employed residents travel to other area’s for work. It is also creates longer commute times and a higher Vehicle Miles Traveled (VMT) average, which from an environmental perspective, contributes to greater Green-House Gas (GHG) emissions.

Although there is no single, universally accepted process for measuring a jobs-to-housing balance, commonly used measures involve the analysis of the following elements:

- Jobs-to-housing units ratio
- Jobs-to-occupied housing units ratio
- Percentage of workers who reside locally
- Employment-to-population ratio
- Jobs-to-employed residents (labor force) ratio

Relying solely on the supply of existing housing units to represent demand for working opportunities, often inaccurately represents the actual number of employed residents in a community. For example, one housing unit may consist of any number of workers - including no workers at all. This is especially true for communities like Nassau County that have a high seasonal housing supply and vacancy rate.

Given the inaccuracy of an analysis that relies too heavily on the supply of existing housing units, Nassau County has chosen the process that emphasizes the ratio of “jobs-to-employed residents”. It is generally superior to the other options described above, and is easier to understand because parity can be expressed as a one-to-one ratio, i.e. one local job to one local worker.

Because a majority of employed residents currently drive to other counties for work, Nassau County is considered by industry standards as a “bedroom community”. With a limited amount of employment centers along existing transportation corridors, residents also have to drive further to reach daily commercial, office and service-related activities. As shown in Table FL-14, these conditions help contribute to Nassau County’s existing low jobs-to-housing ratio of 0.63. This ratio was calculated by dividing the number of estimated jobs in the County (19,659) by the number of employed residents (31,076).

Table FL-14 2010 Estimated Nassau County Jobs-to-Housing Ratio

Estimated County Jobs	19,659
Estimated Employed Residents	31,076
Jobs-to-Housing Balance Ratio	0.63

*Sources: Florida Bureau of Labor Statistics ES-202 Data;
U.S. Census, American Community Survey*

In support of the planning objective to improve the jobs-to-housing balance, the first step was to identify the existing supply and capacity for non-residential development. Supply consists of existing development, while capacity refers to the amount of potential non-residential development within vacant parcels. As demonstrated in Table FL-15, the County concluded that it has ±8.4 million square feet of existing development (supply) and capacity for an additional ±13.29 million square feet, resulting in a combined amount of ±21.71 million square feet of non-residential development.

Table FL-15 Existing and Entitled Non-Residential Development Capacity

Development / Project	Industrial Sq. Ft.	Other Sq. Ft.	Total Sq. Ft.
Existing Development	2,564,946	5,850,000	8,414,946
Entitled Projects (Undeveloped)	11,534,300	1,759,997	13,294,297
<i>Marsh Lakes Commercial</i>		<i>45,000</i>	<i>45,000</i>
<i>Villages of Amelia</i>		<i>399,997</i>	<i>399,997</i>
<i>Three Rivers DRI</i>	<i>250,000</i>	<i>550,000</i>	<i>800,000</i>
<i>U.S. 301 Industrial*</i>	<i>5,200,000</i>		<i>5,200,000</i>
<i>I-95/S.R. A1A (FLUE Policy 1.09.08a)</i>		<i>250,000</i>	<i>250,000</i>
<i>U.S. Hwy. 17/1-95 (FLUE Policy 1.09.08b)</i>	<i>1,209,300</i>		<i>1,209,300</i>
<i>Harts Road (FLUE Policy 1.09.08c)</i>	<i>2,050,000</i>		<i>2,050,000</i>
<i>I-10 Industrial (FLUE Policy 1.09.08d)**</i>	<i>2,350,000</i>	<i>40,000</i>	<i>2,390,000</i>
<i>Estimated Infill Development (Vacant Parcels)</i>	<i>475,000</i>	<i>475,000</i>	<i>950,000</i>
Totals	14,099,246	7,609,997	21,709,243

Sources: Nassau County Property Appraiser / Nassau County Growth Management Department

*Located beyond the designated UDA and its adjacent EDOAs (7,590,000 sq. ft.)

By assuming a “Persons per Household” (PPH) average of 2.32, the County has projected a total of 44,828 countywide households in 2030. A household includes all persons occupying a housing unit as their usual place of residence. The County has also projected 50,368 housing units in 2030 by assuming an 89 percent occupancy rate. Finally, the County projected 60,945 employed residents by assuming a 1.21 to 1 ratio of employed residents per housing unit. This ratio is comparable to that experienced by other tertiary counties in the State, including 1.24 to 1 in Clay County; 1.21 to 1 in Seminole County and 1.18 to 1 in Hendry County. The projected 2030 household, housing units and employed residents data discussed above are demonstrated in Tables FL-16-18 below.

Table FL-16 Projected 2030 Countywide Households

2030 Countywide Population Projection	104,000*
Persons per Household (PPH)	2.32
Projected 2030 Countywide Households	44,828

*Source: BEBR, Florida Population Studies, Volume 43, Bulletin 156, March 2010

Table FL-17 Projected 2030 Countywide Housing Units

Projected 2030 Countywide Households	44,828
Occupancy Rate	89%
Projected 2030 Countywide Housing Units	50,368

Table FL-18 Projected 2030 Countywide Employed Residents

Projected 2030 Countywide Housing Units	50,368
Employed Residents per Housing Unit Ratio	1.21 : 1
Projected 2030 Countywide Employed Residents	60,945

As previously stated, an appropriate jobs-to-housing balance ratio is recognized as anything between 0.80 to 1.20 jobs for every employed resident. When the ratio is less than 1 to 1, it implies that there are more employed residents than jobs. In contrast, when the ratio is greater than 1 to 1, there are more jobs than employed residents. Therefore, using the 2030 projection of 60,945 employed residents, Nassau County has determined the number of actual jobs needed to achieve various levels of an appropriate jobs-to-housing balance ratio. When applying a jobs-to-housing balance ratio of 0.80, 1.0 and 1.20 jobs per employed resident, the projected amount of countywide jobs equates to 46,011; 57,514 and 69,017, respectively. This is later illustrated in Table FL-20.

The final step in determining the amount of non-residential development needed to achieve an appropriate job-to-housing balance is multiplying countywide jobs by the projected average square feet per employee. According to industry standards, this average fluctuates according to the type of land use. As seen in Table FL-19 below, industrial land uses have the highest average, typically ranging from 700 to 1,500 square feet per employee. Other averages include 598 square feet of retail uses per employee and 350 square feet of professional office uses per employee. According to industry standards, there is an average 450 square feet per employee for all non-residential land uses combined.

Table FL-19 Typical Square Feet per Employee by Land Use

Land Use	Average Square Feet per Employee
Industrial	700 - 1,500
Retail	598
Professional Office	350
Non-Residential Average	450

With the County's emphasis on attracting targeted industries, including manufacturing, distribution and warehousing, the County has conservatively projected that its existing average square feet of non-residential development per employee will increase to the industry standard of 450 square feet. This assumption is largely supported by the ±11.5 million square feet of entitled industrial capacity within approved yet undeveloped projects (see Table FL-15) and the continued industrial growth in the UDA and adjacent EDOAs. By applying this assumption to each of the analyzed jobs-to-housing balance ratios listed in Table FL-20, the minimum projected amount of non-residential square feet in the County needed to achieve an appropriate jobs-to-housing balance is 21.94 million.

Table FL-20 Projected 2030 Countywide Jobs-to-Housing Balance Ratio (by Appropriate Range)

	Low 0.80 to 1	Mid 1.0 to 1	High 1.20 to 1
Projected Employed Residents	60,945	60,945	60,945
Jobs-to-Housing Balance Ratio	0.80	1.0	1.20
Projected Jobs	48,756	60,945	73,134
Non-Residential Sq. Ft. per Employee	450	450	450
Projected Non-Residential Sq. Ft.	21,940,200	27,425,250	32,910,300

After reviewing the various scenarios described in Table FL-20, and considering the desire to redefine its economic presence in the regional marketplace, Nassau County's goal is to achieve a countywide 1.19 to 1 jobs-to-housing balance ratio by 2030. Achieving this goal will result in demand for an additional 11.0 million square feet of non-residential space through 2030. Finally, consistent with the energy saving provisions of State Chapter 2008-191 (*substitute for HB 697*), this balanced ratio will result in a stronger Vehicle Miles Traveled (VMT) average and decrease Greenhouse Gas (GHG) emissions caused by longer commutes. The methodology for achieving the countywide jobs-to-housing balance ratio goal of 1.19 to 1 by 2030 is demonstrated in Table FL-21 below.

Table FL-21 2030 Countywide Jobs-to-Housing Balance Ratio Goal

Projected Employed Residents	60,945
Jobs-to-Housing Balance Ratio	1.19 to 1
Projected Jobs	72,687
Non-Residential Sq. Ft. per Employee	450
Projected Non-Residential Sq. Ft.	32,709,243

The County's goal is to achieve a countywide jobs-to-housing balance ratio of 1.19 to 1 by 2030; however, a majority of future development will be directed into the Urban Development Area (UDA) and its adjacent Economic Development Opportunity Areas (EDOAs). Given their proximity to major transportation corridors and existing or planned public services and infrastructure, these areas are projected to accommodate over 44,000 residential units by 2030. From a non-residential perspective, these areas will also accommodate over 19 million square feet of non-residential development, including the existing/supply of 8,386,314 square feet and additional future capacity for 11,000,000 square feet. This information is demonstrated in Table FL-22 below.

Table FL- 22 Projected 2030 Development Supply and Capacity, UDA and Adjacent EDOAs

	Residential Units	Non-Residential Sq. Ft.
Existing Supply/Capacity*	25,365	8,386,314
Proposed Capacity	18,996	11,000,000
Total Projected Supply/Capacity	44,361	19,386,314

Sources: Nassau County Property Appraiser / Nassau County Growth Management Department

* Residential supply/capacity includes 7,191 existing units and vacant land use capacity for 18,174 units. Non-residential supply/capacity includes 2,682,017 sq. ft. of existing development and vacant land use capacity for 5,704,297 sq. ft. of development (see Table FL-11)

As seen in Table FL-23, the UDA and adjacent EDOAs are currently projected to achieve a "stand-alone" jobs-to-housing balance ratio of 0.80 to 1. As previously described, this ratio reflects the minimum range of an appropriate jobs-to-housing balance. However, as the County strengthens its economic presence in the regional marketplace, a higher jobs-to-housing balance

ratio within the UDA and adjacent EDOAs could be realized through greater economic development and job growth.

Table FL-23 Projected 2030 Jobs-to-Housing Balance Ratio, UDA and Adjacent EDOAs

Projected Employed Residents	53,677*
Jobs-to-Housing Balance Ratio	0.80 to 1
Projected Jobs	43,081
Non-Residential Sq. Ft. per Employee	450
Projected Non-Residential Sq. Ft.	19,386,314

* 46,361 housing units x 1.21 employed residents = 53,677

The recommendations of the July 13, 2010 ORC Report for the EAR-based amendments (Series 10-2ER) acknowledges that a jobs-to-housing balance approach must demonstrate the nexus between residential dwelling units and jobs. The current jobs housing balance for Nassau County is 0.63. In order for Nassau County to become reduce out of county commuting and develop in a fiscally sustainable way, the jobs housing balance needs to be in the range of 0.8 to 1.2. These EAR-based amendments have been designed to achieve a jobs housing balance of 1.19 in Nassau County by the horizon year of 2030. To this end, the ENCPA development program was tailored to ensure that future ENCPA workforce had adequate housing opportunities relatively near their workplace, as opposed to less appropriate areas of the County with no planned services. The form of development within the ENCPA serves to discourage urban sprawl, reduce greenhouse gas emissions, lower the County's Vehicle Miles Traveled (VMT) average.

Through the ENCPA, the desired jobs-to-housing balance ratios within the overall County (1.19), the designated Urban Development Area (0.80) and the ENCPA boundary (0.84) can be achieved. Each of these ratios falls within the appropriate range for a jobs-to-housing balance ratio (0.80 - 1.20). Modifying the ENCPA development program would compromise the ability to achieve the desired jobs-to-housing goals and indirectly encourage urban sprawl by directing future growth to less appropriate parts of the County.

Table FL-24 Projected 2030 Jobs-to Housing Balance, ENCPA

Projected Employed Residents	29,040*
Jobs-to-Housing Balance Ratio	0.84 to 1
Projected Jobs	24,444**
Non-Residential Sq. Ft. per Employee	450
Projected Non-Residential Sq. Ft.	11,000,000

* 24,000 housing units x 1.21 employed residents = 29,040

**11,000,000 non-residential sq. ft. / 450 non-residential sq. ft. per employee

In order to achieve the minimum 0.84 balance ratio for development within the ENCPA, Nassau County has revised and expanded Policy FL.13.10 to include a 2010-2015 maximum ENCPA development program:

Table FL-25 ENCPA Maximum Development Program

2010 - 2015 MAXIMUM ENCPA DEVELOPMENT PROGRAM	
Residential	1,200 Dwelling Units
Non-Residential	1,210,000 Sq. Ft.
2030 MAXIMUM ENCPA DEVELOPMENT PROGRAM (Cumulative)	
Residential	24,000 Dwelling Units
Non-Residential	11,000,000 Sq. Ft.

In addition, Policy FL.13.11 has been added to demonstrate the countywide jobs-to-housing balance goal of 1.19 and specify the requirement the minimum 0.84 ENCPA jobs-to-housing balance at the buildout of the ENCPA.

The County has also added appropriate objectives and policies throughout the plan to establish directed urban growth; increase the population percentage provided with urban services; end an economy dominated by out-of-county commuting; create an alternate east-west corridor to S.R. 200; and provide for continuation of viable agricultural-based industries and rural lifestyle choices.

Conclusions

The County has an over-abundance of residential land available to meet the projected population in 2030. These development entitlements cannot be withdrawn as a function of the EAR-based amendment process. The existing situation could result in the premature conversion of agricultural land and encourage urban sprawl by not considering urban form or the location of residential lands and their proximity to employment centers. The jobs-to-housing analysis set forth in this Land Use Need Analysis indicates the need to direct development to an urban area, provide for compact, mixed use and economic development opportunity areas. It also recognizes the need to provide rural design criteria to avoid sprawl. Nassau County seeks to use the logical boundary of Interstate 95 to separate urban and rural development patterns:

- Development in an urban form and pattern will be directed between Interstate 95 and the County's Level III Hurricane Evacuation Zone. Urban development will result in a more compact, walkable, mixed-use communities that contribute to reducing the County's overall Vehicular Miles traveled (VMT) average and limiting the increase in Green House Gas (GHG) emissions.
- Development in a rural form and pattern will be located west of Interstate 95. This will preserve the existing rural and agricultural character of the western two-thirds of the Nassau County. This long-range development approach will effectively transition Nassau County's economy from that of a "bedroom community" into a more diversified "regional employment center". Based upon the community visions and readily available roads, rails, other infrastructure and public services, the County seeks to concentrate the majority of its future urban development in a designated Urban Development Area (UDA) and adjacent Economic Development Opportunity Areas (EDOAs).
- Consistent with its Vision recommendations, the County will target employment-based commercial, industrial, office and regional center uses into the designated Economic Development Opportunity Areas (EDOAs). These industry clusters include, but are not limited to, aviation-aerospace; corporate headquarters, pharmaceuticals and biotechnology; electronics and semiconductors; medical equipment and technologies; customer service and technical support centers; internet technology; and motor vehicle parts and accessory manufacturing.

To ensure that the Urban Development Area and adjacent Economic Development Opportunity Areas are not lost to residential speculation, the County is officially amending the Future Land Use Map to create the East Nassau Community Planning Area (ENCPA), a Multi-Use designation that will provide for sustainable, mixed use, and compact urban development patterns. The EAR-based Comprehensive Plan amendments include new policies and performance standards for the the ENCPA that achieve the following:

- Protect certain unique physical and visual characteristics, including bluff topography, the St. Mary's River, Lofton Creek and significant historic or archaeological resources; and

- Create a connected network of community amenities consisting of public parks, multi-use pathways, schools and playfields; and
- Provide a variety of housing types with the higher residential densities near village centers; and
- Design communities that support alternative modes of transportation with an emphasis on bicycle and pedestrian mobility and the opportunity for a Multi-Modal Transportation District (MMTD) with any rail or bus rapid transit component located along the existing railroad corridor and U.S. 17 corridor; and
- Dedicated rights-of-way designed to accommodate necessary utility infrastructure, dedicated bike lanes and a variety of transit opportunities; and
- Enable regional employment and activity centers that encourage targeted economic development and job-supporting uses that maximize the benefits of existing or reserved highways, rail and transit-accommodating corridors; and
- Conserve energy, conserve water resources and reduce greenhouse gas emissions through innovative, energy-efficient building construction and development practices; and
- Promote the establishment of a network of uplands, wetlands, blackwater creeks and wildlife corridors that define, connect and protect significant natural habitats; and
- Accommodate a new interchange at Interstate 95 to serve East Nassau County and facilitate implementation of the Long Range Transportation Plan.

Given the results of the jobs-to-housing balance analysis described in this report; Nassau County has determined that there is sufficient justification to warrant the development of an additional 11.0 million square feet and the clustering of associated residential dwelling units through the 2030 planning horizon. Consistent with Vision 2032, the proposed Development and Preservation Framework will direct a majority of new development into the designated Urban Development Area UDA and its adjacent Economic development Opportunity Areas (EDOAs) and away from the designated Coastal Development Area and Rural Areas. This framework will help redefine Nassau County's presence as a regional employment center, maintain or improve its jobs-to-housing balance ratio and establish a clearer separation between its urban and rural land use patterns.

VI. Impact Analysis of Amendments to the 2030 Future Land Use Map

Description of Amendments

As part of the County's 2010 EAR-based amendments (Series 10-2ER), the proposed 2030 Future Land Use Map (FLUM) contains four (4) amendments to the 2010 FLUM. These are shown graphically in Map FL-7 and listed in Table FL-26 along with their maximum development potentials. They are described in detail below:

1. *East Nassau Community Planning Area (ENCPA)* is generally located east of I-95, west of Chester Road and north of S.R. 200/A1A in the Yulee Area. This site contains 22,675 gross acres proposed from Agriculture (AGR), Conservation I and Residential Low Density (LDR) to Multi-Use (MU). The 2010 FLUM distribution is 16,633 acres of Agriculture; 217 acres of Residential Low Density; and 5,825 acres of Conservation I. Pursuant to the general policy regulating Multi-Use developments, ENCPA is required to undergo Development of Regional Impact (DRI) review. In addition, an extensive series of site specific policies are incorporated into the text of the Future Land Use Element that provide for a sustainable land use pattern.
2. *Longleaf Mitigation Bank* generally located west of U.S. 301 and south of Crawford Road in the Bryceville Area. The site contains 3,029 gross acres proposed from Agriculture (AGR) and Conservation I to Conservation I (CSV I). The 2010 FLUM distribution is 2,191 acres of Agriculture and 838 acres of Conservation I. Longleaf was approved by the SJRWMD in April 2004 and the U.S. Army Corps of Engineers in September 2004. It serves three drainage basins and its service territory encompasses all of Nassau County, and most of Baker and Duval Counties.
3. *Martin's Island* is generally located south of Bells River and north of Pirates Woods subdivision in the Yulee Area. The parcel contains 110 gross acres proposed from Agriculture (AG) to Conservation I (CSV II). The island, which was purchased by the State of Florida in February 2003, is completely surrounded by tidal marshes and is a known habitat for threatened and endangered species including bald eagles and wood storks.
4. *Liberty Development LLC* is generally located east of C.R. 107 and south of Will Hardy Road. The parcel contains 10 gross acres proposed from Residential High Density (HDR) to Residential Low Density (LDR). This site was included in a development agreement recorded at O.R. 1133, pp. 17-23. A First Amendment to the development agreement was approved in May 2010 and provided for inclusion of additional land and the reduction of the development potential of the subject 10-acre parcel from 96 multi-family units to 10 dwelling units.

Assumptions and Methodology

The purpose of this analysis is to evaluate the impacts of each of the 2030 FLUM amendments on facilities and services. Impacts to be evaluated include transportation, potable water, wastewater treatment and collection, parks and recreation, stormwater, and solid waste. The purpose of this analysis is not to conduct a concurrency review, per se. Rather, it provides the County with an analysis of how the adopted level of service standards would be affected by the proposed amendments for planning purposes. Facility needs are dealt with more completely during the site plan review process that incorporates a concurrency review of each of the cited public facilities. During site plan review the County will have detailed information regarding density, intensity and specific end users. Such information is essential to accurately determine demand.

For the purpose of evaluating comprehensive plan amendments development is presumed to have the maximum impact. "Maximum impact assumed" is a convention used by reviewing agencies to quantify impact associated with categories of land use. For residential FLUM

designations, the property acreage is multiplied by the maximum permitted density. For non-residential designations the size of the property in acres is multiplied by 43,560 with that product in turn multiplied by the maximum floor area ratio. For all designations, if a property owner voluntarily commits to a proposed number of dwelling units and/or a floor area ratio through a policy adopted in the comprehensive plan ordinance, then the proposed number of dwelling units or floor area ratio may be used in place of the maximums.

The timing of development is, of course, an important independent variable in assessing capital needs. Considering this theoretical maximum potential development allowed by the proposed FLUM category(ies), the reviewing agencies have established a protocol of requiring an analysis based on a short-term and long-term planning horizon. The short-term timeframe is assumed at five (5) years from the date of adoption and the long-term timeframe is the horizon year of the comprehensive plan, in this case 2030. The development is assumed to be built out at the maximum theoretical potential by the horizon year of the plan. If the analyses demonstrate that a facility will operate below the level of service adopted within the comprehensive plan for that facility, then the necessary improvement or alternative measures to maintain the adopted level of service will be identified. If the deficiency is projected to occur within the short term timeframe and if the necessary measure is a capital improvement, it must be included within the first five years of the financially feasible capital improvement program. If the deficiency occurs beyond the first five years, the capital improvement must be identified in the respective element dealing with that facility or service.

These are the planning assumptions that will be employed in this analysis. Nevertheless, we note that these development potentials and timing assumptions tend to overestimate impacts. The post-development density and intensity of land must take into consideration environmentally sensitive areas, road and essential public service right-of-way dedications, topographical and soil limitations, zoning minimum dimensional criteria, stormwater management facilities, neighborhood amenities, off-street parking requirements, exponential building cost increases of vertical construction and multiple additional limiting factors. While it is possible to cluster maximum development rights within the buildable portions of a parcel zoning, economic and market forces impose limitations on clustering. Hence, it is common practice in Nassau County and throughout Florida for development to occur at a lower density and intensity than the maximum yield assumed through this methodology. The build out timing assumptions do not take into consideration market swings, the cost and availability of financing and the absorption rates of various land use categories.

Employing the accepted methodological constructs results in a lowering of density in three of the four 2030 FLUM amendments. The development potential of each is calculated in the following table:

Table FL-26 Development Potential of Proposed Amendments (Series 10-2ER)

Amendment	Acres		Existing Development Potential	Proposed Development Potential	Net Increase or (Decrease)
1. ENCPA	22,675 ac	Residential	6,949 DU	24,000 DU	17,051 DU
		Non-Residential	0 sq. ft.	11,000,000 sq. ft.	11,000,000 sq. ft.
2. Longleaf Mitigation Bank	3,029 ac	Residential	504 DU	0 DU	(504) DU
		Non-Residential	0 sq. ft.	0 sq. ft.	0 sq. ft.
3. Martins Island	110 ac	Residential	110 DU	0 DU	(110) DU
		Non-Residential	0 sq. ft.	0 sq. ft.	0 sq. ft.
4. Liberty Development	10 ac	Residential	100 DU	20 DU	(80) DU
		Non-Residential	0 sq. ft.	0 sq. ft.	0 sq. ft.
Total	25,824 ac	Residential	7,663 DU	24,020 DU	16,357 DU
		Non-Residential	0 sq. ft.	11,000,000 sq. ft.	11,000,000 sq. ft.

Source: Nassau County Growth Management Dept.

Transportation Impact Methodology

Nassau County retained the services of the Northeast Florida Regional Council (NEFRC) to conduct the transportation analysis of the EAR-based amendments. A methodology meeting was held on June 15, 2010 with Staff of NEFRC, Nassau County, Florida Department of Transportation District 2, and VHB Miller Sellen in attendance. The approaches and parameters agreed to at that meeting were incorporated into the *Traffic Analysis for the East Nassau Community Planning Area*, which is included in its entirety as Appendix J. A five-mile study area was selected for the ENCPA amendment site and TAZ analyses of existing conditions, 2015 conditions and 2030 conditions were performed using the Northeast Florida Regional Model with the Nassau County data set updated to reflect the proposed EAR-based amendments. FDOT growth rates were used to reflect background conditions. The analysis was run using the existing roadway and lane configuration, a conservative 5% internal capture rate, and no modal split. The modeling conducted for this analysis is not a substitute for future DRI analysis that will address existing backlogs and test improvements to the existing transportation network.

ENCPA traffic will be modeled on the First Coast TPO's Northeast Regional Planning (NERPM) model. The maximum development program established in Policy 13.10 will form the basis of the analysis - 24,000 dwelling units and 11,000,000 square feet of non-residential. The following ITE codes will be used with trip generation based on the 8th Edition: Single family detached #210, multi-family attached #220, condominium/townhouse #230, recreational homes #260, shopping center #820, general office #710, office park #750, general light industrial #110 and resort hotel #330. A five-year and long term planning horizon will be examined. The first increment of development runs through 2015 with build out assumed by the long term planning horizon ending 2030. The following phasing and TAZ assignment will be used:

Table FL- 27 ENCPA Phased Development Program*

Phase 1 (Current-2015) Dev. Program by LU	Land Use Type						
	Dwelling Units		Square Feet				Rooms
	SF	MF	Shopping Ctr.	Gen. Office	Office Park	Gen Light Ind.	Resort Hotel
Regional Center				40,000			
Regional Center-TOD							
Employment Center					225,000	525,000	
Village Center							
Village Center-TOD							
Resort Development							400
Neighborhood Center			20,000				
Res. Neighborhood	1,200						
TOTALS	1,200	0	20,000	40,000	225,000	525,000	400

Phase 2-Buildout (2016-2030) Dev. Program by LU	Land Use Type						
	Dwelling Units		Square Feet				Rooms
	SF	MF	Shopping Ctr.	Gen. Office	Office Park	Gen Light Ind.	Resort Hotel
Regional Center		5,696	1,200,000	180,000	225,000	200,000	
Regional Center-TOD		1,460		80,000	75,000		
Employment Center		1,077			2,352,000	4,788,000	
Village Center	438	1,753	650,000				
Village Center-TOD			150,000				
Resort Development	1,513	1,512	50,000				
Neighborhood Center			140,000				
Res. Neighborhood	8,868						
TOTALS	10,819	11,981	2,190,000	260,000	2,352,000	4,988,000	0

Overall ENCPA (at Buildout) Dev. Program by LU	Land Use Type						
	Dwelling Units		Square Feet				Rooms
	SF	MF	Shopping Ctr.	Gen. Office	Office Park	Gen Light Ind.	Resort Hotel
Regional Center		5,696	1,200,000	220,000	225,000	200,000	
Regional Center-TOD		1,460		80,000	75,000		
Employment Center		1,077			2,277,000	5,313,000	
Village Center	438	1,753	650,000				
Village Center-TOD			150,000				
Resort Development	1,513	1,512	50,000				400
Neighborhood Center			160,000				
Res. Neighborhood	10,058						
TOTALS	12,019	11,981	2,210,000	300,000	2,577,000	5,513,000	400

*The quantities indicated by land use category in this table are estimates for the purpose of quantifying public facility elements. Final units and square footage shall be subject to the DRI requirement for the ENCPA and shall not exceed 24,000 residential units and 11,000,000 square feet of nonresidential. It has been assumed that the Resort Hotel will consist of 400,000 sq. ft. Source: VHB MillerSellen

Modeling will assume a 5 percent internal capture rate. No transit modal split will be considered for the purpose of this analysis. The existing development potential of the site will be based upon Table FL-20. A comparison will be made between Phase I traffic generation and the existing FLUM potential. If links go over capacity in the 2030 model run, the necessary and desired improvements needed to maintain the adopted LOS will be identified. This list may include parallel segments to S.R. 200/A1A and U.S. Highway 17. However, FDOT will not accept proposed I-95 interchange at this time because of the lengthy FHWA and FDOT approval processes associated with a new interchange. However, the County can continue to identify the interchange as a desired improvement.

Water and Wastewater Methodology

ENCPA lies within the JEA service area. The adopted residential levels of service for the JEA service area are 100 gallons per capita per day for potable water and 85 gallons per capita per day for sanitary sewer. The projected household size is 2.32 PPH (see Tables FL-2 and FL-3). The number of dwelling units included in the five-year and 2030 planning horizons are multiplied by 2.32 PPH to determine the population to be served. This population projection is, in turn, multiplied by the appropriate level of service standard. For non-residential development standard generation factors will be employed absent specific information on end users. The maximum development measured in square feet is multiplied by 0.1 gallon per square foot per day for water consumption and 0.08 gallon per square foot per day for wastewater generation. The net increase or decrease is a measure of the 2010 FLUM compared to the 2030 FLUM classification.

Parks and Recreation Methodology

The demand for parks and recreation is a function of residential population. The adopted level of service is population-based at 14 acres per 1,000 persons. The projected population is determined by multiplying the number of dwelling units by 2.32 PPH. The resulting projected population is applied to the level of service standard for community and regional parks found in Policy ROS01.03 of the 2030 Recreation and Open Space Element. The net increase or decrease is a measure of the 2010 FLUM compared to the 2030 FLUM classification.

Public School Facilities Methodology

Demand for public school facilities is determined by residential dwelling units. The School Board methodology multiplies the number of dwelling units by a factor to determine elementary, middle and high school generation. The rates are: Elementary = 0.251285/ d.u.; middle = 0.14715401/d.u.; high school = 0.16998/d.u. The level of service for elementary schools is 95% of permanent FISH capacity. For middle and high schools the adopted level of service is 100% of permanent FISH capacity. The net increase or decrease is a measure of the 2010 FLUM compared to the 2030 FLUM classification.

Solid Waste Disposal Methodology

The adopted LOS standard for solid waste is 4.91 lbs. per capita per day (Policy SOL01.01, 2030 Comprehensive Plan). The population projection methodology is the same as paragraphs B and C, above. For general planning purposes, the solid waste generation rate for industrial uses is 2 lbs per 100 square feet per day; for office/business park uses 1.0 lb. per 100 square feet per day; for retail uses 5.5 lbs. per 100 square feet per day; and for lodging 2.5 lbs per unit per day.

Transportation

Nassau County retained the services of the Northeast Florida Regional Council (NEFRC) to conduct the transportation analysis of the EAR-based amendments. A methodology meeting was held on June 15, 2010 with Staff of NEFRC, Nassau County, Florida Department of Transportation District 2, and VHB Miller Sellen in attendance. The approaches and parameters agreed to at that meeting were incorporated into the *Traffic Analysis for the East Nassau Community Planning Area* (see Appendix J). A five-mile study area was selected for the ENCPA amendment site and TAZ analyses of existing conditions, 2015 conditions and 2030 conditions were performed using the Northeast Florida Regional Model with the Nassau County data set updated to reflect the proposed EAR-based amendments. FDOT growth rates were used to reflect background conditions. The analysis was run using the existing roadway and lane configuration, a conservative 5% internal capture rate, and no modal split. The modeling conducted in response to this Objection is not a substitute for future DRI analysis that will address existing backlogs and test improvements to the existing transportation network.

Short-term Transportation Improvements

By 2015 - with or without the EAR-based amendments - S.R. 200/A1A between U.S. Highway 17 and Blackrock Road is projected to not meet the adopted level of service (LOS) standard. As a matter of fact, the proposed EAR-based amendments have the effect of reducing, from a modeling standpoint, the impact to A1A through 2015. Nassau County will address the improvement of these segments of S.R. 200 to meet the projected LOS failure by the year 2015 through a long term concurrency management system. All right-of-way acquisition for the needed improvements is included in FDOT's 2011-2016 Five-Year Capital Improvement Program. The adoption of a long term concurrency management system can enable the County to work with FDOT to collect proportionate fair share funds toward the construction of a 6 - lane facility within the impacted segment.

Pursuant to Transportation Element Policy T.01.02, the County will develop and adopt a long term concurrency management system in coordination with the Florida Department of Transportation by December 31, 2011. The long term concurrency management system will include addressing designated districts, areas or facilities where significant backlog exists, the cost of eliminating the backlog, identification of tax, proportionate fair share or other revenue-raising efforts, and the inclusion of FDOT in review and approval of methodology for projects impacting S.R. 200.

Long Range Transportation Improvements

The transportation analysis was based upon the 2030 NEFRPM transportation model. The methodology incorporated multiple worse case scenarios including a 5% internal capture; complete build out by the planning horizon year, 2030; no multi-modal split; and the assignment of all resulting traffic to the existing lane configuration. Consequently, the analysis resulted in the following list of road segments that would need to be improved to support the 2030 future land use element (FLUE):

Table FL-28 Long Term Transportation Needs: Improvements to Existing Roadway Segments

Link ID#	Road Segment	From	To
40	I-95	Duval County Line	SR 200/ A1A
41	I-95	SR 200/ A1A	U.S. 17/SR 5
44	SR 200/A1A	I-95	Yulee Rd
45/45A/46	SR 200/A1A	U.S. 17/SR 5	Blackrock Road
47/48	SR 200/A1A	Old Nassauville Rd	Amelia Island Parkway
49	Pages Dairy Road	U.S. 17/SR 5	Chester Road
52	Chester Road	SR 200/ A1A	Pages Dairy Road
53	Chester Road	Pages Dairy Road	Blackrock Road
54A	Miner Road	Haddock Road	SR 200/A1A
55	U.S. 17/SR 5	Duval County Line	Harts Road
57	U.S. 17/SR 5	SR 200/A1A	Pages Dairy Road
58	U.S. 17/SR 5	Pages Dairy Road	Goodbread Road
59	U.S. 17/SR 5	Goodbread Road	I-95
60	U.S. 17/SR 5	I-95	State Line

Table FL- 29 Long Term Transportation Needs: New Roadway Segments w/in Urban Development Area

Road Segment	From	To
CR 108 Extension	Chester Road	U.S. 17
East Nassau Connector	CR 108	East Frontage Road
East Nassau Connector	East Frontage Road	I-95 (New Interchange)
East Frontage Rd	U.S. 17	SR 200/A1A

Table FL-30 Long Term Transportation Needs: Long Range Transit Improvements

Station	From	To
Town Center	Regional Center TOD @ U.S. 17	-Duval County line*

* Coordinate with Duval County and JTA for extension to Jacksonville International Airport

Pursuant to Policy T.02.05, the list of transportation improvements shown above shall be included as long term unfunded needs in the Nassau County Capital Improvements Element (CIE) and shall be considered by the County when it adopts annual updates to the Schedule of Capital Improvements. These lists of improvements shall also be considered in any transportation analysis prepared by an applicant for DRI approval as required for any development within the East Nassau Community Planning Area (ENCPA).

Potable Water and Sanitary Sewer Systems

Potable Water Demand

Phase 1 of the ENCPA development program represents a net decrease in potable water demand when compared to the existing FLUM designations. Nevertheless, because the East Nassau Community Planning District requires connection to central potable water (Policy FL.13.14) a 2015 potable water analysis will be performed. ENCPA is located within JEA's Nassau Lofton Oaks service area. JEA operates 3 water treatment plants to serve Nassau Lofton Oaks having a combined capacity of 5.33 MGD (see Table WAT-1). The JEA 2009 Annual Water Resource Master Plan indicates an Average Daily Flow within the Nassau Lofton Oaks system of 2.29 MGD. The Nassau grid well fields have a permitted capacity of 8.72 MGD. The inclusion of an additional 0.4194 MGD from ENCPA can be accommodated together with any growth in background demand.

Table FL-31 ENCPA Potable Water Demand, 2015

Land use	Units	PPH	Demand Factor	Daily Demand
Residential	1,200 du	2.32	100 GPCD	278,400
Non-Residential	810,000 sf	n/a	.1 GPSFD	81,000
Hotel	400 rm	n/a	150 GPRD	60,000
Sub-Total				419,400
Existing Demand	6,949 du	2.32	100 GPCD	(1,612,168)
Net Decrease in Demand				(1,192,768)

Source: Nassau County Growth Management Dept.

du = dwelling units

rm = rooms (units)

GPSFD = gallons per sq. ft. per day

sf = square feet

GPCD = gallons per capita per day

GRPD = gallons per room per day

Table FL-32 ENCPA Cumulative Potable Water Demand, 2030

Land use	Units	PPH	Demand Factor	Daily Demand
Residential	24,000 du	2.32	100 GPCD	5,568,000
Non-Residential	10,600,000 sf	n/a	.1 GPSFD	1,060,000
Hotel	400 rm	n/a	150 GPRD	60,000
Cumulative Build-Out Demand				6,688,000
Existing Demand	6,949 du	2.32	100 GPCD	(1,612,168)
Net Cumulative Increase				5,075,832

Source: Nassau County Growth Management Dept.

In March 2010 JEA began construction of the new West Nassau water treatment plant located east of I-95 and south of S.R. 200 near William Burgess Blvd. (JEA Project DE137-03). Construction includes a 1.4 MGD well field, 1 MGD water treatment plant, and a 0.5 MGD finished water storage tank. Completion of the West Nassau WTP in 2011 will increase well field capacity to 10.12 MGD and treatment plant capacity to 6.33 MGD. The 2009 Annual Water Resource Master Plan indicates a projected demand of 3.95 MGD within the Nassau Grid (see Appendix K). With the addition of the cumulative increase from the ENCPA, the 2030 supply and demand is as follows:

Table FL-33 2030 Demand Analysis With ENCPA, JEA Nassau Grid

JEA 2030 Demand Projection	3.95 MGD
ENCPA Incremental Increase	5.08 MGD
Total Nassau Grid Demand	9.03 MGD
Existing Wellfield Capacity	10.12 MGD
Surplus / (Deficit)	1.09 MGD
Existing WTP Capacity	6.33 MGD
Surplus / (Deficit)	(2.7 MGD)

Source: Nassau County Growth Management Dept.

The West Nassau WTP is designed for an eventual expansion to a 3.6 MGD well field and 3.5 MGD treatment plant. The planned West Nassau WTP plant increase of 2.5 MGD will have to be expanded to 2.7 MGD to accommodate ENCPA and background growth.

Sanitary Sewer Demand

Phase 1 of the ENCPA development program represents a net decrease of slightly more than 1.0MGD in sanitary sewer demand when compared to the existing FLUM designations. Because the East Nassau Community Planning District requires connection to the JEA central sanitary sewer collection and treatment system (Policy FL13.14) a 2015 sanitary sewer analysis will be performed. ENCPA is located within JEA's Nassau Lofton Oaks service area. JEA's Yulee Water Reclamation Facility (WRF) capacity of 2.0 MGD (see Table SEW-1). The 2009 Average Daily Flow within the JEA Nassau system is 0.897 MGD. The 2009 Annual Water Resource Master Plan published by JEA projected a background flow of 1.454 MGD in 2015 (see Appendix K). The existing 2.0 MGD capacity can handle the projected background flow plus the Phase 1 ENCP (1.454 + .361 = 1.815 MGD).

Table FL-34 ENCPA Sanitary Sewer Demand, 2015

Land use	Units	PPH	Demand Factor	Daily Demand
Residential	1,200 du	2.32	85 GPCD	236,640
Non-Residential	810,000 sf	n/a	.08 GPSFD	64,800
Hotel	400 rm	n/a	150 GPRD	60,000
Sub-Total				361,440
Existing Demand	6,949 du	2.32	85 GPCD	(1,370,343)
Net Decrease in Demand				(1,008,903)

Source: Nassau County Growth Management Dept.

du = dwelling units

rm = rooms (units)

GPSFD = gallons per sq. ft. per day

sf = square feet

GPCD = gallons per capita per day

GRPD = gallons per room per day

Table FL-35 ENCPA Cumulative Sanitary Sewer Demand, 2030

Land use	Units	PPH	Demand Factor	Daily Demand
Residential	24,000 du	2.32	85 GPCD	4,732,800
Non-Residential	10,600,000 sf	n/a	.08 GPSFD	848,000
Hotel	400 rm	n/a	150 GPRD	60,000
Cumulative Build-Out Demand				5,640,800
Existing Demand	6,949 du	2.32	85 GPCD	(1,370,343)
Net Cumulative Increase				4,270,457

Source: Nassau County Growth Management Dept.

The 2009 Annual Water Resource Master Plan projects a 2018 Nassau WRF flow of 1.6 MGD. Extrapolating this straight line growth of 0.05 MGD to 2030 yields a background flow of 2.2 MGD. The projected background flow plus ENCPA at build out will generate 6.47 MGD.

Table FL-36 2030 Demand Analysis with ENCPA, JEA Yulee WRF

JEA 2018 Flow Projection	1.60 MGD
2030 Extrapolated Flow Projection	2.20 MGD
ENCPA Incremental Increase	4.27 MGD
Total Nassau Service Area Demand	6.47 MGD
Existing Yulee WRF capacity	2.00 MGD
Planned Yulee WRF expansion	2.00 MGD
Surplus / (Deficit)	(2.47) MGD

Source: Nassau County Growth Management Dept.

The existing 2.0 MGD Yulee WRF is sized to accommodate a 2.0 MGD expansion. A further 2.47 MGD expansion will be necessary to accommodate ENCPA.

Recreation and Open Space

The acreage required to meet the public park demand of ENCPA and all residential developments must be acquired by the County prior to the issuance of a certificate of occupancy. The data and analysis of the Recreation and Open Space Element indicates a 2015 deficit in community, regional and water access acreage - reference Tables ROS-6, -7, -8 and -9. The acreage needed to satisfy the community, regional and water access park requirements of ENCPA will be identified during the preliminary development plan and DRI development order and dedicated during the subdivision plat process that will occur prior to the issuance of a residential certificate of occupancy.

Table FL-37 ENCPA Park Demand, 2015

	Community Parks 3.35 ac / 1,000	Regional Parks 10 ac / 1,000	Water Access 0.65 ac / 1,000
ENCPA, Phase 1 1,200 du	9.33 ac	27.84 ac	1.81 ac
Existing FLUM 6,949 du	54.01 ac	161.22 ac	10.48 ac
Net Decrease in Demand	(44.68) ac	(133.38) ac	(8.67) ac

Source: Nassau County Growth Management Dept.

LOS based on Policy ROS01.03, 2030 Comprehensive Plan

Table FL-38 ENCPA Cumulative Park Demand, 2030

	Community Parks 3.35 ac / 1,000	Regional Parks 10 ac / 1,000	Water Access 0.65 ac / 1,000
ENCPA 24,000 du	186.53 ac	556.80 ac	36.19 ac
Existing FLUM 6,949 du	54.01 ac	161.22 ac	10.48 ac
Net Increase in Demand	132.52 ac	395.58 ac	25.71 ac

Source: Nassau County Growth Management Dept.

The data and analysis of the Recreation and Open Space Element indicates a 2030 deficit in community, regional and water access acreage - reference Tables ROS- 6, -7, -8 and -9. The County does not project any surplus to offset the demand created by the residential component of ENCPA. The acreage needed to satisfy the community, regional and water access park requirements of ENCPA will be identified during the preliminary development plan and DRI development order and will be dedicated during the subdivision plat process that will occur prior to the issuance of a residential certificate of occupancy.

Public School Facilities

ENCPA lies primarily within the Yulee North school concurrency service area with a small portion extending into the Yulee South concurrency service area. Public school facilities to serve residential development must be in place within 3 years after the issuance of a final subdivision or site plan approval. If the level of service cannot be maintained within the concurrency service area in which the proposed residential subdivision is located, development impacts must be shifted to contiguous concurrency service areas having available school capacity at the adopted level of service. One elementary school is proposed within Yulee north and no additional school were anticipated within contiguous concurrency service areas (reference Map PSF-6). This will be adequate to serve the net change from ENCPA, Phase I through 2015.

Table FL-39 ENCPA Student Generation, 2015

	Elementary Students	Middle School Students	High School Students
ENCPA, Phase 1: 1,200 du	302	177	204
Existing FLUM: 6,949 du	1,746	1,023	1,181
Net Decrease in Students	(1,444)	(846)	(907)

Source: Nassau County Growth Management Dept.

Table FL-40 ENCPA Cumulative Student Generation, 2030

	Elementary Students	Middle School Students	High School Students
ENCPA, buildout: 24,000 du	6,031	3,532	4,080
Existing FLUM: 6,949 du	1,746	1,023	1,181
Net Increase in Students	4,285	2,509	2,899

Source: Nassau County Growth Management Dept.

The core capacity of an elementary school is 800 students; a middle school 1,200 students; and a high school 1,500 students (see Public School Facilities Element, data and analysis page 15). Based upon projected background growth, two elementary and one middle school were deemed

capital needs within the Yulee North concurrency service area (see Map PSF-6). Map PSF-6 will have to be amended to reflect a need for an additional 5 elementary schools; 2 additional middle schools; and 2 additional high schools within the Yulee North concurrency service area as a result of this amendment.

Solid Waste Disposal

The data set forth in Table FL-41 indicates that there will be a net reduction in solid waste generation for the East Nassau Community Planning Area amendment through 2015. Solid waste will be collected by private haulers and disposed of in the Camden County, Georgia or Chesser Island Landfill pursuant to the existing interlocal agreements discussed in detail in the Solid Waste section of the Public Facilities Element.

Table FL-41 ENCPA Solid Waste Generation, 2015

Description	Lbs. per Day	Tons per Year
ENCPA, residential, 1,200 du	5,892	1080.0
ENCPA, office 265,000 sf	2,650	483.6
ENCPA, industrial 525,000 sf	10,500	1,916.0
ENCPA, retail 20,000 sf	1,100	200.8
ENCPA, resort hotel 400 rms	1,000	182.5
ENCPA, Phase I Total	21,142	3,862.9
Existing FLUM, 6,949 du	34,120	6254.1
Reduction in Solid Waste Generation	(12,978)	(2,391.2)

Source: Nassau County Growth Management Dept.

Table FL-42 ENCPA Solid Waste Generation, 2030

Description	Lbs. per Day	Tons per Year
ENCPA, residential, 24,000 du	117,840	21,600
ENCPA, office 2,877,000 sf	28,770	5,251
ENCPA, industrial 5,513,000 sf	110,260	20,122
ENCPA, retail 2,210,000 sf	121,550	22,183
ENCPA, resort hotel 400 rms	1,000	182.5
ENCPA, Total	379,420	69,244
Existing FLUM, 6,949 du	34,120	6254.1
Increase in Solid Waste Generation	345,300	62,990

Source: Nassau County Growth Management Dept.

The Camden County site will accept up to 450 tons per day (164,250 tons per year). Camden alone can accommodate the projected 2030 population and ENCPA. Alternative solid waste disposal capacity is available at the Chesser Island Road Landfill in Charlton County, Georgia. The minimum densities of the ENCPA and mandatory utility connection (and billing) make it well suited for curbside recycling.