CONSERVATION ELEMENT SUPPORT DOCUMENT

Data, Inventory & Analysis

Clay County 2040 Comprehensive Plan

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A. Introduction

Purpose

The Conservation Element inventories the natural resources of Clay County considering the increasing requirements placed on these support systems to meet the demands created by an increasing population. Public workshops and state agency comments for the 2017 Evaluation and Appraisal Report (EAR), as well as revised state and federal conservation regulations have further guided the analysis presented here for the 2040 plan EAR-based amendments.

Standards

Chapter 163 of the Florida Statutes (F.S.) provides the statutory authority for the preparation, review, and determination of compliance for local government comprehensive plans. Significant changes to these state requirements have been adopted since the initial comprehensive planning process became a requirement for local governments in 1985, notably for water supply planning. The Conservation Element is a required element of the comprehensive planning process.

B. Data and Analysis

The Conservation Element data and analysis is based on reviewing the "natural resources" and identifying methods of conservation, use, and protection of these natural resources. Per Chapter 163 (163.3177(6)(d)1 and 2 specifically identifies the following natural resources for analysis if they are present in the local government's boundaries.

- Air Quality
- Water Resources
    - Rivers, bays, lakes, wetlands including estuarine marshes, groundwater, and springs, including information on quality of the resource available.
    - Floodplains.
- Known sources of commercially valuable minerals.
- Areas known to have experienced soil erosion problems.
- Areas that are the location of recreationally and commercially important fish or shellfish, wildlife, marine habitats, and vegetative communities, including forests, indicating known dominant species present and species listed by federal, state, or local government agencies as endangered, threatened, or species of special concern.

Air Quality

Air Quality is reported with the air quality index (AQI) that is calculated by the Environmental Protection Agency (EPA). Metropolitan Statistical Areas (MSAs) with a population of more than 350,000 are required to report the AQI daily to the general public. Clay County is part of the Jacksonville MSA, yet does not any federal, state, or local air quality monitoring stations are operating in Clay County.

The nearest monitoring stations for nitrogen dioxide, carbon monoxide, ground level ozone, and particulate matter are in Duval County which is designated as an Air Quality Maintenance Area for any of the criteria pollutants per 62-204.340 F.A.C. Clay County is not designated as an Air Quality Maintenance Area for any of the criteria pollutants (62-204.340 F.A.C.).

Water Resources

Rivers/Streams

Stream flow is that part of surface water which occurs in natural channels. In general, it is closely related to precipitation, groundwater, and other occurrences of surface water, such as lakes and canals. About 12 inches of the annual rainfall in Clay County leaves the area as stream flow. The remainder leaves as evaporation, transpiration by plants, or groundwater outflow. The average stream flow from Clay County into the St. Johns River is about 342 MGD, mostly from Black Creek.

The St. Johns River flows northward along the east boundary of the County. Its entire reach along the County is tidally affected and the stage of the river rises and falls with each change of the tide. Black Creek drains 488 square miles, all in Clay County except for 56.6 square miles. The South Fork Black Creek originates in Stevens Lake, which is about four miles south of Kingsley Lake. Its major tributaries are Ates Creek and Greens Creek from the south, and Bull Creek which drains the central part of the County. North Fork Black Creek originates in Kingsley Lake. Its principal tributary is Yellow Water Creek, which drains 10.5 square miles in north central Clay County and 56.6 square miles in southern Duval County. North and South Forks join at Middleburg to form Black Creek, which flows eastward to the St. Johns River.

The headwater of Etonia Creek and its tributaries from the north drain about 90 square miles of southern Clay County. The upper 150 square miles of the basin in southwest Clay County and northwest Putnam County contain approximately 100 lakes, many of which have no surface outlets. Runoff from the upper part of the basin is extremely low, primarily because of seepage into groundwater and evapotranspiration from the lakes and creeks. Floods in the upper part of the basin occur periodically during heavy rains.

Table 1 – Named Streams in Clay County

Name of River/Stream	Flows Into		Name of River/Stream	Flows Into
Alligator Creek	Lake Brooklyn		Little Black Creek	Black Creek
Ates Creek	S. Fork Black Creek		Long Branch	N. Fork Black Creek
Big Branch, Tributary of N Fork Black Creek	N. Fork Black Creek		Lucy Branch	Doctors Lake
Big Branch, Tributary of Yellow Water Creek	Yellow Water Creek		Mainard Branch	Doctors Lake
Black Creek	St. Johns River		Mill Branch, Tributary of N Fork Black Creek	N. Fork Black Creek
Boggy Branch	N. Fork Black Creek		Mill Branch, Tributary of Yellow Water Creek	Yellow Water Creek
Bradley Creek	Black Creek		Mill Creek	Bull Creek
Bull Creek	S. Fork Black Creek		Mill Log Creek	Black Creek
Camp Branch	Long Branch		Mint Creek	N. Fork Black Creek
Clarkes Creek	St. Johns River		North Fork Black Creek	Black Creek
Clay Branch	St. Johns River		North Prong Double Branch	Double Branch
Devils Den Creek	Ates Creek		Ortega River	St. Johns River
Dillaberry Branch	N. Fork Black Creek		Pecks Branch	Black Creek
Double Branch	Little Black Creek		Peters Branch	St. Johns River
Duck Creek	Doctors Lake		Peters Creek	Black Creek
Duckwater Branch	N. Fork Black Creek		Polander Branch	S. Fork Black Creek
Gold Head Branch	Little Lake Johnson		Red Bay Creek	St. Johns River
Governors Creek	St. Johns River		Rice Creek	St. Johns River
Greens Creek	S. Fork Black Creek		Simms Creek	Rice Creek
Grog Branch	Black Creek		South Fork Black Creek	Black Creek
Gum Branch	N. Fork Black Creek		South Prong Double Branch	Double Branch
Indigo Branch	Doctors Lake		Swimming Pen Creek	Doctors Lake
John Boy Creek	Black Creek		Wheeler Branch	N. Fork Black Creek
Johnson Slough	St. Johns River		Yellow Water Creek	N. Fork Black Creek

Sources: United States Geological Survey, Federal Emergency Management Agency, St. Johns River Water Management District

Lakes

There are 51 named natural and man-made lakes in excess of one acre which lie wholly or predominantly within Clay County (Table 2, Lake Names in Clay County). Ranging in size from

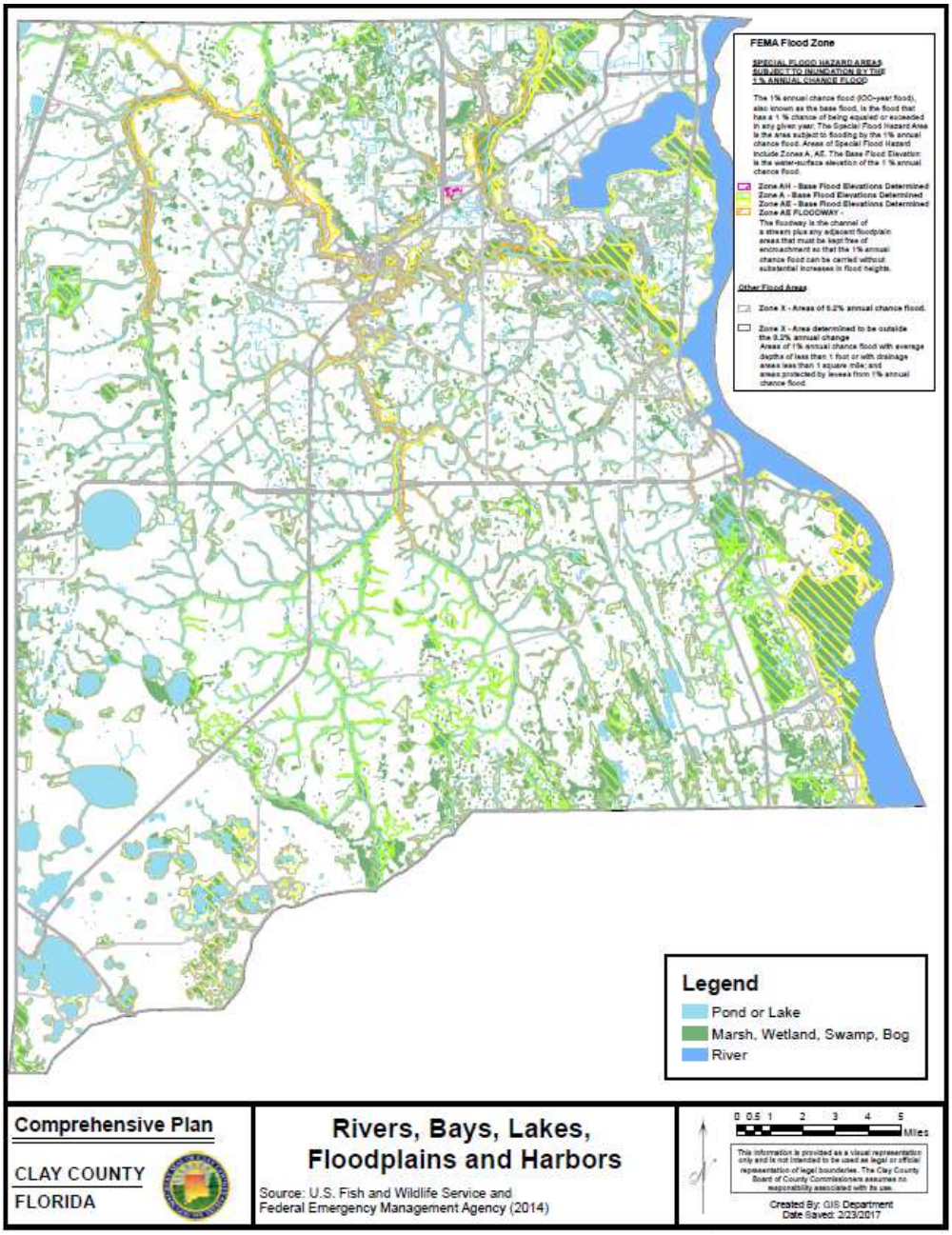
2-acre Deer Lake in Gold Head Branch State Park to Doctors Lake of over 3,000 acres, these lakes encompass an aggregate area of about 12,000 acres. Kingsley Lake is one of Florida's oldest and highest natural lakes.

Table 2 - Lake Names in Clay County

Name of Lake	Acres	Name of Lake	Acres
Big Lake Johnson	110	Long Lake	21
Blue Pond	200	Lost Pond	12
Bull Pond	4	Lowry Lake	1,246
Bundy Lake	27	M Lake	16
Crystal Lake	406	Magnolia Lake	203
Deer Springs Lake	30	Mosquito Lake	2
Devils Wash Basin (Deer Lake)	2	North Lake Asbury	112
Doctors Lake	3,433	Oldfield Pond	73
Echo Lake	15	Paradise Lake	44
Gator Bone Lake	112	Pear Lake	2
Hall Lake	187	Pebble Lake	4
Keystone Lake	19	Perch Pond	19
Kingsley Lake	1,615	Saddlebag Pond	3
Lake Bedford	210	Sheelar Lake	15
Lake Brooklyn	644	Silver Sand Lake	29
Lake Geneva	1,785	Smith Lake	245
Lake Hutchinson	103	South Lake Asbury	61
Lake Lark	6	Spencer Lake	5
Lake Lily	110	Spring Lake	100
Lake Margie	22	Stevens Lake	221
Lake Opal	20	Twin Lakes	38
Lake Ryan	6	Varnes Lake	298
Lake Washington	34	White Sands Lake	234
Little Lake Geneva	37	Whitmore Lake	138
Little Lake Johnson	29	Winding Tree Lake	44
Loch Lommond	7		

Source: St. Johns River Water Management District; FDEP GIS Database; USGS GIS

Figure 1 - Rivers, Bays, Lakes, Floodplains and Harbors



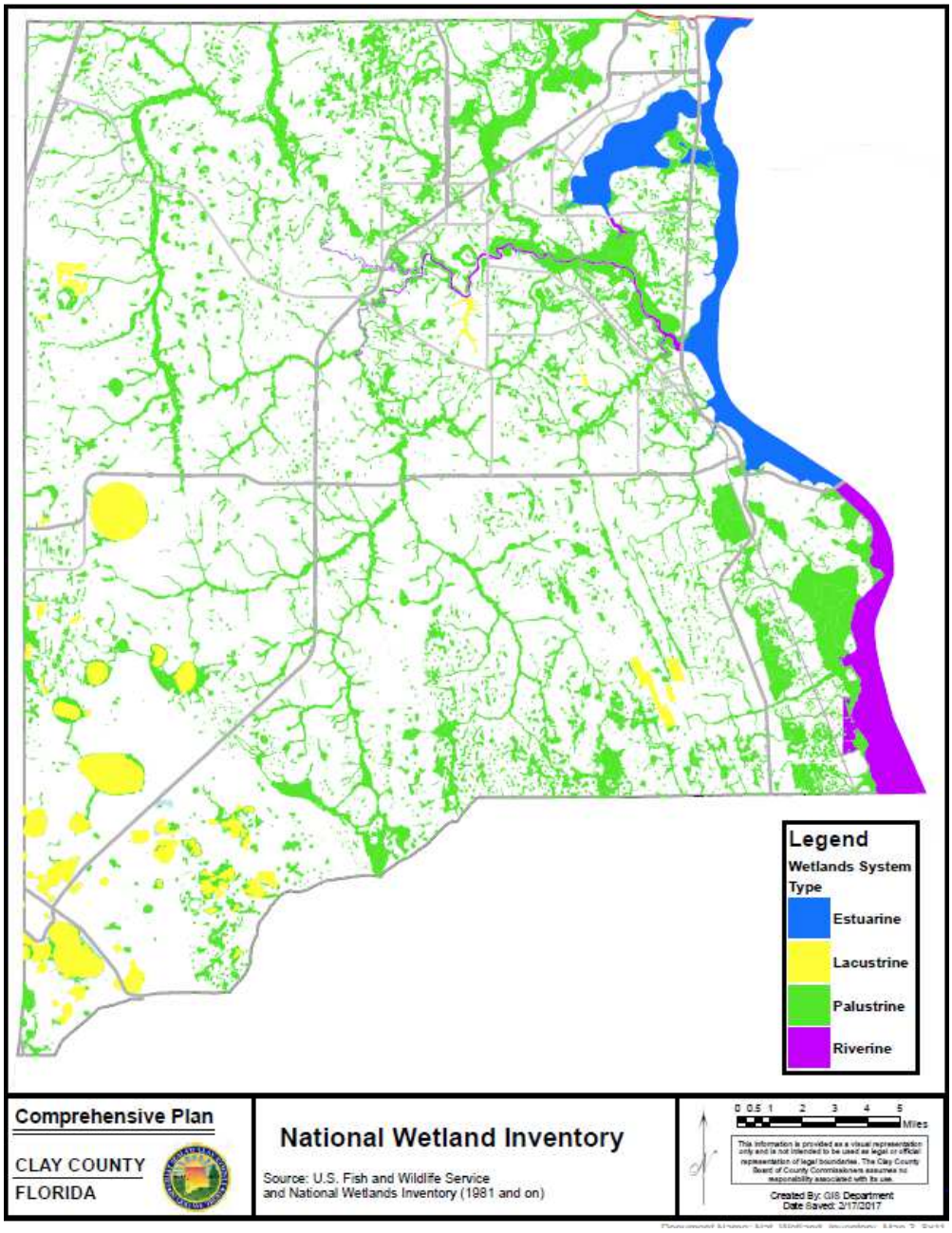
Wetlands (including estuarine marshes)

The Wetlands Map shows those areas identified as wetlands or deep water in the National Wetlands Inventory dataset by the US Fish and Wildlife Service. Doctors Lake and the St. Johns River upstream to the Shands Bridge on SR 16 are classified as estuarine systems: tidal systems partially enclosed by land with at least occasional connection to the open ocean with the ocean water being diluted by freshwater runoff. Lacustrine systems are typically lakes: those non-flowing wetlands and deep-water habitats over 20 acres with less than 30% coverage of rooted vegetation (trees, shrubs, persistent emergent herbaceous plants, etc.). Ocean-derived salinity is less than 0.5%. Lacustrine systems in Clay County include Lake Asbury, Kingsley Lake, numerous lakes on Camp Blanding and the Keystone Heights area, and some larger mine tailing ponds.

Riverine systems are freshwater flowing systems contained within a channel: creeks, streams, rivers lacking woody or persistent emergent herbaceous vegetation. Riverine systems in Clay County include the St. Johns River upstream of SR 16, and Black Creek. Palustrine wetlands are those vegetated wetlands dominated by trees, shrubs, persistent emergent herbaceous vegetation, emergent mosses or lichens with salinity from ocean derived salts < 0.5%: swamps, marshes, bogs, and prairies. They also include ponds of less than 20 acres with deepest water less than 6 feet at low water. Many stream and lake shorelines are bordered by palustrine wetlands. This is the predominant wetland type in Clay County.

Potential impacts to wetlands are regulated by the US Army Corps of Engineers, the Florida DEP, and the regional water management districts. Clay County requires that wetlands be delineated on all plats and site plans submitted for development review and that other agency permits for any impacts be secured prior to clearing and grading the site. Wetlands under state jurisdiction are designated as Conservation in the Future Land Use Element and subject to the all policies of that Element governing this land use category as well as the requirements of the Conservation Overlay Zone of the Clay County Zoning Code.

Figure 2 - National Wetland Inventory



Springs

Springs are not a common feature in Clay County. St. Johns River Water Management District has documented seven springs and seeps in the County, (Springs and Sinkholes map), all of them discharging less than 10 cubic feet per second. Green Cove Springs a third magnitude spring and the largest spring in the County, is now the County's only spring of commercial and recreational significance. It supplies the City of Green Cove Springs' swimming pool at Spring Park.

Floodplains

The Clay County Floodplain Ordinance #87-45 and subsequent amendments of Ordinances 92-4, 93-38, 2002-44, and 2004-65 regulate land uses within the special flood hazard areas located in the County. This ordinance prohibits encroachments in floodways, including fill, new construction, substantial improvements, and other developments unless certification by a registered professional engineer is provided demonstrating that such encroachments will not result in any increase in flood levels during occurrence of the base flood discharge (Clay County Ordinance #87-45 (6)(3)(a)). Elevation of buildings, machinery and equipment which serve them, and utility service connections such as faucets, circuit boxes, and electric switches and outlets, is required in the flood fringe or special flood hazard areas without a designated floodway, as is the use of flood-resistant materials for enclosed areas below the base flood elevation. Design and anchoring of buildings, manufactured homes, machinery and equipment, and utility service systems is required such that they will be capable of withstanding hydrostatic and hydrodynamic forces and the effects of buoyancy. Utility systems must be located or designed to prevent the entry of floodwaters or damage from flooding and to prevent the contamination of floodwaters by the contents of such systems.

The NFIP requirements of 44 CFR part 60 require that local governments require copies of all other local, state, and federal permits, such as but not limited to permits for wetlands and listed species impacts, are provided for a development project before issuing a floodplain development permit. The County should review coordination policies to ensure efficient compliance with this requirement.

Water Supply

Existing and proposed permitted water wells are subject to the Consumptive Use Permitting program of the St. Johns River Water Management District. This database includes 1,359 wells, of which 284 are active, 978 are inactive, 92 have never been active, 5 have unknown records. Some of these wells are for purposes other than potable water and are not included in the inventories from agencies responsible for regulating drinking water quality. As of July 2017, Clay County Health Department records included 47 active Limited Use commercial potable water wells and 152 Limited Use registered potable water wells under Health Department jurisdiction. An accurate inventory of domestic self-supply wells and small non-potable water wells is not currently available. Cones of influence have not been specifically indicated around wells in Clay County according to the St. Johns River Water Management District.

Groundwater Quality

Rule 62-520 FAC defines ground water classes and sets ground water quality standards. The classes are as follows:

F-I - Potable water use, ground water in a single source aquifer described in Rule 62-520.460, F.A.C., which has a total dissolved solids content of less than 3,000 mg/l and was specifically reclassified as Class F-I by the Commission.

- G-I – Potable water use, ground water in single source aquifers that has a total dissolved solids content of less than 3.000 mg/l.

- G-II – Potable water use, ground water in aquifers that has a total dissolved solids content of less than 10,000 mg/l unless otherwise classified by the Commission

- G-III – Non-potable water use, ground water in unconfined aquifers that has total dissolved solids content of 10,000 mg/l or greater, or which has total dissolved solids of 3.000-10,000 mg/l and either has been reclassified by the Commission as having no reasonable potential as a future source of drinking water, or has been designated by the Department as an exempted aquifer pursuant to subsection 62-528.300(3) FAC.

- G-IV – Non-potable water use, ground water in confined aquifers that has a total dissolved solids content of 10,000 mg/l or greater.

DEP identified and delineated known areas of groundwater contamination as required in rule 62-524 FAC. No areas of contamination have been delineated in Clay County pursuant to this rule. Rule 62-521 F.A.C sets wellhead protection requirements and prohibits certain activities and facilities that pose particular threats of groundwater contamination within a specified distance of public supply potable water wells.

Public water systems are required to monitor for various contaminants and varying frequencies specified by state and federal regulations. This is dependent on the type of system and population. All systems monitor for bacteriological contaminants, both at the wells and within the distribution system.

Community water systems monitor for Primary Inorganics (annual for nitrate and nitrite), Secondary Contaminants, Volatile Organic Contaminants (VOCs), Synthetic Organic Contaminants (SOCs), Radionuclides (Rads) in the water leaving the plant. Monitoring specific to the distribution system including asbestos (if present), disinfection byproducts (DBPs), and Lead and Copper Tap Sampling.

Non-Transient Non-Community water systems monitor for Primary Inorganics (annual for nitrate and nitrite), Volatile Organic Contaminants (VOCs), Synthetic Organic Contaminants (SOCs), Radionuclides (Rads) in the water leaving the plant. Monitoring specific to the distribution system including asbestos (if present), disinfection byproducts (DBPs), and Lead and Copper Tap Sampling.

Transient Non-Community (aka noncommunity) are required to sample nitrate and nitrite annually only.

Monitoring for any contaminant would be increased should they exceed the required standards. Clay County has a total of 82 Public Water systems that are monitored by FDEP for potential sources of contamination. Table 3 shows how these water systems ae categorized.

Table 3 - Public Water Systems in Clay County

Type of Public Water System	Number in County
Community	15
Non-transient Non-community	11
Non-community	56

Source: FDEP NE District

Existing Recreational or Conservation Uses

Clay County has many of the natural resources reference in Chapter 163.3177(6)(d)1. The existing recreational and conversation uses of the natural resources in Clay County are well documented on the County website through maps and other Comprehensive Plan elements.

Known Pollution Problems

No known pollution problems exist beyond those that are represented as “potential” pollution points in the public water systems.

Potential

For each of the natural resources present in the County, the potential use for additional conservation, recreation, use, and/or protection has been analyzed. There is no specific direction from the County for these items. The Comprehensive Plan and land development regulations promote the development of these items for nature resources in the County. In some instances, the natural resources within the County are abundant which presents a tremendous amount of potential for either conservation, recreation, use, or protection.

Water Conservation

Clay County Utility Authority (CCUA), the main potable water utility in the County, has developed a progressive water conservation plan through the distribution of reclaimed water from wastewater treatment plants primarily for landscape and golf course irrigation. In October 2010, the Board of Supervisors adopted a proposed rate structure change to incorporate a tiered conservation rate structure. Multiple inclining volume charges are intended to encourage water conservation. The idea is simple; the more you use, the more you pay. The new rate structure has four tiers. The first tier has the lowest rate, and provides a reasonable amount for water for essential use. As the amount of water used increases to the highest category, the volume charge increases significantly. County-wide water use data compiled by the St. Johns River Water Management District for 2015, shown below in Table 4, indicate that reuse accounted for 15% of all water used in the County. The reuse percentage used has increased since 2008 while the all other categories have declined except Domestic Self-Supply, which has seen an increase over the same period. Overall, the total water use levels have decreased by 19% since 2008.

Table 4 - 2015 Water Use Data in Clay County

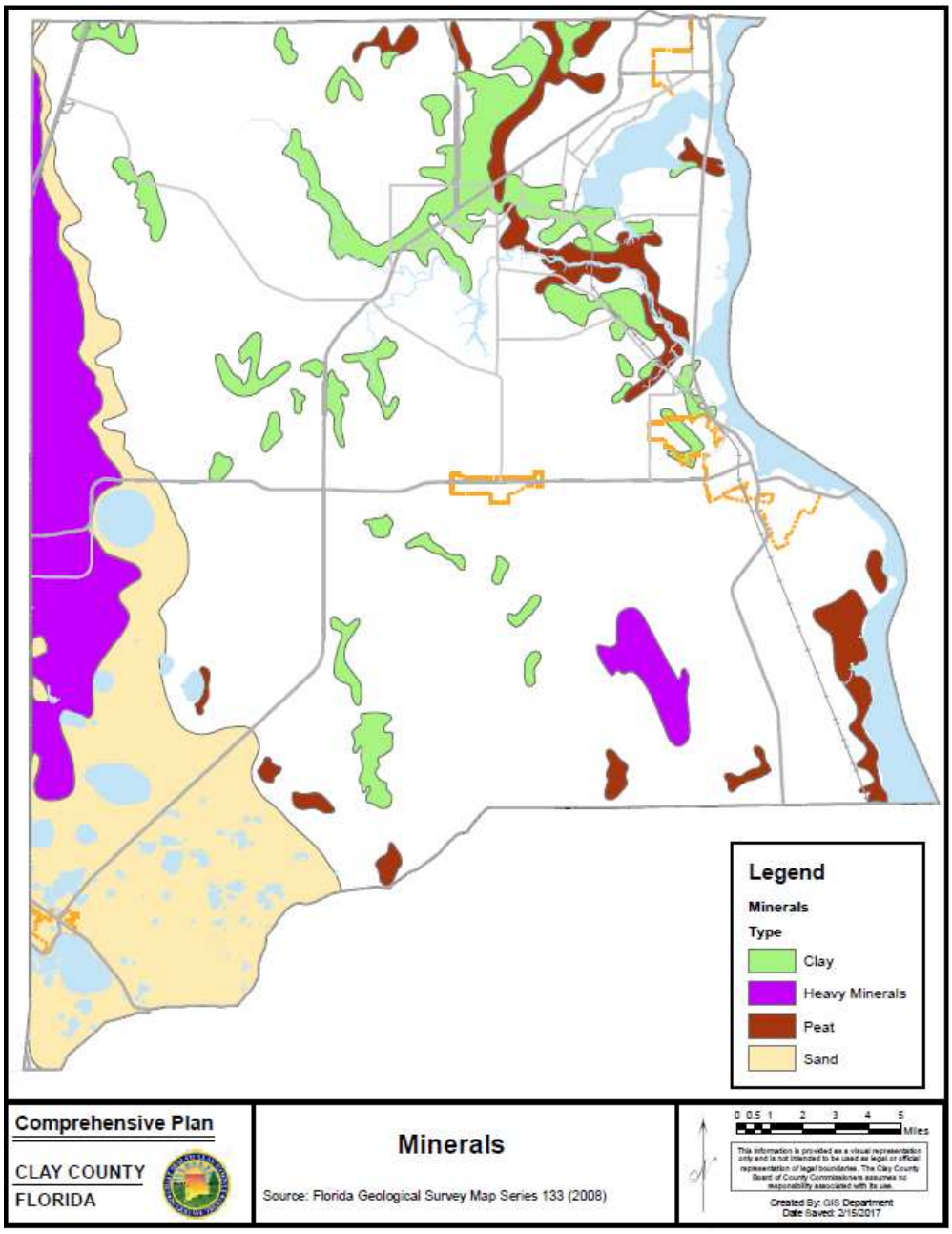
Water Use Category	Average Amount Used (million gallons per day)
Public Supply	13.51
Domestic Self-Supply	6.86
Commercial/Industrial/Institutional	0.38
Agricultural Self-Supply	1.17
Landscape/Recreational/Aesthetic Self-Supply	0.62
Reuse	4.04
Total	26.58

Source: St. Johns River Water Management District, 2015, Technical Fact Sheet SJ2007-FS1: 2015 Annual Water Use Data

Known Sources of Commercially Valuable Minerals

Per the County's Mineral Map, there are a few pockets of "heavy minerals" in the west and then some on the southeast portion of the County. The data source for this information is the Florida Geological Survey and the map does not indicate what these minerals are of if they are commercially valuable. With no further data, the conclusion was made that there are no none sources of commercial valuable minerals in the County.

Figure 3 - Minerals



Soils

All soils information and related maps included in this plan are produced from data published by the USDA Natural Resources Conservation Service (NRCS). Soil types as classified and mapped by the Natural Resources Conservation Service. Each type of soil has also been mapped based on the drainage characteristic nature of each soil as can been seen on the Soils Drainage Map.

Figure 4 - General Soils

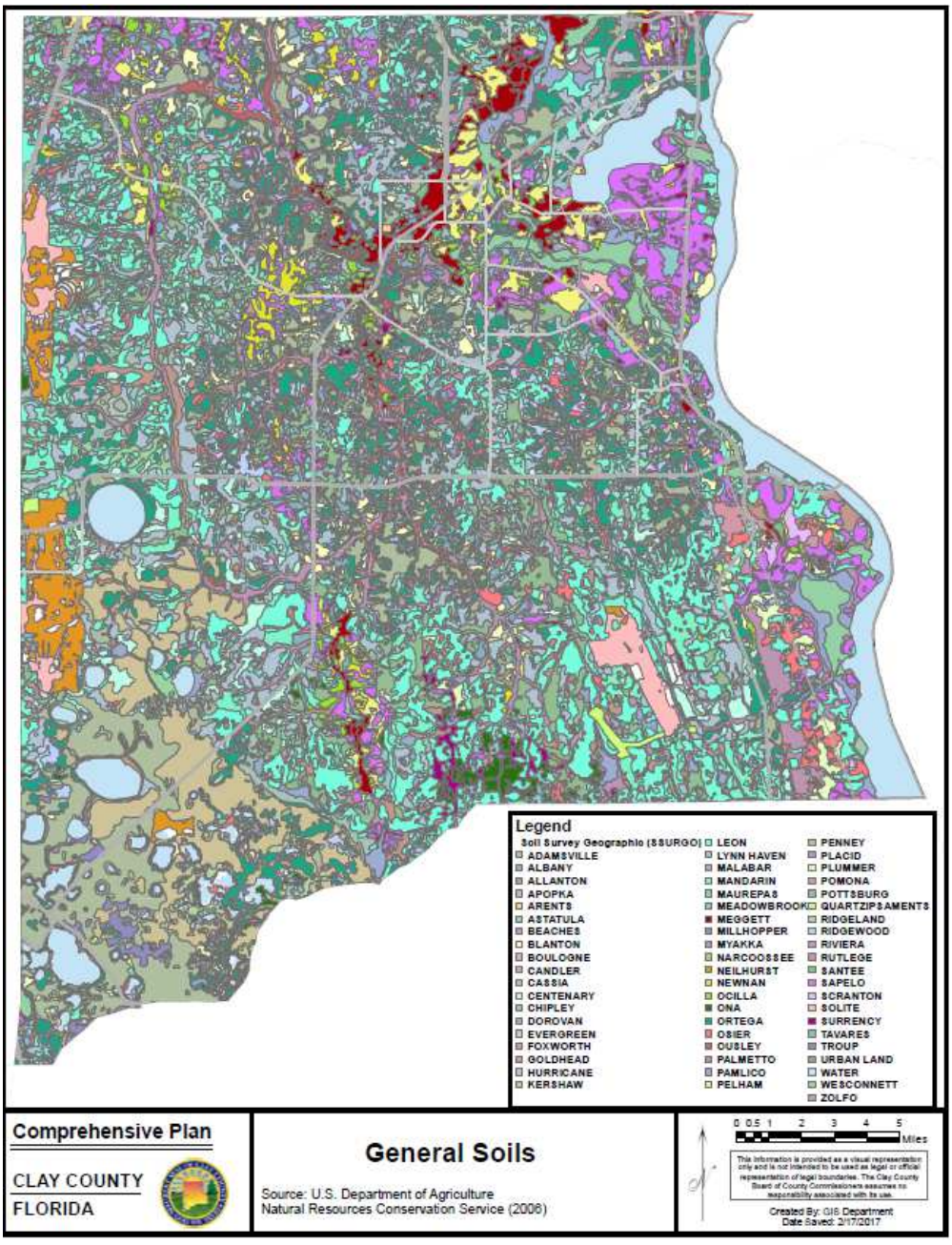
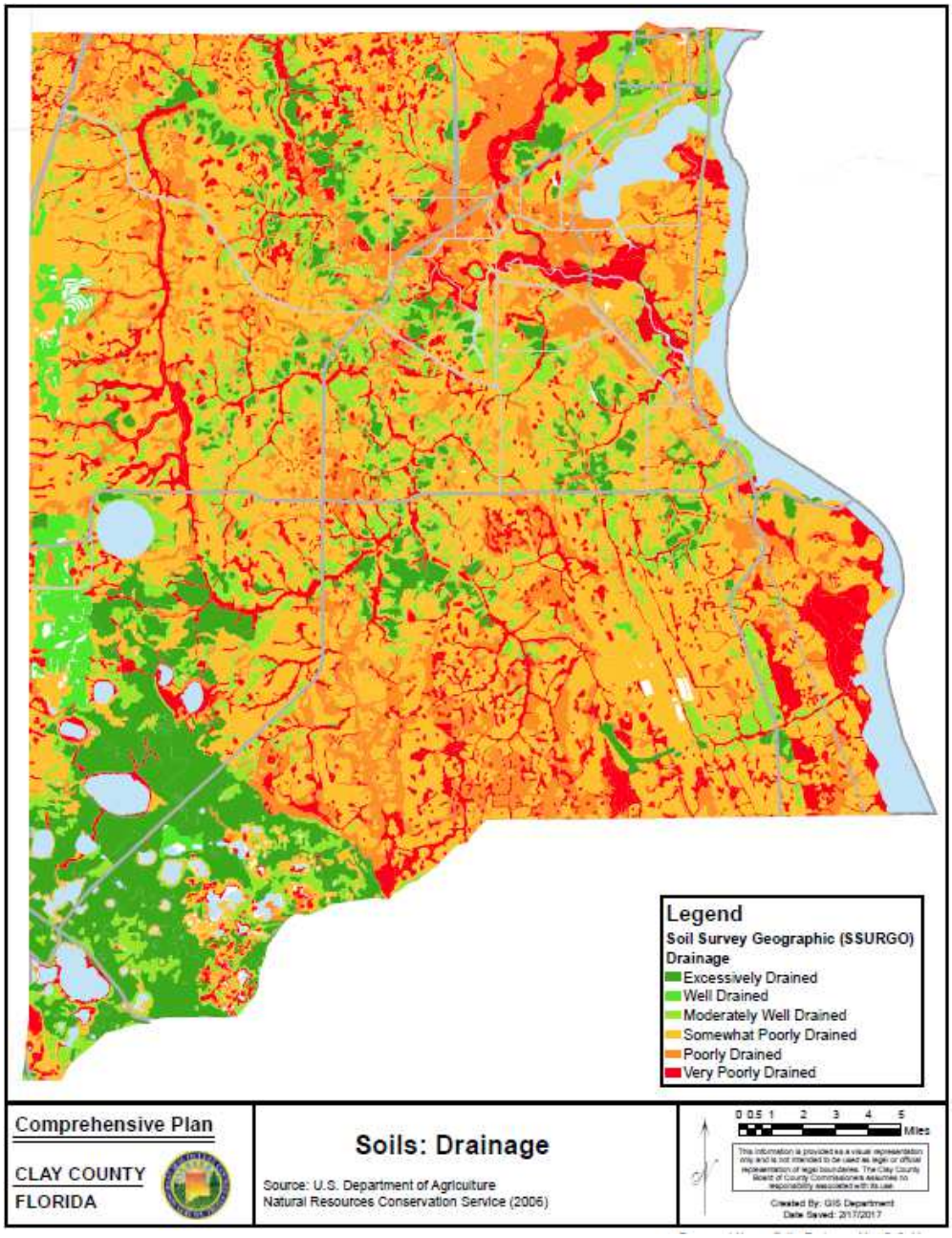


Figure 5 - Soils: Drainage



Recreation and Commercially Important Areas

Clay County has an abundant of locations that are important for recreational interest regarding wildlife, fish, and vegetative communities. Some commercial importance can be applied to the same. Recreational uses of these natural resources are present daily in Clay County. Most all water bodies provide plenty of opportunity for recreational fishing and to a lesser extent commercial opportunities. The vegetative communities throughout the County support a copious amount of wildlife that allow for recreational hunting. With that said, the vegetative communities in the County also support many endangered or threatened species.

A comprehensive inventory of wildlife and fish species currently occurring in Clay County is not available. The Florida Natural Areas Inventory (maintains records submitted from public conservation land managers. The Florida Fish and Wildlife Conservation Commission maintains records of threatened and endangered species:
http://myfwc.com/media/1515251/threatened-endangered-species.pdf
Species included in records from these sources are shown in Table 5.

Table 5 - Protected Wildlife Species Documented in Clay County

Mammals			
Trichechus manatus (latirostris)	West Indian manatee (Florida manatee)	E	E
Sciurus niger shermani	Sherman's fox squirrel	SSC	
Podomys floridanus	Florida mouse	SSC	
Birds			
Mycteria americana	wood stork	E	E
Falco sparverius paulus	Southeastern American kestrel	T	
Aphelocoma coerulescens	Florida scrub jay	T	T
Egretta caerulea	little blue heron	SSC	
Eudocimus albus	white ibis	SSC	
Egretta thula	snowy egret	SSC	
Egretta tricolor	tricolored heron	SSC	
Aramus guarauna	limpkin	SSC	
Picoides borealis	red-cockaded woodpecker	FE	E
Reptiles			
Drymarchon corais couperi	Eastern indigo snake	T	T
Gopherus polyphemus	gopher tortoise	T	
Alligator mississippiensis	American alligator	SAT	
Pituophis melanoleucus mugitus	Florida pine snake	ST	
Fish			
Acipenser brevirostrum	shortnose sturgeon	FE	E
Acipenser oxyrinchus	Atlantic sturgeon	FE	E
Invertebrates			
Procambarus pictus	Black Creek crayfish	T	

Sources: Florida Natural Areas Inventory, 2017 (http://www.fnai.org

Wildlife Protection Regulations

Several federal laws protect wildlife and plants. These include:

- Endangered Species Act of 1973 (16 USC 1531-1544, 50 CFR 17) which lists and protects certain species of plants and animals as endangered or threatened, and prohibits take and trade without a permit, requires Federal agencies to avoid jeopardizing their survival, and requires species recovery efforts;

- Migratory Bird Treaty Act which protects migratory birds as an international resource (16 USC 703-712, implemented by 50 CFR 210);

- Lacey Act (16 U.S.C. 3371-3378) which protects resident species by prohibiting importing, exporting, selling, acquiring, or purchasing fish, wildlife, or plants taken, possessed, transported or sold in violation of U.S. law, Indian law, State law, or foreign law;

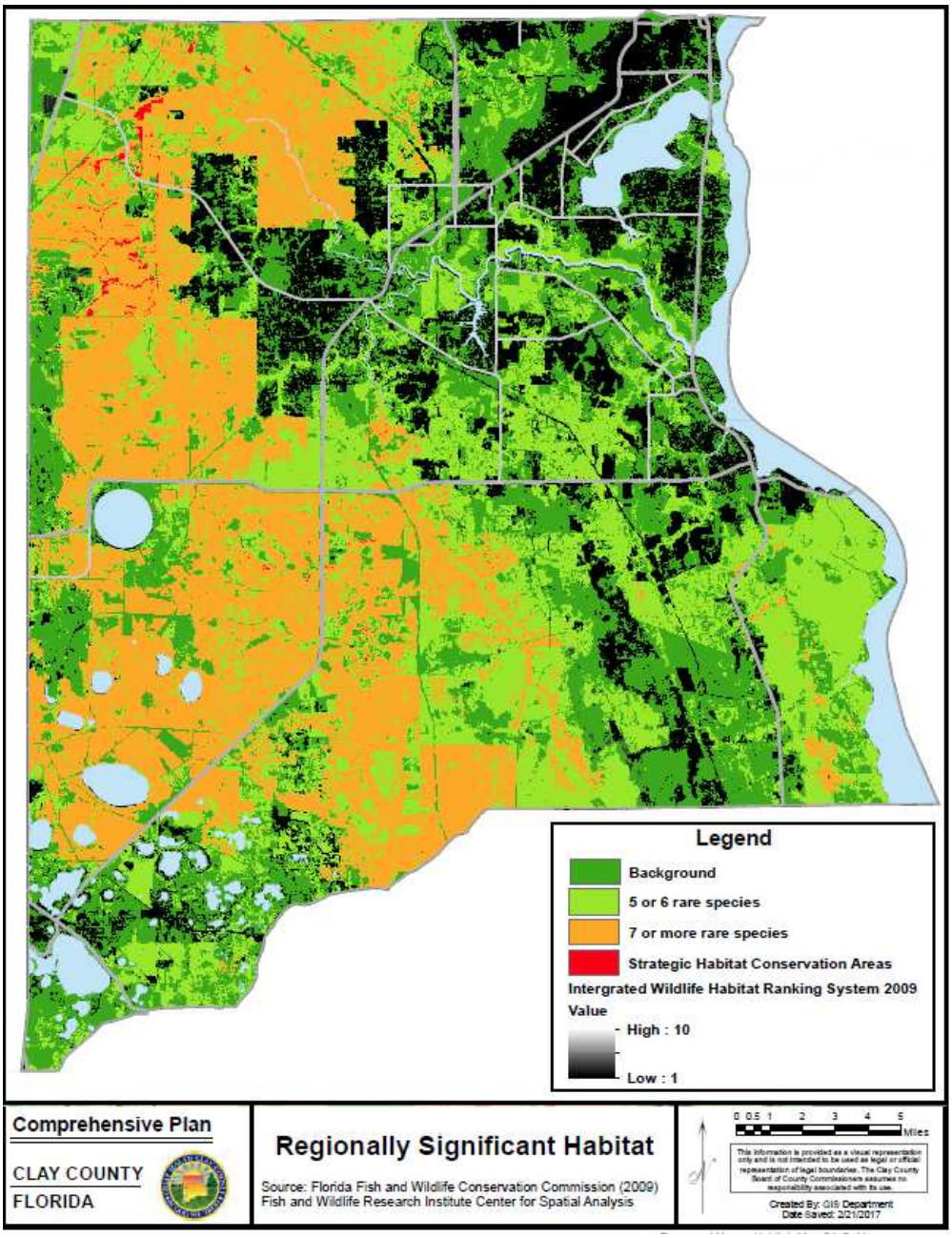
- Marine Mammal Protection Act of 1972 (16 USC 1361, 50 CFR 216) which protects all marine mammals including the manatee; and

- Bald and Golden Eagle Protection Act (16 USC 688-668d, 50 CFR 22) which prohibits the taking (defined to include pursuit, trapping, killing, shooting or shooting at, poisoning, molesting, and disturbing), possession, and trade of bald and golden eagles without a permit.

At the state level, species are protected by the Florida Endangered and Threatened Species Act (ss. 379.2291 F.S., 68A-27 F.A.C.), the Marine Turtle Protection Act (s. 379.2431(1) F.S., 68E-1 F.A.C.), the Florida Manatee Sanctuary Act (ss. 379.2431(2) F.S., 68C-22 F.A.C.), and ss. 379.2432 F.S.

While the bald eagle has been removed from the Federal Threatened and Endangered Species list and the Florida Threatened and Endangered Species list, it is still protected under the Federal Bald and Golden Eagle Protection Act which prohibits taking eagles or nests. Take under this Act is defined to include pursuit, molesting or disturbing eagles. New National Bald Eagle Management Guidelines and Bald Eagle Monitoring Guidelines for Florida have been developed at the federal level. Florida FWC adopted the state Bald Eagle Management Plan in April 2008 to ensure the sustained recovery of this species following delisting, as required under the Florida Endangered and Threatened Species Act. Continued protection of nesting habitats is required under both the federal and state plans.

Figure 6 - Regionally Significant Habitat



Vegetative Communities (e.g. forests)

Natural vegetative communities make up a large majority of the land mass in the County. This includes commercial pine plantations as well as native pine flatwoods. Developed and/or disturbed areas made up the remainder of the County's land surface. Open water accounts for approximately six percent of the County. Disturbed areas include agriculture; mined areas; and developed areas which include commercial, industrial, and residential areas as well as transportation and utility corridors. Golf courses and other developed parks are also included in disturbed areas. The importance of the vegetative communities in Clay County cannot be understated. The table below lists the protected plant species in the County that has been documented through the Florida Natural Area Inventory (FNAI) program.

Table 6 - Protected Plant Species Documented in Clay County

Scientific Name	Common Name	State Status	Federal Status
Andropogon arctatus	Pinewoods bluestem	T	
Asclepias curtissii	Curtiss' milkweed	E	
Asclepias viridula	Southern milkweed; green milkweed	T	
Athyrium filix-femina subsp. Asplenioides	Southern lady fern	T	
Balduina atropurpurea	Purpledisk honeycombhead; purple balduina	E	
Baptisia calycosa	Florida wild indigo	E	
Calydorea caelestina	Bartram's ixia	E	
Carex chapmannii	Chapman's sedge	T	
Centrosema arenicola	Pineland butterfly pea; sand butterfly pea	E	
Cleistesiopsis divaricata	Rosebud orchid; spreading pogonia	E	
Cleistesiopsis oricamporum	Fragrant pogonia; coastal plain pogonia	E	
Ctenium floridanum	Florida toothachegrass	E	
Garberia heterophylla	Garberia	T	
Hartwrightia floridana	Hartwrightia	T	
Helianthus carnosus	Lakeside sunflower; flatwoods sunflower	E	
Isoetes appalachiana	Appalachian quillwort	E	
Isoetes boomii	Boom's quillwort	E	
Lilium catesbaei	Catesby's lily; pine lily	T	
Linum westii	West's flax	E	
Litsea aestivalis	Pondspice	E	
Lobelia cardinalis	Cardinalflower	T	
Marshallia ramosa	Southern barbara's buttons	E	
Matelea floridana	Florida milkvine; florida spiny pod	E	
Matelea pubiflora	Trailing milkvine; sandhill spiny pod	E	
Orbexilum virgatum	Pineland leatherroot	E	
Pinckneya bracteata	Fevertree	T	
Pinguicula caerulea	Blueflower butterwort	T	
Pinguicula lutea	Yellow butterwort; yellow-flowered butterwort	T	

Scientific Name	Common Name	State Status	Federal Status
Platanthera blephariglottis var. Conspicua	White fringed orchid	T	
Platanthera ciliaris	Yellow fringed orchid	T	
Platanthera cristata	Crested yellow orchid; crested fringed orchid	T	
Platanthera flava	Southern tubercled orchid; palegreen orchid; gypsy-spikes	T	
Platanthera nivea	Snowy orchid	T	
Pogonia ophioglossoides	Rose pogonia; snakemouth orchid	T	
Pteroglossaspis ecristata	Giant orchid; non-crested eulophia	T	
Pycnanthemum floridanum	Florida mountainmint	T	
Rhododendron minus var. Chapmanii	Chapman's rhododendron	E	E
Rudbeckia nitida	Shiny coneflower; st. John's susan	E	
Ruellia noctiflora	Nightflowering wild petunia	E	
Sarracenia minor	Hooded pitcherplant	T	
Schoenolirion croceum	Yellow sunnybell	E	
Sideroxylon lycioides	Buckthorn bully; gopherwood buckthorn	E	
Stylisma abdita	Showy dawnflower; hidden stylisma; austin's dawnflower	E	
Verbesina heterophylla	Diverseleaf crownbeard	E	
Zephyranthes atamasca	Atamasco lily; rainlily	T	
Zephyranthes atamasca var. Treatiae	Treat's zephyrlily; treat's rainlily	T	

Sources: Florida Natural Areas Inventory, 2017 (http://www.fnai.org) and (http://florida.plantatlas.usf.edu/).

Invasive Plants

The Florida Exotic Pest Plant Council (FLEPPC) has a mission to support the management of invasive exotic plants in Florida's natural areas by providing a forum for the exchange of scientific, educational, and technical information. FLEPPC compiles invasive species lists that are revised every two years. Professional botanists and others perform exhaustive studies to determine invasive exotic plants that should be placed on the lists. Invasive exotic plants are termed:

- Category I invasives when they are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives. This definition does not rely on the economic severity or geographic range of the problem, but on the documented ecological damage caused.
- Category II invasive exotics have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species. These species may become Category I if ecological damage is demonstrated.

This comprehensive list can be found at http://www.fleppc.org/list/list.htm.

More species-specific location information is tracked by the Early Detection and Distribution Mapping System (EDDMapS). EDDMapS is a web-based mapping system for documenting invasive species distribution. Launched in 2005 by the Center for Invasive Species and Ecosystem Health at the University of Georgia, it was originally designed as a tool for state Exotic Pest Plant Councils to develop more complete distribution data of invasive species. A more in-depth analysis of each species listed by the FLEPPC through EDDMapS will confirm presence and location of invasive plants in Clay County.

The EDDMapS system can be viewed at https://www.eddmaps.org/.

The presence of invasive plants in Clay County is confirmed by these two data systems. There are programs in place that seek to limit the growth in the volume of and frequency of invasive plants in Clay County as well as the State of Florida.

C. Major Local Issues

Five (5) major local issues regarding the future of Clay County were developed by consolidating public input gathered at ten community meetings held throughout the County and the results of an online survey of County residents:

Major Issue 1

Infrastructure (including roads, parks and recreation, libraries and fire stations) is lagging behind development

The public commented expressed their desire for no more residential development until supporting infrastructure (especially roadway capacity) catches up. They stressed new development should pay for impacts (impact fees) and asked the County to consider financing alternatives such as Tax Increment Financing and public/private partnerships. The public repeatedly commented on the need more funding for the Library System to provide service to the entire county; the need for more fire stations; and a desire for community-scaled parks to include amenities such as athletic fields for baseball, soccer, lacrosse, Frisbee golf, pickle ball courts and fee based dog parks.

There are no Conversation Element objectives or policies that relate to or otherwise impact this issue.

Major Issue 2

Transportation networks for auto, bicycle and pedestrian need better connectivity and improvements for safety and efficiency

The public commented on the need for addressing deteriorating roads, better street lighting, and signal synchronization; providing more connectivity of roads to offer relief to Blanding Boulevard traffic (Cheswick Oaks Drive, College Drive Extension and connection at Loch Rane); the need for bike lanes/paths and an interconnected system of pedestrian/bicycle trails that includes conservation areas.

There are no Conversation Element objectives or policies that relate to or otherwise impact this issue.

Major Issue 3

Develop a balanced economic environment that focuses on the strengths of the County's resources (natural, built and human)

The public commented on the need for employment opportunities in the fields of manufacturing, light (clean) industrial, logistics, and high tech. Comments included the need to refurbish/complete empty commercial to prevent blight and before new construction; provide incentives to keep agriculture industry active; and the need for small business retention and incentives. On more than one occasion the public stressed the need for a mix of job opportunities for professionals and for young adults, as well as more nightlife/family entertainment options.

There are no Conversation Element objectives or policies that relate to or otherwise impact this issue.

Major Issue 4

Ensure the health and vitality of the natural environment

The public commented on the need for water quality protection (spring and lakes) and aquifer protection pointing to negative impacts from the drawdown of lakes. The public expressed a need to maintain the rural character of the County's existing rural areas.

The existing Conservation Element as written adequately covers this issue as stated. Many of the objectives and policies work toward protecting the environment and either directly or indirectly affect the protection of the water quality of the spring and lakes.

Major Issue 5

Provision of recreational opportunities for the entire County

The public commented on the need for community-scaled parks to include amenities such as athletic fields for baseball, soccer, lacrosse, Frisbee golf, pickle ball courts and fee based dog parks. They also prefer recreational opportunities/activities for all ages with extended hours and sufficient lighting.

There are no Conversation Element objectives or policies that relate to or otherwise impact this issue.

D. Matrix for Evaluating Plan Policies

As part of the evaluation of the 2025 Comprehensive Plan's Conservation Element, the County evaluated of each goal, objective and policy against the following six criteria to determine if any modifications to them are necessary or recommended.

1. Does the objective or policy have a measurable target?
2. Are there definitions of the terms contained in the objective or policy?
3. Has the objective or policy been achieved?
4. Is the objective or policy related to one or more of the County-identified major issues?
5. Is the objective or policy required to be included in the Comp Plan by statute?
6. Does the objective or policy support other objectives or policies?

Conservation	Measurable Target	Defined Terms	Achieved	Major Issue	Statute Requires	Supports Others	Observations
GOAL 1	No	No		Yes	No	No	
OBJ 1.1	No	No		Yes	No	No	References EPA standards that may have measurable targets. We need the specific reference.
POLICY 1.1.1	No	No		Yes	No	Yes	Reference to Transportation Element
POLICY 1.1.2	No	No		Yes	No	No	
OBJ 1.2	No	No		Yes	No	No	9J-5 citation: This reference may have measurable targets. We need the specific reference.
POLICY 1.2.1	No	No		Yes	No	No	
POLICY 1.2.2	No	No		Yes	Yes		Rule 62-303 FAC: This reference may have measurable targets. We need the specific reference.
POLICY 1.2.3	No	No		Yes	No	No	
POLICY 1.2.4	No	No		No	No	No	Could be connected to environmental issue…but doesn't specify.
POLICY 1.2.5	No	No		Yes	No	No	
POLICY 1.2.6	No	No		Yes	No	No	
POLICY 1.2.7	No	No		Yes	No	No	References other requirements that may have measurable targets. We need the specific reference.
POLICY 1.2.8	No	No		Yes	No	No	
POLICY 1.2.9	No	No		Yes	Yes	No	Rule 64E-6 FAC
POLICY 1.2.10	No	No		Yes	No	No	
POLICY 1.2.11	No	No		Yes	No	No	References future "statewide" requirements/standards that have yet to be adopted.

Conservation	Measurable Target	Defined Terms	Achieved	Major Issue	Statute Requires	Supports Others	Observations
POLICY 1.2.12	No	No		Yes	No	No	
POLICY 1.2.13	No	No		Yes	No	No	
POLICY 1.2.14	No	No		Yes	Yes	No	Rule 40C-8 FAC: This reference may have measurable targets. We need the specific reference.
POLICY 1.2.15	No	No		Yes	No	No	
OBJ 1.3	No	No		Yes	Yes	No	9J-5 citation: This reference may have measurable targets. We need the specific reference.
POLICY 1.3.1	No	No		Yes	No	Yes	Reference to Community Facilities Element Policy 6.1
POLICY 1.3.2	Yes	No		Yes	Yes	No	Chapter 62 FAC (multiple). Measurable targets might not be complete within the Policy and need to confirm the referenced FAC rule has more and is valid.
POLICY 1.3.3	Yes	No		Yes	Yes	No	Chapter 62 FAC (multiple). Measurable targets might not be complete within the Policy and need to confirm the referenced FAC rule has more and is valid. Makes reference to Policy 3.2 within this Element.
POLICY 1.3.4	Yes	No		Yes	No	No	
POLICY 1.3.5	No	No		Yes	No	No	References other standards that may have measurable targets. We need the specific reference.
POLICY 1.3.6	No	No		Yes	No	No	References other standards that may have measurable targets. We need the specific reference.
OBJ 1.4	No	No		Yes	Yes	No	9J-5 citation: This reference may have measurable targets. We need the specific reference.
POLICY 1.4.1	No	No		Yes	No	No	
POLICY 1.4.2	No	No		Yes	Yes	No	Rule 40C-21 FAC
POLICY 1.4.3	No	No		Yes	No	No	
POLICY 1.4.4	No	No		Yes	No	No	
POLICY 1.4.5	No	No		Yes	No	No	References other standards that may have measurable targets. We need the specific reference.
POLICY 1.4.6	No	No		Yes	No	No	
OBJ 1.5	No	No		Yes	No	No	
POLICY 1.5.1	No	No		Yes	No	No	
POLICY 1.5.2	Yes	No		Yes	No	No	Makes reference to Policy 5.1 within this Element.
POLICY 1.5.3	No	No		Yes	No	No	

Conservation	Measurable Target	Defined Terms	Achieved	Major Issue	Statute Requires	Supports Others	Observations
POLICY 1.5.4	Yes	No		Yes	No	No	
POLICY 1.5.5	Yes	No		Yes	No	No	The measurable target would be having the developer submit a “habitat management plan”. More specifics are needed
POLICY 1.5.6	No	No		Yes	No	No	
POLICY 1.5.7	No	No		Yes	No	No	
POLICY 1.5.8	No	No		Yes	No	No	
POLICY 1.5.9	No	No		Yes	No	No	
POLICY 1.5.10	No	No		Yes	No	No	
POLICY 1.5.11	No	No		Yes	No	No	References other requirements that may have measurable targets. We need the specific reference.
POLICY 1.5.12	No	No		Yes	No	No	
POLICY 1.5.13	No	No		Yes	No	No	
POLICY 1.5.14	No	No		Yes	No	No	
POLICY 1.5.15	No	No		Yes	No	No	
POLICY 1.5.16	No	No		Yes	No	No	
POLICY 1.5.17	No	No		Yes	No	No	
OBJ 1.6	No	No		Yes	No	No	
POLICY 1.6.1	No	No		Yes	No	No	References other requirements that may have measurable targets. We need the specific reference.
POLICY 1.6.2	No	No		Yes	No	No	
POLICY 1.6.3	No	No		Yes	No	No	
POLICY 1.6.4	No	No		Yes	No	No	
OBJ 1.7	No	No		Yes	No	No	
POLICY 1.7.1	Yes	No		Yes	No	No	
POLICY 1.7.2	Yes	No		Yes	No	No	
POLICY 1.7.3	No	No		Yes	No	No	
POLICY 1.7.4	No	No		Yes	No	No	

Conservation	Measurable Target	Defined Terms	Achieved	Major Issue	Statute Requires	Supports Others	Observations
OBJ 1.8	No	No		Yes	No	No	9J-5 citation: This reference may have measurable targets. We need the specific reference.
POLICY 1.8.1	No	No		Yes	No	No	
POLICY 1.8.2	No	No		Yes	No	No	
POLICY 1.8.3	No	No		Yes	No	No	
POLICY 1.8.4	No	No		Yes	No	No	Makes reference to Policy 5.1 within this Element.
POLICY 1.8.5	No	No		Yes	No	No	
OBJ 1.9	No	No		Yes	No	No	9J-5 citation: This reference may have measurable targets. We need the specific reference.
POLICY 1.9.1	No	No		Yes	No	No	
POLICY 1.9.2	No	No		Yes	No	No	
OBJ 1.10	No	No		Yes	Yes	No	Chapter 163.3177(d) F.S reference
POLICY 1.10.1	Yes	No		Yes	No	No	
POLICY 1.10.2	No	No		Yes	No	No	
POLICY 1.10.3	No	No		Yes	No	No	
POLICY 1.10.4	No	No		Yes	No	No	Makes reference to Objective 8 within this Element.

E. Assessment of Changes to Florida Statutes

As part of the evaluation of the 2025 Comprehensive Plan's Conservation Element, the County examined changes in state statutory requirements since 2009, the last update of the Comprehensive Plan.

2011 Legislation ("Community Planning Act")

- Modifies requirements for the conservation element to include portions of repealed Rule 9J-5.013, Florida Administrative Code, to list the natural resources to be identified, analyzed and protected and toward which conservation principles, guidelines and standards are to be directed. No amendment necessary.

- Modifies requirements for analyzing current and projected water sources for a 10-year period to include consideration of demands for industrial, agricultural and potable water use and the quality and quantity of water available to meet these demands and the existing levels of conservation, use and protection and policies of the regional water management district. Amend the Conservation Element to include policy that considers projected needs and sources for a minimum 10-year period.

F. Conclusions and Proposed Revisions

The Comprehensive Plan is substantively up-to-date and the County has done a good job of implementing its Comprehensive Plan. Most necessary amendments are those as required by changes in State law, or to provide greater emphasis on issues of particular importance to Clay County.

- Add the name of the Element to all GOPs to better differentiate among others in the Comprehensive Plan.

- Identify all Policies with three numbers for consistency with numerical style already used in the Future Land Use Element, Housing Element, and Transportation Element.

- Eliminate all references to Rule 9J-5, Florida Administrative Code as it no longer exists and was replaced by the Community Planning Act in 2011.

The following offers easy identification of changes made to update the Conservation Element. New (added) language is underlined and removed (deleted) language is ~~struck through~~.

Proposed Amendment to CON Policy 1.1.1

In order to establish an Identify measurable target:

CON POLICY 1.1.1

To reduce pollution generated from automobiles, the County shall:

a) Maintain a Traditional Neighborhood Development zoning category that reduces vehicle miles travelled.
b) Continue to enforce the provisions of the tree protection and landscaping ordinance requiring landscaping and vegetative buffers between arterial roadways and new residential developments.
c) Ensure that sidewalks, bicycle paths, and bicycle lanes are provided in new and infill development as required under the Transportation Element and the Future Land Use Element of this Plan.
d) Adopt a Greenways and Trails Master Plan by 2019 to encourage non-motorized transportation and recreation on a County-wide basis.
e) Encourage efficient traffic flow by maintaining adequate levels of service on County roadways as required under the Transportation Element of this Plan.

Proposed Amendment to CON Policy 1.2.2

In order to establish an Identify measurable target:

CON POLICY 1.2.2

Develop a Master Stormwater Management Plan, including existing stormwater plans, that shall identify and prioritize specific stormwater problems and recommendations for eliminating these sources of pollution.

Such Master Stormwater Management Plan shall include strategies to meet any established Total Maximum Daily Loads and/or Pollutant Reduction Goals adopted pursuant to Rule 62-303 F.A.C.

Such Master Stormwater Management Plan shall be completed in phases as funds are available. The phasing shall be determined by Public Works with a target date of completion no later than December 31, 2025.

Proposed Amendment to CON Policy 1.3.1

Minor update to change the reference to CFE Element 6.1 to 1.6.1:

CON POLICY 1.3.1

Areas shown by the SJRWMD to potentially contribute 8 inches or more per year of recharge to the Floridan aquifer are designated as high recharge areas as shown on the Floridan Aquifer Recharge Map. An Aquifer Recharge Overlay Zone showing these high recharge areas shall be created in the land development regulations, and shall be protected from incompatible land uses to ensure adequate recharge rates and water quality maintenance. The County will coordinate with the St. Johns River Water Management District to review the recharge protection standards as new data becomes available. The requirements of Community Facilities Element Policy 1.6.1 shall apply.

Proposed New Amendment (CON Policy 1.3.7)

In order to achieve consistency with Florida Statutes a new policy has been created for water source needs.

CON POLICY 1.3.7

The County shall coordinate on a regular basis with the Clay County Utility Authority (CCUA) and the St. Johns River Water Management District (SJRWMD) to analyze current and projected sustainable water sources for at least a 10-year period. The demands for industrial, agricultural and potable water use and the quality and quantity of water available to meet the current demands. This analysis shall be conducted pursuant to Section 163.3177(6)(d)3 of the Florida Statutes.

Proposed Amendment to CON Policy 1.10.1

In order to update the measurable target:

CON POLICY 1.10.1

The County shall investigate methods to improve energy efficiency in building construction and development site design, such as but not limited to: encouraging independent certifications of energy efficiency in new development beyond the minimum required in the effective building code, supporting creative patterns of site design and orientation, and revising minimum dwelling size requirements in land development regulations.

By ~~2011~~ 2019, Clay County shall determine a threshold and criteria for requiring LEED standards/certification in development and redevelopment projects, and implement through update to the land development code. In addition, consider pilot incentive programs to encourage green building and development.