



Town of Malabar

Comprehensive Plan
E.A.R. & Legislative Update

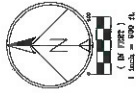
Approved December 2019

TOWN OF MALABAR

FUTURE LAND USE MAP



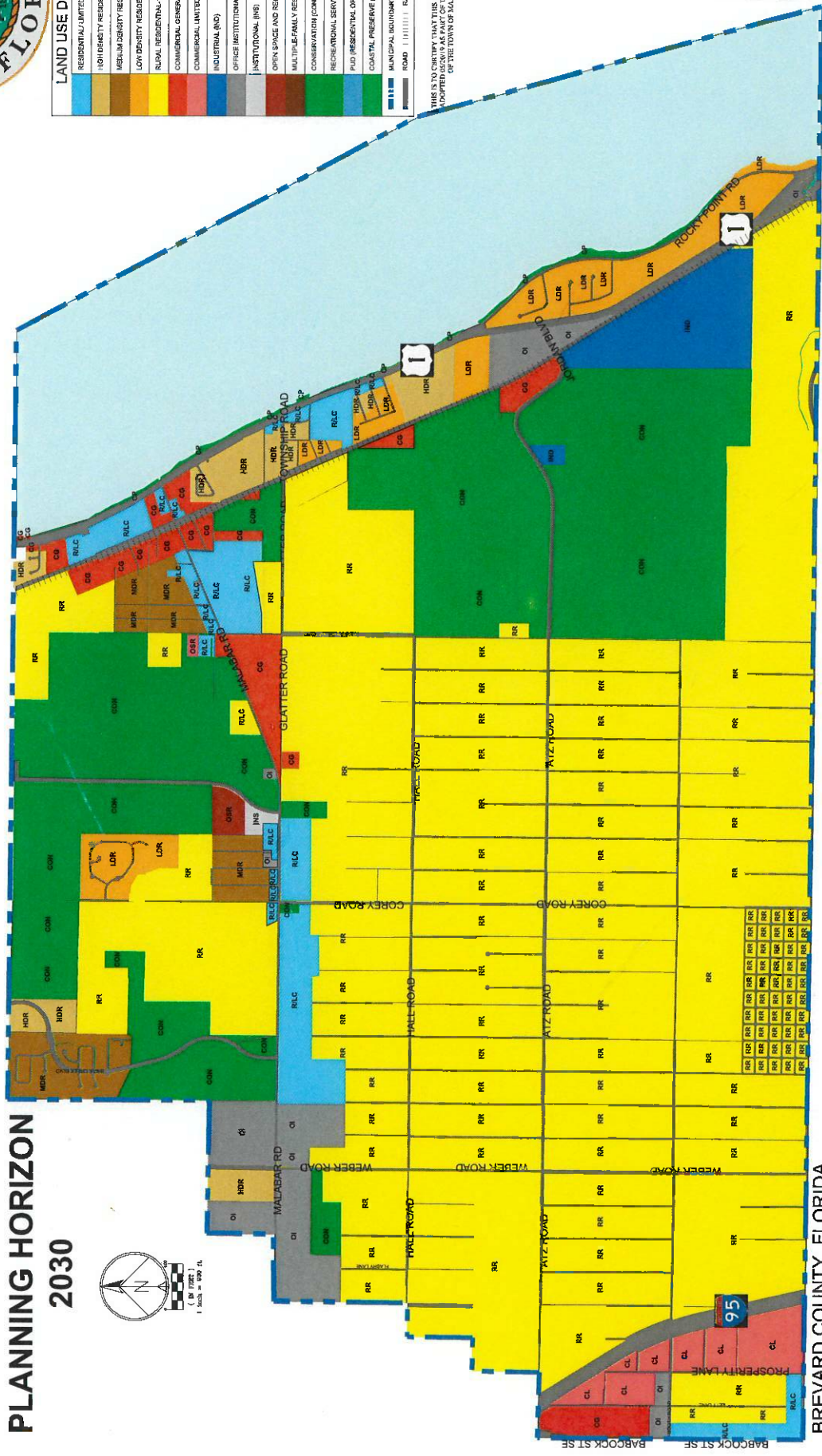
PLANNING HORIZON
2030



LAND USE DESIGNATIONS

RESIDENTIAL LIMITED COMMERCIAL (RLC)
HIGH DENSITY RESIDENTIAL-4 UNITS PER ACRE (H4R)
MEDIUM DENSITY RESIDENTIAL-1 UNITS PER ACRE (M1R)
LOW DENSITY RESIDENTIAL-2 UNITS PER ACRE (L2R)
RURAL RESIDENTIAL-1 UNITS PER 1.5 ACRE (R1R)
COMMERCIAL GENERAL (CG)
COMMERCIAL LIMITED (CL)
INDUSTRIAL (IND)
OFFICE INSTITUTIONAL (OI)
INSTITUTIONAL (INS)
OPEN SPACE AND RECREATION (OSR)
MULTIFAMILY RESIDENTIAL OR OFFICE SPACE (MRO)
CONSERVATION (CON)
RECREATIONAL SERVICES (RS)
PUD (RESIDENTIAL OR COMMERCIAL)
COASTAL PRESERVE (CP)
MANIPULATED BOUNDARY BORDER
ROAD
RAILROAD

THIS IS NO CERTIFY THAT THIS IS THE OFFICIAL PLUM MAP ADOPTED BY THE TOWN OF MALABAR, FLORIDA.



BREVARD COUNTY, FLORIDA
PRINTED DATE: 10/01/2019

Town of Malabar EAR–Based Amendments

Table of Contents

1	Future Land Use	1-1
	Purpose.....	1-1
	Planning Timeframes.....	1-1
	Existing Land Use Conditions.....	1-1
	Facilities Analysis.....	1-2
	Historic Preservation.....	1-5
	Land Cover.....	1-5
	Need for Redevelopment.....	1-8
	Goals, Objectives, and Policies.....	1-10
	Appendix 1A Florida Master Site File Historic and Archaeological Sites	
2	Transportation	2-1
	Introduction.....	2-1
	Purpose.....	2-1
	Regional Context.....	2-1
	Data, Inventory, and Analysis.....	2-1
	Existing Transportation System and Transportation Needs Analysis.....	2-2
	Existing Transportation Facilities.....	2-2
	Rail.....	2-3
	Waterways.....	2-3
	Functional Classification.....	2-3
	Greenways.....	2-8
	Existing Characteristics of the Major Trip Generators.....	2-9
	Existing Public Transit Facilities.....	2-9
	Transportation Level of Service (LOS) Standards.....	2-10
	Roadway Analysis.....	2-13
	Existing Hurricane Evacuation Routes.....	2-15
	Future Transportation System (2005) and Future Transportation Needs Analysis.....	2-16
	Future Pedestrian and Bicycle Plan.....	2-16
	Future Roadway Condition Analysis.....	2-17
	Cost Feasible Roadway Projects.....	2-17
	Goals, Objectives, and Policies	2-21
3	Housing	3-1
	Introduction	3-1
	Affordable Housing Needs	3-6
	Housing Conditions	3-7
	Needs Assessment	3-8
	Conclusion	3-10
	Goals, Objectives, and Policies	3-11

4	Public Facilities	4-1
	Purpose	4-1
	Existing Conditions and Data	4-1
	Goals, Objectives, and Policies	4-14
5	Coastal Management	5-1
	Purpose	5-1
	Coastal Area	5-1
	Coastal High Hazard Area	5-5
	Natural Disaster Planning	5-6
	Goals, Objectives, and Policies	5-8
6	Conservation	6-1
	Purpose.....	6-1
	Natural Environment.....	6-1
	Land Cover	6-6
	Conservation Opportunities	6-8
	Goals, Objectives, and Policies	6-13
	Appendix A Soil Descriptions	
	Appendix B Listed Animal Species that may occur in the Town of Malabar	
	Appendix C Native Plants of Brevard County that may occur in the Town of Malabar	
	Appendix D Category I and Category II Invasive Pest Plan that may occur in the Town of Malabar	
	Appendix E Malabar Land Coverage Descriptions	
7	Recreation and Open Space	7-1
	Purpose	7-1
	Existing Conditions and Data	7-2
	Goals, Objectives, and Policies	7-4
8	Intergovernmental Coordination	8-1
	Purpose	8-1
	Existing Data and Conditions	8-1
	Evaluation of Existing Coordination Mechanisms	8-2
	Joint Planning Areas / Issues by Element	8-3
	Comparison with Regulatory Policy Plan	8-5
	Areas of Critical Concern (ACSC)	8-5
	Goals, Objectives, and Policies	8-8
9	Capital Improvements	9-1
	Purpose	9-1
	Planning Timeframes	9-1
	Existing Data and Conditions	9-1
	Monitoring and Evaluation	9-8
	Schedule of Capital Improvements	9-8
	Goals, Objectives, and Policies	9-9

Tables

1-1	Existing Land Uses	1-1
1-2	Existing Land Use, Developed	
1-3	Existing Land Use, Undeveloped/Vacant	
1-4	Future Land Use	
1-5	Projections: Population, Malabar, 2005-2030	
1-6	Vacant Land and Potential Dwelling Units Analysis	
1-7	Public Schools, Utilization	
1-8	Public School Level of Service, 2007-09 - 2012-12	
1-9	Habitats and Land Cover	1-6
2-1	Statewide Minimum LOS Standards	2-11
2-2	Adopted LOS Standards	2-13
2-3	Existing Peak Hour Peak Direction LOS	2-13
2-4a	FDOT 5-Year Work Program	2-18
2-4b	Brevard County MPA 2025 Cost Feasible Projects	2-18
2-5	Future (2025) Peak Hour Peak Direction LOS	2-19
3-1	Dwelling Units by Structure Type, 2000	3-2
3-2	Households by Tenure, 2005	3-2
3-3	Housing Vacancy, 2000	3-3
3-4	Age of Housing Structures, 2000	3-3
3-5	Monthly Gross Rent, Renter-Occupied Housing Units, 2000	3-4
3-6	Median Home Value, 2000	3-4
3-7	Median Single-Family Home Sales Prices, 2001 – 2006	3-5
3-8	Monthly Costs of Owner-Occupied Housing Units, 2000	3-5
3-9	Amount of Income Paid for Housing Household by Cost Burden, 2005	3-6
3-10	Households by Tenure, Income, and Cost Burden, 2005	3-6
3-11	Condition of Housing Stock Summary, 2000	3-7
3-12	Projections: Population, Households, and Dwelling Units, Malabar, 2005-2030	3-8
3-13	Household Projections by Household Size	3-9
3-14	Projected Housing Affordability by Income & Tenure, Malabar, 2005-2030 ...	3-9
4-1	Town of Malabar Service Providers	4-1
4-2	Flows Based on Population Projections	4-3
4-3	Permitted Capacity of Treatment Plants	4-4
4-4	Wastewater Treatment Methods	4-4
4-5	Town of Malabar Solid Waste Volume	4-6
4-6	Federal Emergency Management Agency Flood Zones	4-7
4-7	Potable Water Treatment Plants Designed Capacity & Estimated Flow	4-10
6-1	Soil Types Found in the Town	6-2
6-2	FEMA Flood Zones	6-3

6-3	Habitat Land Coverage	6-6
6-4	Habitat Categories	6-7
7-1	Recreation and Open Space Level of Service	7-2
7-2	Recreation and Open Space Facilities	7-2
8-A	Coordinating Agencies	8-6
9-1	Town of Malabar Sanitary Demand	9-2
9-2	Town of Malabar Potable Water Demand	9-3
9-3	Town of Malabar Solid Waste Production 2008-2018	9-3
9-4	Town of Malabar Level of Service 2005-2030	9-4
9-5	School Utilization	9-5
9-6	School LOS Projections	9-5
9-7	Revenues and Expense FY09-FY13	9-7
9-8	Public School Level of Service	9-13
9-9	Schedule of Capital Improvements	9-15

Figures

Figure 1 Palm Bay Utility Department Sanitary Sewer Service Area	4-2
Figure 2 Palm Bay Utility Department Potable Water Service Area	4-11

Maps (All maps except FLU-1 being updated in 2020)

FLU-1	Existing Land Use
FLU-2	Historic Sites
FLU-3	Soils
FLU-4	FEMA Flood Zones
FLU-5	Topography
FLU-6	Water Bodies
FLU-7	Habitats and Landcover
FLU-8	Parks and Conservation Areas
FLU-9	Future Land Use Map
FLU-10	Wetlands
CST-1	Coastal Planning Area Existing Land Use
CST-2	Coastal High Hazard Area
CST-3	Evacuation Routes with Storm Surge Zones
CST-4	Brevard County Hurricane Shelters
TRN-1	Existing Roadway System
TRN-2	Existing Number of Lanes
TRN-3	Existing and Future Functional Classification (2025)

TRN-4	Existing Roadway Level of Service
TRN-5	Existing and Future Evacuation Routes
TRN-6	Future Number of Lanes (2025)
TRN-7	Future Roadway Level of Service (2025)

CHAPTER ONE

FUTURE LAND USE ELEMENT

PURPOSE

The purpose of the Future Land Use Element is the designation of future land use patterns as reflected in the goals, objectives and policies contained in the Town of Malabar's Comprehensive Plan. The supporting data provides a broad survey of current land use patterns, natural land features, and availability of public facilities for existing and future development. Future land use patterns are depicted on the Future Land Use Map (Map FLU-9).

PLANNING TIMEFRAMES

The Town of Malabar Comprehensive Plan provides guidance on development and redevelopment over two planning periods: a 5-Year period ending FY 2023 (short term) and a 10-Year period ending FY2028 (long term).

EXISTING LAND USE CONDITIONS

The Town of Malabar is located in the southeast section of Brevard County. The Town's eastern border is along the beautiful and ecologically diverse Indian River Lagoon. In the late 1800's mail was delivered to the fledgling community via a mail boat that docked along the Indian River Lagoon's banks. The Town remains proud of their rustic and rural roots. The Future Land Use element supports the Town's desire to retain its rural heritage both in new development and redevelopment.

An analysis of Existing Land Use indicates that single family residential use designations make up approximately 55%; Commercial, Industrial and Agricultural uses make up 12% and conservation and municipal uses make up 33% of the total land area.

TABLE 1-1 EXISTING LAND USES

Existing Land Use	Acres	Percentage
AGRICULTURE	89.15	1.30%
AQUATIC PRESERVE	16.35	0.20%
COMMERCIAL	38.43	0.56%
CONSERVATION	1009.45	14.75%
INDUSTRIAL	120.58	1.45%
INSTITUTIONAL	83.33	1.00%
INTRACOASTAL WATERWAY	1,467.95	17.65%
MOBILE HOMES	2.95	1.00%
MULTI-FAMILY RESIDENTIAL	4.08	0.05%

Existing Land Use	Acres	Percentage
PARKS	80.14	0.96%
ROW	501.92	6.04%
SINGLE-FAMILY RESIDENTIAL	1,714.11	20.61%
TRANSPORTATION	39.28	0.47%
VACANT AGRICULTURAL	386.96	4.65%
VACANT COMMERCIAL	343.73	4.13%
VACANT INDUSTRIAL	245.33	2.95%
VACANT INSTITUTIONAL	70.96	0.85%
VACANT RESIDENTIAL	1,987.30	23.90%
VACANT RESIDENTIAL/LIMITED COMMERCIAL	29.45	0.35%
TOTAL	8,315.59	100.00%

Source: Brevard County Property Appraiser; Town of Malabar, Calvin, Giordano & Associates

FACILITIES ANALYSIS

Sanitation Sewer Facilities

Most of the Town relies on septic systems for wastewater treatment. Four private wastewater package treatment plants service three mobile home parks and the Harris Corporation. The Town sold its sanitary sewer transmission lines to Palm Bay Utility Department (PBUD) for the portion of the Town where sewage collection is provided. PBUD operates the Troutman Waste Water Treatment Plant (WWTP), a 4.0 Million Gallon per Day (MGD) plant located on the east side of Troutman Boulevard. This is sufficient to serve the PBUD service area in excess of the 10-year planning period.

Potable Water Facilities

The Town of Malabar's potable water is primarily derived from on-site shallow wells, which withdraw water from the surficial aquifer. The Harris Government Systems development operates and maintains a private water treatment plant. The three mobile home parks within the Town also maintain private water treatment facilities.

The Town sold its distribution system to PBUD. PBUD operates the Troutman Water Treatment Facility and the South Regional Water Treatment Facility. The Troutman Water Treatment Facility has both a Lime Softening (LS) Water Treatment Plant (WTP) and a Reverse Osmosis WTP. PBUD is authorized to serve the water and sewer needs of Malabar and to work within all Town rights-of-way and utility easements.

The permitted withdrawal rates for this plant are 4.7 MGD declining 0.1 MGD per year until 2021, when the withdrawal rate will be 3.4 MGD for the Surficial Aquifer wells and 0.72 MGD for the Town of Malabar

Floridan Well. The RO WTP has 3 Floridan Aquifer wells permitted to withdraw 2.61 MGD. The current capacity of the RO WTP is 1.5 MGD with the ability to expand to 3 MGD. The South Regional Water Treatment Facility is an RO facility with five Floridan Aquifer wells with a permitted withdrawal of 5.09 MGD in 2007 expanding to 10.49 MGD in 2021.

Solid Waste

Solid waste collection is provided to the Town under contract with Waste Management Inc. Hazardous wastes are discussed in the Conservation Element. The Town coordinates with Brevard County on solid waste issues, including landfill issues. Solid waste handling and disposal is performed by the Solid Waste department of Brevard County. The County owns and operates the Central Disposal Facility, Sarno Transfer Station and Landfill, Mockingbird Mulching Facility and the Titusville Transfer Station. The Central Disposal Facility has permitted capacity for nearly 10 years. There is an additional 16 years of capacity in the southern expansion area.

Stormwater Drainage Facilities

The Town of Malabar joined the Brevard County Stormwater Program in 2000. Funding for the stormwater program is collected through taxes by the Town at an average of \$107,000 annually since 2017. There is an interlocal agreement to pay the County to administer this utility. Through this program, the County acts as the stormwater administrator for the Town, ensuring that the procedures and policies enacted in the Town are consistent with that of the County. This partnership has proven to be a more efficient and cost-effective approach to stormwater management. There are ten prioritized stormwater capital improvement projects planned within the Town since 2014 and are reviewed and modified as necessary each year.

Transportation

The major north-south traversing roadways for the Town are US-1, SR-507/Babcock Street, Corey Road, Weber Road, Marie Street, and I-95. The major east-west traversing roadways are SR-514/Malabar Road, Valkaria Road, Hall Road, and Atz Road.

The level of service analysis for existing conditions indicates that all the roadways within the Town of Malabar, except SF-9/I-95 and SR-507/Babcock Street, are operating at the adopted level of service. A feasibility study regarding widening of Malabar Road was completed by FDOT in 2008. The Space Coast Transportation Planning Organization (TPO) is planning engineering studies in 2025 regarding widening of Babcock Street. FDOT plans to widen I-95 to increase its capacity and address level of service standards as shown in the Schedule of Capital Improvements.

I-95 is also a designated *Strategic Intermodal System* (SIS) corridor within the Town. The SIS is a statewide system of high priority facilities including major interregional highways, airports, deepwater seaports, freight rail terminals, passenger rail and bus terminals, rail corridors, and waterways. There are no additional SIS facilities within the Town; however, Port Canaveral and Melbourne International Airport, which are also located in Brevard County, are a **Designated SIS Seaport Hub and Emerging SIS Facility**, respectively.

Malabar continues to work with other agencies in the development of greenways and trails. A greenway trail is a multi-use corridor with equestrian paths and will be kept natural (not paved) in environmentally sensitive areas. The Al Tuttle Trail links the Malabar Scrub Sanctuary to Turkey Creek Sanctuary in Palm Bay. The Malabar Sand Hill Trail connects the Al Tuttle trail south to the Jordan Scrub Sanctuary in Malabar to other natural areas outside the Town's limits such as the preserve by Valkaria Airport, the Turkey Creek Sanctuary, and the Sebastian Buffer Preserve.

One of the major east-west traversing roadways is SR-514/Malabar Road. The Town continues to work with Brevard County Transportation Planning, East Central Florida Regional Planning Organization and the Department of Transportation to make necessary improvements to the roadway to accommodate increased traffic and safety concerns voiced by Malabar residents.

Parks and Recreation

The Town has adopted a Level of Service of five (5) acres per 1,000 residents. The Town's Malabar Community Park, at 20 acres will meet that level of service until Malabar reaches a population of 4,000. In addition, Malabar has developed a Disc Golf Course through 8.5 acres of conservation land it owns and manages. The Richard E. Cameron and Volunteers Wilderness Preserve at the north end of Corey Road provides 100 acres of multi-use trails, a scenic overlook and connections to the Turkey Sanctuary to the north, adjacent connections to the Malabar Scrub Sanctuary and connects to the Malabar Community Park and the Malabar Sand Hill Trailhead.

There are approximately 150 acres of park space and they will continue to meet the level of service through the short term (5 year) and long term (10 year) planning periods.

The Town has been an important partner to the Brevard County Environmentally Endangered Lands (EEL) program which manages approximately 913 acres of wetland and upland community habitats within the Town.

Public Schools

The Brevard County School Board provides figures for current and projected student enrollment and capacity for each district. Malabar is within the School Board District 3. Within District 3 there

are currently 2 elementary schools, 1 middle school, and 2 high schools serving the Town of Malabar.

In 2010, legislation was passed that no longer required municipalities to include the Public Schools Facilities within its Concurrency Element. Although, Malabar has no schools within its jurisdiction it committed to an Interlocal Agreement in 2014 with Brevard County Commissioners and Brevard County School District to provide coordination and review for future public school site selection, potential school closures, renovations and the impact that it may have on our Comprehensive Plan. The Brevard County School District Work Program in five-year periods will be reviewed independently of this Comprehensive Plan as will their Level of Service standards.

Capital Improvements

The Town has prepared a financially feasible Schedule of Capital Improvements (SCI) in the Capital Improvements Element. Currently the Town has scheduled no projects affecting Level of Service standards. The Town included City of Palm Bay potable water projects and FDOT projects in the SCI (schedule of capital improvements).

HISTORIC PRESERVATION

On December 24, 1883, Malabar received official designation from the U.S. Postal Service and President Chester A. Arthur appointed R.A. Ward the first Postmaster for the local population of 25. Two times a week, weather permitting, a mailboat, depicted in the Malabar Town seal, hoisted sail and traveled along the shallow Intracoastal Waterway from Jacksonville to deliver the mail. A palmetto shack served as the post office just north of Malabar Road. It was close to a pier north of the Malabar Road – U.S. Highway 1 intersection today. Although never built, the State of Florida had proposed a mule canal to travel inland from this area. Later, the steamboat arrived and dropped off mail further to the south on piers near Orange Avenue that extended over 300 feet to reach the deeper water these craft required. In 1893 the railroad replaced mailboats for delivery of mail and other commodities. The Town would like to mark these sites and incorporate the Town's history into future community facilities to the extent feasible.

The Town maintains Florida Department of State Master Site file information on historic and archaeological sites.

LAND COVER

Map FLU-7 Habitats and Land Cover identifies and maps native habitat within the Town. Land coverage can be broadly categorized into disturbed lands and undisturbed wetland or upland habitats. The developed/disturbed land coverage comprises 1,565.83 acres of the total area.

The bulk of this, 1,297.26 acres, is considered urban in nature. The wetland and open water coverage is 2,702.57 acres of the total area. The undisturbed native upland habitats are 4,047.11 acres of the total area.

TABLE 1-9: HABITATS AND LAND COVER

HABITAT LAND COVERAGE		ACRES	HABITAT BREAKDOWN
I.	Improved Pasture	178.08	Section I. Represents developed or disturbed land for a subtotal of 1,565.83 acres or 18.83% of the total area. Nearly 83% of this category of land is considered urban in nature.
	Unimproved Pasture	2.22	
	Row/Field Crops	21.18	
	Citrus	31.67	
	Other Agriculture	19.50	
	Bare Soil/Clearcut	15.92	
	Low Impact Urban	458.14	
	High Impact Urban	839.12	
II.	Open Water	153.65	Section II. Represents the wetland and open water coverage for a subtotal of 2,702.57 acres or 32.5% of the total area. This is comprised of open water along with salt and freshwater native habitats.
	Mangrove Swamp	0.22	
	Salt Marsh	6.59	
	Freshwater Marsh and Wet Prairie	426.84	
	Shrub Swamp	218.17	
	Mixed Wetland Forest	140.53	
	Cypress Swamp	174.59	
	Hardwood Swamp	114.05	
III.	Dry Prairie	1,217.37	Section III. Represents the native upland
HABITAT LAND COVERAGE		ACRES	HABITAT BREAKDOWN
	Grassland	2.89	coverage for a subtotal of 4,047.11 acres or 48.67% of the total area. This is comprised of grassland, scrub and forested habitats
	Shrub and Brushland	45.58	
	Sand Pine Scrub	154.17	
	Xeric Oak Scrub	24.54	
	Pinelands	2,066.78	
	Mixed Pine-Hardwood Forest	259.22	
	Hardwood Hammocks and Forest	276.56	
LAND COVER TOTAL ACREAGE		6,847.57	

Source: Florida Fish and Wildlife Commission, 2003

Water Resources

Some water ways are manmade features and some are naturally occurring depressional ponds. Two natural water ways, Goat Creek and Turkey Creek also traverse the Town. The predominant water feature that is present is the Indian River Lagoon, which forms the eastern boundary of the Town. *Map FLU-6 Water Bodies* highlights water resources.

Wellfield Protection

No public wellfields or wellfield protection zones are located within the Town.

Soils

Map FLU-3 Soils, provides the general distribution of soils in the Town as presented in the 1990 National Cooperative Soil Survey conducted by the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRSC). Conservation Element Table 6-1. *Soils* provides a list of the soils found in the Town. Appendix 6-A *Soil Descriptions*, provides a description, as provided by the Natural Resource Conservation Service (NRCS), of each of the soils represented in the Town.

Soil Erosion

Due to the relatively flat topography of the Town, lack of mining or large scale land disturbance, and the protection by the barrier island, soil erosion is not a typical problem in the Town.

Commercially Valuable Minerals

Many areas of central and southern Florida have been utilized to mine sand and lime rock materials for road building and development activities. Other than sand or lime rock substrate, there are no commercially valuable minerals in the Town. There are several inactive mining sites in the Town. Currently, commercial mining is a prohibited use and there are no active mining operations within the Town.

Development and Redevelopment on Flood Prone Areas

Malabar adopted new regulations for Flood Damage Prevention in 2014 and incorporated them into the Code of Ordinances in Chapter 9 in compliance with the Federal Emergency Management Agency (FEMA) directives. There will be a reference to them in the Coastal Management Element. Most of the Town is an X zone, which is defined as areas determined to be outside the 500-year floodplain, (outside the 1% and 0.2% annual chance floodplains). This is an area of minimal flood hazard. In compliance with the Peril of Flood legislation adopted in 2015 as Senate Bill 1094, Malabar will add a redevelopment component into the Coastal Management Element.

Topography

Map FLU-5 *Topography*, identifies the topography of the Town. The Town is relatively flat with elevations ranging from 0 to 30 feet. The majority of the Town is at 20 feet. Although, the lowest elevation is found along the coastline and the two creeks that traverse the Town, Turkey Creek lies in the northwest corner and Goat Creek lies in the southeast corner, there are multiple basins and sub-basins identified by engineering studies paid for by Malabar that show development within Flood Zone A. The Atlantic Coastal Ridge, a narrow ridge that runs along mainland coastline, forms the highest ground in the Town. It is a natural barrier to drainage of the interior, except where it is breached by shallow sloughs or rivers. From this ridge, the ground slopes gently downward to the western sandy flatlands. The Atlantic Coastal Ridge runs along the vast majority of the eastern coast of the U.S.

Hazard Mitigation

Within the Town there is a potential for impacts from lightning, wildfires, floods and tropical storms, but the most significant natural disaster threat the Town needs to plan for is the event of a hurricane. During a hurricane evacuation, a significant number of vehicles will have to be moved across the local and regional road network. There are no emergency shelters located within the Town. The Town has developed and has in place a current Local Peacetime Emergency Plan and has in place a mutual aid agreement with the Brevard County Sheriff's Office and the State of Florida. The Town also participates in the County Unified Local Mitigation Strategy. The Town coordinates their Pre-storm Planning, Storm Event Actions and Post Disaster Development with the County Emergency Management Office, through email and online communications, conference calls, cell phone networks and a new software program called Crisis Link. Training and interagency meetings are held throughout the year.

Need for Redevelopment

At this time, the Town contains no areas which require redevelopment. However, the Town, in response to resident's concerns, has identified Malabar Road as an area that should be considered for the development of a corridor plan, requiring additional setbacks, landscaping and pedestrian amenities. The general consensus is to encourage future development on Malabar Road as mixed-use with the development of a corridor plan that provides mixed use commercial and office uses and requiring all new development on the corridor to comply with the Malabar Vernacular regulations in Article V, General Provisions, of the Malabar Land Development Regulations. The 2018 update of the Future Land Use Map indicates the change in designation from "Rural Residential" to "Residential/Limited Commercial" along the corridor on both the north and south sides of SR514.

Studies conducted during the planning stage showed that there had been no new residential directly on Malabar Road since the mid 1980's. With the Town's request to the State to widen and add safety improvements to Malabar Road, the future development along Malabar Road is intended for Mixed-use Commercial, Office and Limited Commercial.

The residential homes that currently exist along the road are no longer considered appropriate due to the access constraints and road characteristics which can be described as an arterial road rather than a local access road. The speed limit along Malabar Road also raises a concern for existing residential uses. Small clusters of commercial development have spurred along the road due to its centrality and connectivity to other arterial roads and major highways such as US-1 and I-95. It is this connectivity that presents an opportunity to develop Malabar Road into a successful corridor. However, density and design standards must be carefully considered in order to preserve the Town's overall rural character.

FUTURE LAND USE ELEMENT

GOALS, OBJECTIVES, AND POLICIES

§1-1 Future land use goals, objectives and policies. This section stipulates goals, objectives, and implementing policies for the Land Use Element pursuant to S163.3177(6)(3), F.S., and S9J-%.006(3), F.A.C.

GOAL 1-1

Land Use. Insure that the character and location of land uses reflect best management practices and principles of resource conservation, promote orderly land use transition, and minimize threats to health, safety and welfare which may be engendered by incompatible land uses, environmental degradation, hazards, and nuisances.

1-1.1 Objective:

Plan and design for residential quality. Sufficient space shall be provided for residential development and require community facilities to adequately meet the housing needs of the present and expected future population of the Town. Residential development shall be planned and designed to create and perpetuate stable living areas and protect land and land improvements.

1-1.1.1 Policy:

Provide access to good and services and protect residential areas from adverse impacts of transition in land use. Stable residential areas and projected future residential areas as delineated on the Land Use Map shall be protected from encroachment by incompatible nonresidential development. This objective does not preclude necessary community facilities from locating within residential areas when such activities satisfy established criteria of this plan and the Town's Code of Ordinances.

Any potential adverse impacts caused by different land uses located adjacent to each other shall be minimized by landscaping, screening and buffering of all

nonresidential activities located adjacent to residential activities. In addition, other reasonable design principles shall be included in the zoning code in order to alleviate any potential adverse impacts of potentially incompatible land uses.

1-1.1.2 Policy:

Promote orderly land use transition. Where it is infeasible to separate residential from nonresidential land uses, buffering shall be required to promote a smooth and gradual land use transition. Buffering may take the form of 1) physical barriers, such as berms, hedges or other landscape cover; walls or fences aesthetically designed for screening purposes; or open space systems with dense native vegetation; of 2) the development of a transitional use between the incompatible uses (such as low intensity office development between general retail commercial centers and residential areas).

1-1.1.3 Policy:

Promote orderly transition in residential densities. Highest residential densities shall continue to be allocated to sites highly accessible to major thoroughfares or collector streets and adjacent to existing development with the same or higher density or less restrictive zoning districts. Residential densities shall be allocated in a manner compatible with available public services, natural features of land as well as existing and anticipated future development.

1-1.1.4 Policy:

Reinforce and enhance appearance of residential areas and provide amenities. Scenic vistas, especially along the Indian River, Turkey Creek, Goat Creek, and their tributaries as well as vistas adjacent to transportation corridors should be enhanced by preservation of open space, by installation and maintenance of landscape and by application of community appearance criteria which reinforces good principles of design.

1-1.1.5 Policy:

Encourage separation of urban and rural land uses. Within one (1) year of the adoption of this plan, Article VII, Site Plan Review of the Land Development Code shall be amended to incorporate performance standards, urban service availability standards, and other similar incentives and disincentives which encourage a separation of urban and rural land uses. Performance standards may include emission of noise, air pollutants, odor, vibration, fire or explosive hazard, and glare. Urban service standards may include transportation system, off street parking and loading, utilities and waste management, storm water management, tree protection, landscaping and signage.

1-1.2 Objective:

Allocating commercial development. Commercial development shall be comprised of a wide range of business uses. The allocation of land resources shall consider the location and space requirements of commercial activities and potential fiscal and environmental impacts on the Town of Malabar.

1-1.2.1 Policy:

General considerations in locating commercial development. The location and distribution of specific types of commercial activities shall be determined based on the following considerations.

- a. Trip generation characteristics, impact on existing and planned transportation facilities and ability to achieve a functional internal circulation and landscaped off-street parking system;
- b. Location and site requirements based on specific needs of respective commercial activities, their market area, anticipated employment generation and floor area requirements;
- c. Compatibility with and impact on other surrounding commercial activities;
- d. Relationship to surrounding land uses and natural systems;
- e. Impact on existing and planned community services and utilities..

1-1.2.2 Policy:

General pattern of commercial land use. In order to promote efficient flow of traffic along thoroughfares, achieve orderly development and minimize adverse impact on residential quality, commercial development shall be concentrated in strategically located areas having location characteristics which best accommodate specific land, site, public facilities and market location requirements of respective commercial uses.

1-1.2.3 Policy:

Provide appropriate locations for commercial office development. Office development shall be encouraged to locate on accessible sites near major thoroughfares and may serve as transitional uses separating more intensive commercial uses from residential development. In addition, office complexes may be compatible with multiple family units and/or institutional uses situated on strategically located sites along major thoroughfares where the sites are of sufficient size to accommodate land requirements for controlled access, effective internal circulation and off-street parking, and appropriate landscape, screening and buffering to assure stability and protection of established or anticipated future residential areas.

The Office-Institutional (OI), Multiple-Family Residential of Office (MRO), and Residential and Limited Commercial (R/LC) land use designations, as described herein, are designed to carry out the intent of this objective. Land Development Code performance standards shall require significant landscaping, screening, urban design controls.

1-1.3 Objective:

Planning for industrial development. Sufficient land shall be allocated to accommodate industrial development.

1-1.3.1 Policy:

General considerations in locating industrial development. The allocation of land resources for industrial development shall reflect the location and space requirements of industrial activities and potential fiscal and environmental impacts on the Town of Malabar. The location and distribution of specific types of industrial activities shall be determined based on the following considerations:

- a. Trip generation characteristics, impact on existing and planned transportation systems, including dependency on rail, air, or trucking for distribution of material and goods;
- b. Anticipated employment generation, floor area requirements, and market area;
- c. Ability to meet established performance standards for preventing or minimizing nuisance impacts, such as emission of air pollutants, glare, noise or odor, generation of hazardous by-products;
- d. Impact on established and planned development and natural systems;
- e. Impact on existing and planned public services, utilities, water resources, and energy resources.

1-1.3.2 Policy:

Review of proposed Future Land Use Map amendments for industrial development. A high priority shall be directed toward encouraging development of existing lands designed for industrial development. These lands contain rail access and are highly accessible to the U.S. 1 highway corridor. These transportation facilities provide convenient access to regional markets. Furthermore, the existing designated acreage is compatible with adjacent land uses and furthers goals, objectives, and policies of the Comprehensive Plan.

The Town shall not amend the Future Land Use Map in a manner which would promote the encroachment of industrial activities into residential

areas or in a manner which would adversely impact the integrity of established development. No such Future Land Use Map amendment shall be approved unless the applicant presents requisite information needed to affirmatively address policy considerations identified in Policy 1-1.3.1 above.

Any additional industrial designation of lands on the Future Land Use Map shall generally be concentrated near the existing industrial node and shall incorporate those amenities required by respective industrial uses.

1-1.4 Objective:

Promote community appearance, natural amenities and urban design principles. The community appearance shall be reinforced and enhanced through application of the site plan review process.

1-1.4.1 Policy:

Reinforce and enhance the Town's community appearance. Major attributes shall be preserved through application of design review standards and management of signs, landscape, and tree removal or relocation. Special emphasis shall be placed on preserving and/or improving the character of major natural and man-made corridors, including the intracoastal shoreline, the scenic estuary system, and major transportation corridors which serve as a focal point for the motoring public and an inviting gateway to the visiting tourist.

1-1.4.2 Policy:

Continue to maintain Malabar Vernacular Architecture Style. The Town shall maintain Land Development Code regulations that require the use of the Malabar Vernacular Architectural Style in non-residential and Residential/Limited Commercial developments located along arterial roadways.

§1-2 Managing Future Land Use

Goal 1-2

Future Land Use Map. Continue to maintain and manage a Future Land Use map.

The Future Land Use Map, reflects the Town policy for managing the allocation of future land use. Land use designations on the Future Land Use map have been allocated pursuant to the goals, objectives and policies stipulated in the Comprehensive Plan; an analysis of population, housing and land resources; the need to conserve natural resources including wetlands, estuaries, floodways, flood plains, water recharge areas, fish and wildlife; consideration of capital improvement needs; conservation of fiscal resources; discouragement of urban sprawl; energy-efficient land use patterns accounting for existing and future electric power generation and transmission systems; and greenhouse gas reduction strategies.

The Future Land Use Map shall designate areas for the following uses: Rural Residential; Low Density Residential; Medium Density Residential; High Density Residential; Multiple-Family Residential or Offices; Residential and Limited Commercial; Limited Commercial; General Commercial; Industrial; Institutional; Conservation; And Open Space and Recreation land uses. This section of the Future Land Use Element shall define the nature, density and intensity of the allowable uses for each of the designations represented on the Future Land Use map. Nothing in this section shall preclude necessary community facilities from locating within any future land use designation when such activity satisfies established criteria of this plan and the Town's Code of Ordinances.

1-2.1 Objective:

Allocating residential development. The Future Land Use Map shall allocate residential density based on the following considerations; past and projected future population and housing trends and characteristics; provision and maintenance of quality residential environments; protection of environmentally fragile natural systems; the need to plan for smooth transition in residential densities; and provision and maintenance of traffic circulation and multiple-family improvements.

- a. In cases where land abuts the tidal waters of the Indian River and all tributaries and manmade canals thereof, the boundary of the land shall be delineated as established by State statutes (Chapter 177, Part II, Coastal Mapping), or as may be amended.
- b. No submerged land or aquatic areas waterward of the boundary above described shall be included as gross land area under this definition.
- c. No land areas proposed to be allocated to nonresidential uses shall be included under this definition, excepting contiguous areas proposed for:
 - Public of private rights-of-way;

- Utilities under common ownership and principally supporting the residential use
- Recreational facilities for the primary use of on-site residents; and
- Dedications to the Town or other Town approved agencies or Town approved not-for-profit corporations.

Density is expressed in terms of a range up to a specified maximum. Where so stated as a range, the maximum density is not guaranteed by right. Subdivision, zoning and site plan review criteria and procedures shall assure that specific density assigned to new development is compatible and consistent with established residential development patterns and provides equitable use of the land. Criteria to be considered in allocating density shall include the following:

- a. Protect the integrity and stability of established residential areas;
- b. Assure smooth transition in residential densities;
- c. Require application of sound landscaping and urban design principles and practices;
- d. Protect environmentally sensitive areas;
- e. Minimize the impact of hurricane and flood hazards;
- f. Coordinate with Brevard County; and
- g. Provide equitable rights to the use of the land.

1-2.1.2 Policy:

Rural Residential Development (RR). Areas delineated on the Future Land Use Map for rural residential development shall be developed and maintained as rural residential areas with a density of one and one-half (1.5) acres per dwelling unit. This designation is intended to protect and preserve existing agricultural and rural residential lands. These lands are generally developed for agricultural uses or for large lots for rural residential

homesites. The areas contain few urban services and the street system is generally incapable of carrying traffic generated by urban densities. This land use policy provides land area for accommodating a unique lifestyle which cannot be accommodated in more dense residential areas. Zoning regulations shall provide standards for these areas which are designed to permit development compatible with the need for preserving a rural character and large open space systems.

1-2.1.3 Policy:

Low Density Residential Development (LDR). Areas delineated on the Future Land Use Map for low density residential development shall be developed and/or maintained as residential areas with a maximum density of up to two (2) dwelling units per acre. Specific densities will be determined by such factors as natural features of the land, character of undeveloped land and surrounding development, level of accessibility, housing supply and demand, and adequacy of public facilities. Supportive community facilities and accessory land uses may be located within areas designated LDR. The Town land development regulations shall provide regulatory procedures for considering such uses.

The low density designation is established to protect the quality and character of existing stable low density single family neighborhoods, preserve open space, and encourage densities which are compatible with existing developments, natural features of the land, as well as existing and projected public services and facilities for the area.

1-2.1.4 Policy:

Medium Density Residential Development (MDR). Areas delineated on the Future Land Use Map for medium density residential development shall be developed and/or maintained as residential neighborhoods. This designation allows for multi-family and single family structure types and maximum density of up to four (4) dwellings per acre. The medium density designation is intended to ensure sufficient land area for developments of medium density and the adequacy of existing and/or projected public facilities for the area. Supportive community facilities and accessory land

uses may be located within areas designated MDR. The Town land development regulations shall provide regulatory procedures for considering such uses.

Review of specific densities of developments shall be directed toward preserving stability of established residential areas. Sites for medium density residential developments should be located so that they provide a smooth transition between lower density residential areas and areas developed and/or designated for other more intense uses.

1-2.1.5 Policy:

High Density Residential Development (HDR). High density residential development ranges up to a maximum of six (6) units per acre. The high density policy designation is intended to primarily provide for multiple family residential development at higher densities which shall be adequately supported by public services and facilities, and maintain compatibility with the surrounding area. The specific designated for high density development shall be accessible to existing or anticipated future major thoroughfares and requisite utilities. In addition, these areas generally shall be highly accessible to commercial services. Specific density of future development proposals within these areas shall provide for smooth transition in residential density, preserve stability of established residential areas, and shall include sufficient open space, parking and landscaping to reinforce goals and objectives for quality living areas.

1-2.2 Objective:

Allocating commercial development. The Future Land Use Map shall identify the allocation of commercial land for: 1) multiple-family residential or office development; 2) limited commercial development; and 3) general commercial activities. The allocation of land for commercial development is compatible with goals and objectives identified in the Comprehensive Plan and consistent with supportive research and analysis. The policies sated below provide an explanation of the purpose, intent and character of the commercial land use designations.

1-2.2.1 Policy:

Multiple-Family Residential or Office Development (MRO). The MRO policy designation is a land use classification designed to accommodate

residential development, offices, and institutional uses. This policy designation is intended for sites which shall:

- Have good accessibility;
- Have potential to be serviced by a full complement of urban services;
- Contain sufficient land area to accommodate good principles of urban design, including sufficient land area to provide adequate landscaping and buffers to separate existing as well as potential future adjacent land uses of differing intensity;
- Accommodate only freestanding multiple-family residential structures or office buildings and shall expressly exclude general retail sales and services, warehousing, and outside storage; and
- Generally serve as a transition area which buffers residential uses located in one area from a nearby area which accommodates uses of a higher density or intensity.

The density of residential development within MRO designated lands shall not exceed six (6) units per acre.

1-2.2.2 Policy:

Office-Institutional Development (OI). The OI policy designation is a land use designation designed to accommodate business and professional offices and institutional land uses. This policy designation is intended for sites which:

- Have accessibility to major thoroughfares;
- Have potential to be served by a full complement of urban services;
- Contain sufficient land area to accommodate good principles of urban design, including sufficient land area to provide adequate landscaping and buffers to separate existing as well as potential future adjacent land uses of differing intensity;

- Accommodate only office buildings and institutional land uses and shall expressly exclude general retail sales and services, warehousing, and outside storage; and
- Frequently serve as a transition area which buffers residential uses located in one area from a nearby area which accommodates uses of a higher intensity.

1-2.2.3 Policy:

Limited Commercial Development (CL). Limited commercial development is allocated to commercial sites accessible to major thoroughfares near residential neighborhoods. Such development is intended to provide essential household services in locations highly accessible to residential areas. For instance, sites within this designation are intended to accommodate neighborhood shops with limited inventory or goods. Such shops generally cater to the following markets: 1) neighborhood residential markets within the immediate vicinity as opposed to city-wide or regional markets; or 2) a specialized market with customized demands. Commercial development within the limited commercial designation shall generally be restricted to any of the following uses: neighborhood convenience stores; small limited item shops and stores restricted to retail sales of convenience items and services including barber, beauty care, and other personal services; small scale drugstores, laundry and dry cleaning pick-up stations; specialty shops; small scale activities associated with a specialized facility.

Areas designated for limited commercial development are not intended to accommodate large scale retail sales, service, and trade activities, generally servicing a city-wide or regional market. Such store would usually differ from limited commercial shops since the former would usually require a larger floor area, carry a relatively larger inventory and require a substantially greater parking area. Uses, which are not intended to be accommodated within the limited commercial area, include the following: large scale discount stores; health spas, supermarkets; department stores; large scale wholesaling and warehousing activities; general sales, service or repair of motor vehicles, heavy equipment, machinery or accessory parts, including tire and battery shops and automotive service centers;

commercial amusements; fast food establishments primarily serving in disposable containers and/or providing drive-in facilities, and other similar services to be expressly defined in the zoning ordinance.

No residential uses shall be located in a CL designated area.

1-2.2.4 Policy:

General Commercial Development (CG). The general commercial areas are designated on the Future Land Use Maps for purposes of accommodating general retail sales and services. These areas are located in highly accessible areas adjacent to major thoroughfares which possess necessary location, site, and market requirements. Zoning policy shall stipulate provisions regulating specific land uses.

The areas designated for general commercial developments are specifically not adaptive to permanent residential housing and such uses shall be located in other areas designated for residential development.

1-2.2.5 Policy:

Residential and Limited Commercial Development (R/LC). The R/LC Future Land Use Map designation is intended to accommodate and shall accommodate a mixture of land uses expressly restricted to uses allowed in the "limited commercial" designation together with uses allowed on lands designated for high density residential activities with a density no greater than six (6) units per acre. Such residential uses may be located either within a free standing structure or within a structure housing both Residential and Limited Commercial activities. The "R/LC" FLUM designation is intended and shall be interpreted to be a "commercial" district with respect to required setbacks and other size and dimension provisions referenced by zoning district in the Town's Land Development Code.

These sites currently are characterized by a mixture of generally small scale commercial businesses together with predominantly single family residential land uses. Acres designated "R/LC" are not suitable for and shall not be developed for large scale general retail activities or other commercial activities more intense than land uses expressly provided for in the "limited commercial" Future Land Use Map designation (Reference Policy 1-2.2.3)

since such development would be incompatible with existing and anticipated future residential development within or in the vicinity of areas designated "R/LC" on the Future Land Use Map.

1-2.2.6 Policy:

Criteria for the Residential and Limited Commercial Development R/LC Designation. The following criteria for development within the R/LC FLUM designation shall be incorporated into the Town of Malabar Land Development Regulations:

- a. *Percent of Site for Mixed Use Development.* Within the R/LC designation where Residential and Limited Commercial activities are proposed to occupy the same site and/or the same building the following minimum and maximum percentages shall apply:

	Minimum	Maximum
Limited Commercial	20%	90%
Residential	10%	80%

- b. *Limited Commercial Uses.* Limited Commercial uses with the R/LC FLUM designation shall have a minimum floor area of nine hundred (900) square feet and a maximum of four thousand (4,000) square feet.
- c. *Residential Uses.* Single family units shall have a maximum density of four (4) units per acre. Multiple family uses shall have a density no greater than six (6) units per acre. However, any residential site located with a high surficial aquifer area on the Atlantic Coastal Ridge and not served by central water and wastewater shall have a density no greater than two (2) units per acre.
- d. *Minimum Lot Requirements.* Lots within the R/LC FLUM designation shall have a minimum lot size of 20,000 square feet, a minimum width of 100' and a minimum depth of 150'.

- e. *Setback Requirements.* Single family units shall have setbacks of 25' in the front, 10' on the interior and street sides, and 20' in the rear. Multiple family units shall have setbacks of 50' in the front, 10' on the interior side, 20' on the street side, and 25' in the rear.
- f. *Building Height Requirements.* Any building within the R/LC FLUM designation shall have a maximum height of thirty-five (35) feet or three (3) stories.
- g. *Coverage Requirements.* Single family residential uses shall have an impervious surface ration of 50% with a minimum open space requirement of 50%. Multiple family residential uses shall have an impervious surface ratio of 65% with a minimum open space requirement of 35%. Limited commercial uses shall have a maximum floor to area ratio (FAR) of 0.20.
- h. *Buffering.* The R/LC district is intended and shall be interpreted to be a "commercial" district with respect to required buffering and other provisions referenced by zoning district in the Land Development Code.

1-2.7 Objective:

Allocating Industrial Development (IND). The Future Land Use Map shall allocate land resources for existing and anticipated future industrial needs and requisite support services.

1-2.7.1 Policy:

Industrial Land Use Designation. The allocation of industrial land use designations should provide a high priority to industry's frequent need for strategically located lands which are accessible to rail and terminal facilities, major arterials or interchanges, labor markets and necessary urban services.

Industrially designated areas are not generally adaptive to residential use and as such industrial activities shall not be located in areas designated for residential development. This provision shall not prohibit residences for night watchmen or custodians whose presence on industrial sites is

necessary for security purposes. Such a use may be permitted as an accessory use through appropriate zoning procedures.

The industrial land use designation is allocated to industrial sites accessible to major thoroughfares and buffered from residential neighborhoods. Light industrial uses include: light manufacturing and assembling activities; kennels; truck or bus terminal facilities; warehousing and storage activities; and other similar land uses which might be permitted through appropriate zoning procedures excluding heavy metal fabrication, chemical or petroleum manufacturing or refining, rubber or plastics manufacturing, or other uses generating potentially harmful nuisance impacts.

1-2.8 Objective:

Allocating Institutional Services (INS). The Town shall set aside land sufficient to accommodate institutional land uses. For instance, approximately 25 acres of institutional land area is anticipated to be required by 2010. The Town shall monitor the need for such increased land area for institutional uses and shall assure that the institutional land use designation on the Future Land Use Map is expanded to accommodate the development of public and semi-public facilities such as government administrative buildings; fire, police and rescue services; health care delivery services; and educational institutions. Land uses such as places of worship, cultural or civic centers, and other similar public or private not-for-profit uses may be included within this land use designation.

1-2.8.1 Policy:

Institutional Land Use Designation. Lands designated for institutional services shall contain sufficient acreage and open space and be properly screened and buffered in order to minimize potential adverse impacts on adjacent land uses.

1-2.9 Objective:

Allocating Open Space and Recreation (OSR). The open space and recreation designation has been established to direct the preservation of open spaces and

recreation areas, both publicly owned and privately owned, including golf courses, parks, recreation areas and similar facilities.

1-2.9.1 Policy:

Open Space and Recreation Land Use Designation. Lands designated for open space and recreation shall be consistent with the Recreation and Open Space Element and shall reflect actions taken to implement the goals, objectives and policies of the Recreation and Open Space Element.

1-2.10 Objective:

Allocating Conservation (CON). The conservation designation has been established to direct the preservation of publicly-owned major natural resources and environmentally sensitive corridors. The purpose of preservation is for the conservation and protection of natural resources or environmental quality. These areas may be used for wildlife management, passive recreation, and environmental restoration/preservation. These natural areas may include site improvements to support uses which are deemed appropriate and consistent with the function of the designated area.

1-2.10.1 Policy:

Conservation Designation. The Town shall designate lands which are deemed appropriate to conserve in order to implement natural resource conservation goals, objectives, and policies stipulated in the Comprehensive Plan. Where such designations are enacted, the Town Council shall adopt appropriate programs, policies, and/or ordinances for managing implementation of the respective conservation Future Land Use Plan designations.

1-2.10.2 Policy:

Conservation Designation consistent with Conservation Element. Lands designated for conservation shall be consistent with the Conservation

Element and shall reflect actions taken to implement the goals, objectives and policies of the Conservation Element.

1-2.10.3 Policy:

Designate Lands as Conservation on the Future Land Use Map. Within two (2) years of the adoption of this plan, publicly owned lands that the Town deems appropriate for conservation shall be allocated as Conservation on the Future Land Use Map.

1-2.10.4 Policy:

Designate Environmentally Endangered Lands as Conservation on the Future Land Use Map. Within two (2) years of the adoption of this plan, lands that are managed by the Brevard County Environmentally Endangered Lands (EELS) program shall be allocated as Conservation on the Future Land Use Map.

1-2.10.5 Policy:

Amend Land Development Code to create a Recreation/Open Space (RS) district. Within one (1) year of the adoption of this plan, the Land Development Code shall be amended to create a Recreation/Open Space (RS) District. The RS District is intended to implement the open space and recreation land use and conservation land use of the Town's Comprehensive Plan by providing areas for the development of active or passive recreational facilities and the preservation of open space.

1-2.10.6 Policy:

Implement Land Development Regulations to protect Conservation Areas. Within one (1) year of the adoption of this element the Town shall adopt Land Development Code regulations that protect and preserve conservation space. Regulations shall include specific open space definitions and standards addressing protection of open space, natural vegetation, landscape, and signage.

1-2.10.7 Policy:

Implement Land Development Regulations to protect lands east of US-1. Within one (1) year of the adoption of this plan the Town shall amend the Land Development Code to further regulate the Coastal Preserve Zoning District. Land development regulations shall contain performance standards which may include setbacks, buffers, control of exotic species, stormwater management and runoff, signage, public access, and preservation of Indian River Lagoon, seagrass beds, and other estuarine resources.

1-2.11 Objective:

Planned Unit Development. The Town shall promote innovative development concepts including mixed use development, and shall institute development concepts including mixed use development, and shall institute procedures for resolving conflict through use of the planned unit development.

1-2.11.1 Policy:

Planned Unit Development overlay designation. The Town hereby establishes a planned unit development overlay designation in order to provide a voluntary management framework for coordinating objectives of developers which may require departures from established public policy.

The planned unit development overlay designation shall provide a management strategy for negotiating innovative development concepts; design amenities, and measures for protecting natural features of the land. The management process shall promote public and private coordination and cooperation. The detailed regulations, standards, and procedures for implementing the planned unit development overlay designation shall be incorporated in the land development code. Planned Unit Developments must be designed to fit into the rural residential nature of the Town.

The planned unit development overlay designation shall be available as a voluntary approach for managing specific development characteristics and project amenities to be incorporated in residential, commercial, industrial or mixed use development options. The basic development options, including

principles for locating alternative land use activities shall be governed by the underlying land use designated for the site. Developers who voluntarily participate in the process shall bind themselves as well as those who may be their successors in title to the affected land.

1-2.11.2 Policy:

Reinforce and enhance the Town's rural residential atmosphere. Within one (1) year of the adoption of this plan, the Land Development Code shall be amended to incorporate Planned Unit Development District (PUD) standards and specifications that maintain and enhance the profile and rural atmosphere of the Town. Standard and Specifications may include Malabar Vernacular architectural styles and detailing, garage and facades, signage, parking, landscaping, street access and circulation, and open space.

1-2.12 Objective:

School Siting. The Future Land Use Map shall accommodate schools within all land use designations at locations that minimize impacts to adjacent residential land use, that provide safe and efficient access to school sites, that create compatibility with adjacent residential land uses, that comply with all provisions of the Comprehensive Plan and Land Development Code, and shall be implemented through the following policies:

1-2.12.1 Policy:

School Site Locations: Site Compatibility. School sites shall be located and developed pursuant to plans that preserve land use compatibility.

Compatibility determinations shall be undertaken to ensure that school sites are compatible with present and projected uses of adjacent property and that site plans reinforce long term compatibility. Land use compatibility shall require avoidance or successful mitigation of adverse impacts of noise and any spill over of outdoor lighting onto residential property in excess of best management principles and industry standards; shall accommodate safe and convenient internal circulation and queuing of vehicles, as well as off-street parking area design that avoids headlight illumination into adjacent

residential properties, and shall require successful mitigation of the adverse impacts generated by outside unenclosed activity areas such as playgrounds and field sports areas.

1-2.12.2 Policy:

School Site Locations: School Site Size. The sites shall be consistent with recommended State standards for public schools.

1-2.12.3 Policy:

School Site Locations: Compliance with Town of Malabar Comprehensive Plan and Concurrency Requirements. All school sites shall be served by adequate public facilities and services required to support elementary, middle, junior high, and senior high schools, including but not limited to, public potable water and sanitary sewer systems, stormwater management facilities, and fire, police, and medical services as well as sidewalks and paved roads with convenient and safe access that create direct linkage to a major collector or arterial street. The developed school site shall meet all concurrency management level of service requirements of the Town. The site plans shall comply with applicable public school facility elements and school facility concurrency requirements as mandated by State law.

- a. Elementary School. A minimum of four (4) acres for the first two hundred (200) student capacity plus one (1) acre for each additional one hundred (100) students.
- b. Middle or Junior High School. A minimum of six (6) acres for the first three hundred (300) student capacity plus one (1) acre for each additional one hundred (100) students.
- c. Senior High School. A minimum of seven (7) acres for the first three hundred (300) student capacity plus one (1) acre for each additional fifty (50) students up to one thousand (1,000) students thereafter.
- d. Minimum site size may be adjusted for sites on which co-location of facilities are proposed or on sites characterized by development of

multi-story facilities designed to achieve advantages of cluster design techniques consistent with best management principles and practices.

1-2.12.4 Policy:

School Site Locations: Future Land Use Map Designations for Schools. School sites should be located on sites that can be focal points for community activities and should incorporate innovative urban design, including opportunities for shared use and co-location with other community facilities. All school facility applications for site plan approval or other required land use approvals must comply with the Town of Malabar Comprehensive Plan and Land Development Regulations.

- a. Elementary schools should be within walking distance of residential neighborhoods served and the elementary school sites shall provide safe and convenient direct or indirect access to major collector or arterial roads and such sites may be selected within any future land use designations delineated on the Future Land Use Map.
- b. Middle, Junior High and Senior High Schools shall be located on the periphery of residential neighborhoods and the school sites shall have direct access to major collector or arterial streets and such sites may be selected within any future land use designations delineated on the Future Land Use Map.

1-2.12.5 Policy:

School Site Locations: Protect Natural Resources and Avoid Encroachment into Environmentally Fragile Systems. School facilities shall not be located within wetlands, the 100-year floodplain, or threatened or endangered flora or fauna habitats. School facilities shall be planned and developed in a manner approved by all federal, state, and local agencies having jurisdiction over such natural resources, including applicable buffer standards. School sites shall be well drained and the soils shall not impose severe constraints to intensive development.

1-2.12.6 Policy:

School Site Locations: Protect Archaeologically and Historically Significant Sites. School sites shall not adversely impact an archaeologically or historically significant site listed in the National Register of Historic Places or the State list of historically or archaeologically significant sites, or listed by the Town of Malabar as an historically or archaeologically significant site and which would be adversely impacted by development of a school facility.

1-2.12.7 Policy:

School Site Locations: Locate Outside of Airport Approach Zones and High Impact Noise Contours. School site locations shall be compliant with Section 333.03, F.S., which addresses in part the construction of educational facilities in the vicinity of an airport approach zone or high impact noise contour.

1-2.12.8 Policy:

School Site Locations: Encourage Co-Location of Public Facilities with Complementary Functions. School site selection shall encourage co-location of public facilities with complementary functions. Site selection should be coordinated with the Town of Malabar and Brevard County in order to enhance opportunities for such co-location and to ensure that the site selection process considers the spatial needs of not only the school plant but also the spatial needs of other potential joint users of the site. To maximize use of public facilities in the Town of Malabar, the Town shall encourage co-location of public schools with public facilities, having complementary functions such as parks, libraries, and appropriate children's service facilities where feasible, practical, safe and beneficial to the Town and the School Board.

1-2.12.9 Policy:

Siting of Private School Sites. The intent and purpose of public and private schools is to provide an organized system of education to a student population. Although the age of the student population served and the

program orientation of educational facilities may differ widely, both public and private school facilities generate potential land use compatibility issues previously identified in Policies 1-2.12.1 through 1-2.12.8.

School siting criteria is required by State law for public schools. However, the land use compatibility issues documented herein shall be implemented in the site plan review process for both public and private schools. Private schools shall be accommodated within all land use designations. Minimum site size for any private school facility shall be determined on a case by case basis based on best management principles and practices. The minimum size shall be directly related to land and facility spatial requirements for the educational activity, size of near and long-term clientele, character and intensity of activity areas, nature of outdoor activities and facilities, and other characteristics of the proposed private facility.

1-2.12.10 Policy:

Amend the Land Development Code to Implement the School Siting Policies. The Town shall amend Table 1-3.2 within §1-3.2, Town of Malabar Land Development Code, which currently only allows educational institutions as a conditional use within the Office/Institutional (OI) or Institutional (INS) zoning districts. The amendment shall implement the recommended school siting policies stated in Policies 1-2.12.1 through 1-2.12.8.

1-2-13 Objective:

Malabar Road as a local corridor. The Town shall evaluate the development of Malabar Road as a local corridor.

1-2.2.13.1 Policy:

Malabar Road Corridor Plan. The Town shall pursue a corridor plan for Malabar that incorporates the following objectives; incorporates low density office and commercial uses; promotes economic development; provides additional services to the Town; remains true to the spirit and rural

atmosphere of the Town; and enhances and improves traffic operations and mobility along Malabar Road.

1-2.13.2 Policy:

Access Management. The "Malabar Road Corridor Plan" shall include an Access Management Plan to address right of way limitations.

1-2.13.3 Policy:

Overlay Zoning District. The Land Development Code shall be amended to incorporate overlay zoning district regulatory provisions and performance standards. The provisions may include permitted land uses, densities, design standards, signage, and required improvements along the corridor.

§1-3 Land Use Element Implementation

Goal 1-3

Implementing Land Use Goals and Objectives. Continue to monitor and evaluate development and resource conservation within the Town pursuant to goals and objectives of the comprehensive plan Land Use Element and carry an effective implementation program as herein established.

1-3.1 Objective:

Manage and coordinate future land use decisions. Management of land and physical improvements identified on the Future Land Use Map will be coordinated with natural systems, including topography, soils conditions, vegetation, natural habitat, potable water wellfields, and other environmentally sensitive land and water resources. Land use shall also be predicated on availability of man-made infrastructure and service systems required to support land use activities.

1-3.1.1 Policy:

Future Land Use Map and related policies. The Future Land Use Map and related policies provide definitions of land use designations and qualitative standards which shall be applied in allocating future land uses.

1-3.1.2 Policy:

Resolving public service concurrency issues surrounding new development. Pursuant to Chapter 163.F.S., and S9J-5, F.A.C., the Town of Malabar shall issue no development order for new development which would result in an increase in demand on deficient facilities prior to completion of improvements needed to bring the respective facility up to standard. Pursuant to 9J5.006(3)(c)3] the Town shall encourage and direct development to areas where public facilities and services are available or are projected to be.

1-3.1.3 Policy:

In order to implement concurrency management for proposed new residential or nonresidential development, any required improvements to meet concurrency, as determined by Town Staff, shall include a detailed schedule for construction and completion. Should development or facility improvements fail to begin or be completed in accordance with the development order or permit, then all outstanding approvals of the development shall expire, Amendments or changes to time schedules shall be permitted but must be approved by the body granting the original approval.

1-3.1.4 Policy:

In order to implement concurrency management, the Town shall require that all proposed non-residential developments and/or proposed residential developments that require a comprehensive plan amendment and/or zoning code amendment, whichever occurs first, shall at the time the subject application for amendment is filed, submit information which demonstrates

that all urban services needed by the proposed development can and will be provided concurrent with the new development.

In order to establish an orderly review process, the Town shall refine the Land Development Code by stipulating specific narrative and/or graphic data and information required at the time a comprehensive plan amendment or zoning code amendment is filed with the Town. As a minimum, the information shall include the following:

- The specific land use(s) and the proposed density and/or intensity of the use(s);
- Estimated trips per day generated by the proposed land use(s) together with anticipated on-and off-site improvements necessitated to accommodate the traffic impacts generated by the development including, additional R/W, roadway improvements, additional paved laneage, traffic signalization, and other similar improvements.
- Anticipated wastewater generation together with anticipated improvements for collecting and treating the same;
- Potable water demands together with proposed stormwater run-off and demonstrated evidence proposed drainage improvements shall accommodate stormwater run-off without adversely impacting actual systems;
- In cases where residential development is proposed, information shall be submitted describing plans for accommodating recreational demands generated by the development, including demonstrated evidence that the Town's adopted level of services for recreation shall not be adversely impacted;
- Projected demand generated by the development on the solid waste disposal system and assurances that the Town's adopted level of service for solid waste disposal shall not be adversely impacted;
- Potential to increase the prevention of urban sprawl as defined by 9J-5.006(5)(g), Florida Administrative Code (F.A.C.)

- Other information which the Town determines is necessary to assure that the concurrency requirement shall be satisfied without adversely impacting existing levels of service of the Town's ability to adequately service participated development which is consistent with the adopted plans and policies of the Town.

All such information submitted pursuant to this subsection shall incorporate proposed funding sources, including any identification of improvements which the applicant anticipates shall be funded by the Town or other public entity.

1-3.1.5 Policy:

The Town will discourage and assess potential for urban sprawl in formal review of development proposals utilizing criteria in Rule 9J-5.006(5)(g). F.A.C.

1-3.1.6 Policy:

Land development regulations. Existing regulations governing zoning; subdivision; signage; landscaping and tree protection; flood plain management; water conservation; sewers and sewage disposal; streets and sidewalks; parks, playgrounds and recreation; health and sanitation; fire prevention and protection; building and electrical codes; excavation and erosion; and other land and water management regulations shall be revised and/or updated as needed in order to: 1) effectively regulate future land use activities and resources identified on the Future Land Use Map; and 2) implement the goals, objectives and policies stipulated in the Comprehensive Plan. These ordinances shall be incorporated into a land development code pursuant to Chapter 163.3202, F.S., and shall contain specific detailed provisions which as a minimum:

- a. Regulate the subdivision of land;
- b. Regulate the use of land and water consistent with this Element, ensure the compatibility of adjacent land uses, and provide for open space;
- c. Protect the environmentally sensitive lands designated in the Comprehensive Plan;

- d. Regulate areas subject to seasonal and periodic flooding and provide for drainage and stormwater management;
- e. Protect potable water wellfields and aquifer recharge areas;
- f. Regulate signage;
- g. Ensure safe and convenient onsite traffic flow and vehicle parking needs, and;
- h. Provide that development orders and permits shall not be issued which result in a reduction of the level of services for the impacted public facilities below the level of service standards which shall be adopted by the Town Council.

1-3.1.7 Policy:

Standards for residential density. Land development regulations adopted to implement this Comprehensive Plan shall be based on and be consistent with the following standards for residential densities as indicated below and as elaborated in §4-2; Policy 1.1(1-5), herein:

- a. Rural residential density – a maximum density of up to one and one-half (1.5) gross acres per residential unit.
- b. Low density residential – a maximum density of up to two (2) residential units per gross acre.
- c. Medium density residential – a maximum density of up to four (4) residential units per gross acre.
- d. High density residential – a maximum density of up to six (6) residential units per gross acre.

1-3.1.8 Policy:

Non-residential development standards. Land development regulations shall be adopted which address the location and extent of non-residential land uses in accordance with the Future Land Use Map and the policies and descriptions of types, sizes, and intensities of land uses contained in this Element.

1-3.1.9 Policy:

The Town shall regulate intensity of non-residential land uses as noted in the below Table.

Land Use Category	Intensity Standards	
	Height	Building Coverage
<i>Multiple-Family Residential or Office Development (MRO).</i>	35 feet	20%
<i>Office-Institutional Development (OI).</i>	35 feet	20%
<i>Limited Commercial Development (CL).</i>	35 feet	20%
<i>General Commercial Development (CG).</i>	35 feet	20%
<i>Industrial Development (IND).</i>	35 feet	42%
<i>Institutional Services (INS).</i>	35 feet	20%
<i>Open Space and Recreation (OSR)</i>	35 feet	10%
<i>Conservation (CON)</i>	35 feet	5%

1-3.1.10 Policy:

Performance standards. Land development regulations shall contain performance standards which;

- a. Provide criteria for protecting wetlands;
- b. Establish buffering and open space requirements;
- c. Provide criteria for protection of potable water wellfields;
- d. Provide criteria for drainage and stormwater management;
- e. Incorporate criteria for requiring off-street parking and managing internal traffic circulation as well as access to and egress from the street system;
- f. Mandate availability of requisite services and infrastructure;
- g. Stipulate criteria for screening and buffering land uses and facilities which may otherwise adversely impact development of adjacent land use;
- h. Establish standards for erosion control;
- i. Address historically significant properties meriting protection.

1-3.2 Objective:

Encourage redevelopment and renewal: Manage future redevelopment of declining areas. Although the Town currently has no blighted or declining

areas, the Town has designated Malabar Road and US-1 as target areas for redevelopment. The Town shall coordinate public and private resources necessary to initiate needed improvements and/or redevelopment within currently defined redevelopment areas as well as areas that may in the future exhibit indications of blight or decline.

1-3.2.1 Policy:

Code enforcement activities. Code enforcement activities shall be continued as an integral part of the Town's regulation programs. The code enforcement program shall preserve and protect structurally sound land improvements and land uses consistent with the Comprehensive Plan.

1-3.2.2 Policy:

In order to discourage blight, the Town shall increase emphasis on nuisance abatement to improve neighborhood quality of life. The Town shall routinely review and update existing nuisance abatement codes.

1-3.2.3 Policy:

Public and private sector partnerships. If redevelopment issues materialize, the Town shall coordinate with the private sector in promoting mobilization of public and private resource necessary to effectively carry out redevelopment efforts.

1-3.2.4 Policy:

Malabar Road Corridor Plan. The Town shall pursue a corridor plan that promotes economic development, pedestrian connectivity, and a good urban design along Malabar Road.

1-3.3 Objective:

Prevent land use inconsistent with Town's character. Future land uses shall be consistent with the Town's character, the Future Land Use Map, and other applicable laws, ordinances, and administrative rules impacting land and water resources. Similarly, if improvements are proposed to an existing structure

which does not comply with such provisions governing setbacks, size dimensions, height, density, or other location criteria, then: 1) in no case shall any existing non-compliance be increased; and 2) the existing non-compliance shall be eliminated or reduced to the greatest reasonable and practical extent.

1-3.3.1 Policy:

Managing future land use. The Future Land Use Map and related policies together with the Land Development Code shall be applied as a planning and management device in order to prevent development of land uses which do not conform to the Town's character as reflected in the Town's adopted Future Land Use Map, Zoning Map, and other applicable laws, ordinances, and administrative rules.

1-3.3.2 Policy:

Managing improvements to existing non-complying structures. The Land Development Code shall provide standards regulating improvements to existing non-complying structures and such standards shall require compliance and/or mitigation to the greatest reasonable and practical extent.

1-3.4 Objective:

Protection of archaeological and historic resources. Land development and conservation activities shall insure protection of archaeological and/or historic resources.

1-3.4.1 Policy:

Programming for archaeological and historic sites. The Town shall coordinate with the State in developing appropriate programs for implementing Town and State policies for identifying, preserving, and enhancing sites of historical and archaeological significance. Programs for identification, evaluation of relative significance, protection, preservation, and enhancement shall be promoted utilizing available public resources at

the local, State, and Federal level as well as available private sector resources.

1-3.4.2 Policy:

Preventing adverse impact of development on historic or archaeological sites. Development activities shall include precautions necessary to prevent the following adverse impacts to historic or archaeological sites of significance: 1) destruction or alteration of all or part of such a site; 2) isolation from or significant alteration to its surrounding; 3) introduction of visible, audible, or atmospheric elements that are out of character with the property or significantly alter its setting; 4) transfer or sale of a site of significance without adequate conditions or restrictions regarding preservation, maintenance, or use; and 5) other forms of neglect resulting in its deterioration.

1-3.4.3 Policy:

Amend Land Development Code. Within one (1) year of the adoption of this plan, the Town shall amend the Land Development Code regulations that preserve and conserve historic or archaeological sites of significance; Protect and encourage the revitalization of historic or archaeological sites of significance; Protect such archaeological and historic sites to combat urban blight, promote tourism, foster civic pride, and maintain physical evidence of the town's heritage; and Encourage and promote restoration, preservation, rehabilitation and reuse of archaeological and historic sites by providing technical assistance, investment incentives, and facilitating the development review process.

1-3.5 Objective:

Protection of natural resources. Development and conservation activities shall assure the protection of natural resources.

1-3.5.1 Policy:

Future Land development regulations for environmentally sensitive lands. Policies in Chapter 5 and 6 for managing environmentally sensitive estuarine and upland areas shall be applied in protecting natural systems.

1-3.5.2 Policy:

Incorporate land development regulations for environmentally sensitive estuarine and upland areas. The Town shall amend the Land Development Code to further regulate the Coastal Preserve Zoning District. Land development regulations shall preserve and protect the Indian River Lagoon, sea grassbeds and other estuarine resources, natural drainage and recharge areas, and native vegetation from potentially adverse impacts of development. The Code shall contain performance standards which may include setbacks, buffers, control of exotic species, stormwater management and runoff, signage, public access, and preservation of Indian River Lagoon, seagrass beds, and other estuarine resources.

1-3.5.3 Policy:

Intergovernmental coordination and natural resource management. The Town shall coordinate with the State, the St. John's River Water Management District, the East Central Florida Regional Planning Council, the Marine Resources Council of East Central Florida, Brevard County, and other agencies concerned with managing the Indian River Lagoon as well as environmentally sensitive coastal uplands. Such intergovernmental coordinating activities shall be directed toward protecting the values and functions of the coastal marsh and submerged lands.

1-3.5.4 Policy:

Protecting flora and fauna having special status. The habitat of rare and endangered species of flora and fauna and others having special status as identified in the Conservation Element shall be protected.

1-3.5.5 Policy:

Managing stormwater run-off. The developer/owner of any site shall be responsible for managing on-site run-off.

1-3.5.6 Policy:

Conservation of potable water supply. The potable water supply shall be conserved by enforcing potable water standards to be developed as part of the Land Development Code.

1-3.6 Objective:

Coordinating coastal area population densities. Coastal area population densities shall be coordinated with the Brevard County Peacetime Emergency Plan, Disaster Evacuation Plan (as exists or as hereinafter may be amended) and shall also be consistent with applicable regional hurricane evacuation plans.

1-3.6.1 Policy:

Continuing review of population densities. The Town shall coordinate with Brevard County in order to assure continued compliance with the County disaster evacuation plan (referenced above). In addition, the Town shall coordinate with Brevard County in order to remain responsive to issues which may impact County hurricane evacuation plans, including issues surrounding planned State improvements to S.R. 514.

1-3.7 Objective:

Minimize impacts on Indian River Lagoon. The Town shall allow the expansion of existing facilities which will have minimum impact on the Indian River Lagoon system and to discourage their location in inappropriate areas.

1-3.7.1 Policy:

Strategic placement of infrastructure. Infrastructure shall be located in areas where maximum physical advantage exists, where the least dredging and maintenance are required, and where adequate resources will not be adversely affected subject to State and Federal regulations.

1-3.7.2 Policy:

Water quality. Present and future facilities along the Indian River Lagoon shall not degrade water quality in the estuaries of the region per State and Federal regulations. [9J-5.012(3)(c)(8 and 13)]

1-3.7.3 Policy:

Utilization of existing facilities. Expansion of facilities along the Indian River Lagoon, where environmentally feasible, rather than construction of new facilities, shall be encouraged. [9J-5.012(3)(c)(8 and 14)]

1-3.8 Objective:

Consistency with the State Aquatic Preserve Plan for the Indian River Lagoon. Resource planning and management activities shall be coordinated with the State Aquatic Preserve Management Plan for the Indian River Lagoon.

1-3.8.1 Policy:

Indian River Lagoon Aquatic Preserve Plan. The Town shall coordinate with appropriate County, regional, and State agencies in managing development and resource conservation issues impacting the Indian River Lagoon Aquatic Preserve.

1-3.9 Objective:

Coordinate timing and staging of public and private development. The location, scale, timing, and design of development shall be coordinated with public facilities and services in order to promote cost effective land development patterns and direct future development only to those areas where provision of public facilities necessary to meet level of service standards are available concurrent with the impacts of the development.

1-3.9.1 Policy:

Development orders and permitting process. Development orders and permits for all future development shall be timed and staged to assure that requisite infrastructure and services are available to respective developments concurrent with the impacts of development.

1-3.9.2 Policy:

Design of public facilities and utilities. Public facilities and utilities shall be located and designed to: 1) maximize the efficiency of services provided; 2) minimize related costs; and 3) minimize adverse impacts on natural systems.

1-3.9.3 Policy:

Developments not served by public water and/or wastewater systems. All developments in areas not serviced by public water and/or wastewater systems shall be governed by applicable State laws and administrative regulations.

1-3.9.4 Policy:

Accommodating requisite infrastructure. During the subdivision review, site plan review, and permitting processes the Town shall insure that respective future developments allocate sufficient land area for infrastructure required to support proposed development.

1-3.10 Objective:

Consider application of innovative land and water resource management concepts. Monitor state-of-the-art concepts for managing land and water resources and land development regulations which are responsive to unique development and conservation issues confronted by the Town.

1-3.10.1 Policy:

Incorporate innovative techniques in the land development regulations. The Town's land development regulations shall incorporate land and water resource management techniques which have been demonstrated to be successful and cost effective in resolving development and conservation issues.

1-3.11 Objective:

Intergovernmental coordination. The Town shall coordinate land and water resource management issues with other applicable public agencies at all levels of government pursuant to the Intergovernmental Coordination Element.

1-3.11.1 Policy:

Implementing intergovernmental coordination. The Town shall require that development applications be coordinated, as appropriate, with the City of Palm Bay, Town of Grant-Valkaria, Brevard County, special districts, the East Coast Regional Planning Council, the St John's River Water Management District, as well as

State and Federal agencies prior to issuance of a development order or permit.

1-3.12 Objective:

Continuing land use programs. The Town shall implement land use goals and objectives by carrying out a continuing program of land use activities below cited.

1-3.12.1 Policy:

Land use information system. Maintain and periodically update the land use information system.

1-3.12.2 Policy:

Land use trends. Monitor and evaluate population and land use trends.

1-3.12.3 Policy:

Fiscal management. Implement fiscal management policies of the capital improvement program and budget.

1-3.12.4 Policy:

Administer land use controls. Administer adopted land use controls, including the zoning code, subdivision regulations, building regulations, electrical code, flood drainage prevention regulations, housing code, water and sewer codes, traffic regulations, fire code, and regulations governing streets and sidewalks.

1-3.12.5 Policy:

Public assistance. Provide continuing land use information and assistance to the public.

1-3.12.6 Policy:

Intergovernmental coordination. Coordinate land development issues where applicable with other public agencies at all levels of government pursuant to the Intergovernmental Coordination Element of this plan.

1-3.12.7 Policy:

Manage current developmental impacts. Evaluate and manage impacts of proposed development pursuant to existing ordinances, including but not limited to, public facilities, natural environment, and impact on stable residential neighborhoods.

1-3.12.8 Policy:

Urban design and community appearance. Good principles of urban design shall be applied through site plan review procedures in order to enhance general community appearance as well as to preserve and enhance open space landscape. This program shall assist in protecting major natural and manmade resources within the Town, including such scenic natural resources as the Indian River Lagoon, and tributaries of Turkey Creek and Goat Creek, as well as developing residential neighborhoods or centers of commercial or institutional activity.

1-3.12.9 Policy:

Special land use studies. In order to maintain land use policies responsive to changing conditions, problems, and issues, the Town shall undertake special studies as needed to develop specific local strategies for resolving unanticipated land use problems and issues.

1-3.13 Objective:

Continuing evaluation of Land Use Element effectiveness. The Town shall use the following policies as criteria in evaluating the effectiveness of the Land Use Element.

1-3.13.1 Policy:

Review the impact of change indicators on land use policy. Major shifts in the magnitude, distribution, and characteristics of population and land use shall serve as indicators of possible changes in land use needs. The policy implications of major shifts in land use characteristics shall be evaluated on a continuing basis. Land use policy shall be refined as needed in order to remain responsive to evolving problems and issues.

1-3.13.2 Policy:

Schedule, budget and implement programmed activities. The timely scheduling, programming, budgeting and implementation of programmed land use activities identified in this Element shall be evidence of the Town's effectiveness in carrying out a systematic program for implementing adopted land use goals, objectives and policies.

1-3.13.3 Policy:

Coordinate with public and private sectors. While continually implementing and evaluating the Land Use Element, the Town shall maintain a process of intergovernmental coordination as well as coordination with private sector groups interested in land use policy and programs. The effectiveness of this approach shall be evaluated by the success of coordination mechanisms in resolving land use problems and issues.

1-3.13.4 Policy:

Achieve effective resolution of land use goals, objectives, and policies. The effectiveness of the Land Use Element shall be measured by the Town's success in achieving land use goals, objectives, and policies. The Land Use Element incorporates a systematic planning process for identifying land use problems and issues implementing corrective actions.

APPENDIX 1A FLORIDA MASTER SITE PLAN

Site Name	Site Type	Site Detail	Cultural Affiliation	Survey Evaluation	Historic Preservation Office (SHPO) Evaluation	Human Remains
MALABAR	Prehistoric shell midden	<u>Ceramic scatter</u>	<u>Malabar I and Malabar II</u>	<u>Not Evaluated by Recorder</u>	<u>Not Evaluated by SHPO</u>	
DAMON	Prehistoric burial mound(s)	<u>Ceramic scatter</u>	<u>Prehistoric</u>	<u>Not Evaluated by Recorder</u>	<u>Not Evaluated by SHPO</u>	Yes
Brick Chimney	Building remains		<u>Twentieth century American, 1900-present</u>	<u>Ineligible for NRHP</u>	<u>Not Evaluated by SHPO</u>	
Historic Canal	Canal		<u>Twentieth century American, 1900-present</u>	<u>Ineligible for NRHP</u>	<u>Not Evaluated by SHPO</u>	

Source: Florida Master Site File, Florida Division of Historic Resources, 2008

CHAPTER TWO

TRANSPORTATION ELEMENT

INTRODUCTION

As per Rule 9J-5.019, of the Florida Administration Code, every local government which has all or part of its jurisdiction included within an urbanized area of the Metropolitan Planning Organization (MPO), must prepare and adopt a transportation element consistent with the provisions of this rule and Chapter 163 of the Florida Statutes.

PURPOSE

The purpose of the Transportation Element is to plan for an efficient, safe, and coordinated multimodal transportation system within the Town of Malabar. This Element is developed in coordination with Brevard County's Transportation Element, the Space Coast Metropolitan Planning Organization (MPO)'s Long Range Transportation Plan (LRTP), and the Florida Department of Transportation (FDOT). The Transportation Element consists of two main sections as follows: a) Data, Inventory and Analysis Report, and b) the Goals, Objectives, and Policies, which set the overall guidelines for transportation planning within the Town.

REGIONAL CONTEXT

Socioeconomic, Political and Cultural Factors

Malabar is a small rural town located along Indian River, extending in some sections to I-95. Incorporated in 1962, Malabar now has an estimated population of 2,866, according to 2017 census data, and a land area of approximately 6,372 acres. The Town is mostly a rural-oriented community with predominantly low-density single-family housing throughout the Town, with Light Commercial, Office-Institutional, Mixed-use, Industrial and Commercial areas along or adjacent to major arterials such as Babcock Street, US Highway 1 and SR514/Malabar Road. The Rural Residential Land Use and Zoning Designation permits both large lot residential development and agricultural uses. Many areas within Malabar are covered by swamp and wetlands under the jurisdiction of outside agencies and not suitable for development. There are also approximately 1000 acres of Conservation Land under the jurisdiction of the State and/or County.

DATA, INVENTORY, AND ANALYSIS

This data, inventory, and analysis section provides a comprehensive approach of the Town of Malabar's existing and future needs. For the future analysis, the planning horizon Year 2025 has been used consistent with Brevard County's Long-Range Transportation Plan and Comprehensive plan. The Data, Inventory and Analysis section includes the following:

- An analysis of the existing conditions, existing roadway system, existing and remaining capacities, existing land use, existing challenges facing the roadway system, existing transit facilities;
- Growth trends and travel patterns, including the relationships between land use and transportation systems;
- An analysis of the capital improvements planned by the Town of Malabar, Brevard County and the Florida Department of Transportation;
- Projected transportation system level of service;
- An assessment of future needs and funding resources;

The Data, Inventory and Analysis includes two main subsections:

- Existing Transportation System and Transportation Needs Analysis
- System (2045) and Future Transportation Needs Analysis

EXISTING TRANSPORTATION SYSTEM AND TRANSPORTATION NEEDS ANALYSIS

For the Transportation Element, Rule 9J-5.019 requires an analysis of the existing transportation facilities and an evaluation of the existing system needs based on the existing conditions and existing land use analysis. For this purpose, all the transportation facilities were analyzed based on the collected data and information obtained from Brevard County and the Space Coast MPO. This Element is consistent with the Future Land Use Element, Coastal Element, MPO Long Range Transportation Plan (LRTP) and Brevard County's Comprehensive Plan.

EXISTING TRANSPORTATION FACILITIES

The *Florida Intrastate Highway System (FIHS)*, was created in 1990 by the Florida Statutes, and is composed of a series of interconnected limited and controlled access roadways, including the Interstate Highways, the Florida Turnpike, selected urban expressways and major arterial highways. I-95, an Intrastate Highway, passes through the Town of Malabar.

The *Strategic Intermodal System (SIS)* consists of statewide system of high priority facilities including major interregional highways, airports, deepwater seaports, freight rail terminals, passenger rail and bus terminals, rail corridors, and waterways. In the Town of Malabar, I-95 is a **Designated SIS** corridor.

The existing transportation system in the Town consists of the existing roadway system, pedestrian network, sidewalks, transit system, waterways, port and FEC railroad corridor. The Town of Malabar does not have its own airport within Town limits, although, there is an international airport in the City of Melbourne known as the Melbourne International Airport, which is located north of the Town of Malabar and identified as **Emerging SIS** facility. There is no port within Malabar, but the County has the second busiest cruise port known as Port Canaveral, which is a **Designated SIS Seaport Hub**.

RAIL

Heavy rail freight service in Brevard County is provided by the Florida East Coast (FEC) Railroad. It serves the east coast of Florida from Jacksonville to Miami. The important role of freight transportation is very vital to maintain the mobility and economic growth within the area. FEC is a **Designated SIS** facility in Brevard County. Brightline, a high speed passenger rail system on its own tracks is being developed between Orlando International Airport and the Miami International Airport. The portion between Miami and West Palm beach is already in service. The proposed tracks will be placed west of the existing FEC tracks and provide an estimated 16 daily north-bound and 16 south-bound trips of non-stop high-speed passenger rail service with speeds estimated of 119 mph through Malabar. No railroad spurs are planned for Malabar.

WATERWAYS

The Atlantic Intracoastal Waterway runs along the eastern edge of Brevard County via Indian River Lagoon. The Atlantic Intracoastal Waterway provides navigation along the southeastern seaboard of the United States, extending from Norfolk, Virginia to Miami, Florida. The channel is maintained at a depth of 12 feet by federal government. The Intracoastal Waterway is maintained by the U.S. Army Corps of Engineers. Because of its relationship to seaports, the Intracoastal Waterways are identified as a **Designated SIS** facility in the region.

Map TRN-1 shows existing transportation system within the Town of Malabar.

Map TRN-2 shows existing major roadways within the Town by number of through lanes.

Map TRN-3 shows the functional classification of roadways within the Town.

FUNCTIONAL CLASSIFICATION

The Town of Malabar has local and county roadways and state highways within the Town. The roadways are classified based on the purpose they serve, speed of travel, access needs and mobility needs. The classification is consistent with Brevard County and FDOT District V Federal Functional Classification and Urban Boundaries.

The major thoroughfares, categorized into four functional classification groups common to rural and urban roads, are the principal arterials, collectors, and local streets. The rural

or urban designation is part of the complete functional classification based on population. A description of each type of road is described as follows:

Major Arterial Road

This roadway provides service primarily through high speed and high-volume traffic. Major Arterials usually provide service that is relatively continuous and for longer trip lengths. Typical principal arterials include interstates, freeways, highways and other limited access facilities.

Minor Arterial Road

This type of roadway focuses on through traffic similar to a major arterial, but provides greater land access, and distributes traffic to smaller geographic areas than the major arterials.

Collector Street

This roadway provides both land access and traffic circulation between arterials and local roads for moderate trip length at moderate speeds. Conversely, a collector street system transitions vehicular traffic from local streets onto the arterial system. The Town of Malabar further distinguishes minor and major collector streets.

Local Street

This roadway permits direct access to abutting property and connections to a higher order roadway. A local street provides service to low-volume and short average trip length or minimal through traffic movements. The operational and maintenance responsibility of the local streets falls under the jurisdiction of the Town of Malabar.

Existing Roadways

The Town of Malabar has local and county roadways and state highways within the Town. The majority of local roadways are unpaved, dead-end lanes; while the Minor and Major Collectors, State Roads and County collectors are paved roadways. There are many platted, but unimproved, rights-of-ways and it is the Town's directive to require the developer to improve those roadways before development may occur.

The major roadways within the Town are listed below:

I-95

I-95, an interstate highway, designated SIS facility, runs north south and passes through the southwest portion of the Town of Malabar. The portion of I-95 which passes through the Town is classified as Urban Principal Arterial-Interstate, however I-95 serves as Rural Principal Arterial south of the Town limit. Improvements on I-95 have been completed as approved in the FDOT's Five Year Work Program.

US-1

US-1 is also SR5 and is the primary north-south State highway which passes through the Town of Malabar's eastern boundary and serves as an Urban Principal Arterial on the State highway system. US-1 connects Malabar with Palm Bay, Melbourne and Grant-Valkaria.

SR 514/Malabar Road

SR514/Malabar Road is an Urban Minor Arterial connecting the Town with the City of Palm Bay. Malabar Road, a two-lane facility, runs east west and connects I-95, WR-507/Babcock Street, and US-1. FDOT completed numerous feasibility studies and preliminary design and engineering (PD&E) studies from 1987 through 2018 for widening of Malabar Road in 2040. Roadway improvements are planned on the corridor in Space Coast MPO's Long Range Transportation Plan under two projects; widening and intersection improvements. Acquisition funds for needed right-of-way for the intersection improvements has been allocated and work has begun in this area. Construction and design funds have not yet been allocated for the widening project.

SR 507/Babcock Street

SR 507/Babcock Street runs north-south along the western edge of the Town of Malabar and connects Brevard County with Indian River County. SR-507/Babcock Street connects the Town of Malabar with the Town of Grant-Valkaria, the City of Palm Bay, and City of Melbourne. SR 507/Babcock Street is classified as an Urban Minor Arterial from south of Malabar Road to Valkaria Road and then converts into Urban Principal arterial north of Malabar Road. However, SR-507/Babcock Street is classified as Urban Collector south of Valkaria Road. Roadway improvements are planned on the corridor in FDOT's Five Year Work Program and Space Coast_MPO Long Range Transportation Plan. The small portion of Babcock Street within the Town is a two-lane facility but is planned to be widened to four lanes in the MPO's 2025 Long Range Transportation Plan.

Corey Road

This two-lane paved roadway is centrally located and runs north-south in the center of Town. Corey Road serves as Major Collector south of Malabar Road to Valkaria Road. Corey Road is also a paved two-lane roadway north of Malabar Road for a distance of 1800 feet and dead-ends at the 100-acre Richard E. Cameron Sr. and Volunteers Wilderness Preserve making connection to Port Malabar Blvd in Palm Bay impossible.

Weber Road

This two-lane paved roadway is parallel to and west of Corey Road by one mile, runs north-south and is classified as Major Collector south of Malabar Road to Valkaria Road. There is no right of way ability for this road to be developed north of Malabar Road.

Valkaria Road

Valkaria Road serves as Major Collector and runs east-west between SR-507/Babcock Street and US-1. Only a very small portion of Valkaria Road lies within the Town and is used to access Leghorn Lane.

Marie Street

The Marie Street corridor generally extends from approximately 970 feet north of Johnston Avenue south to Malabar Road and should be classified as a Minor Collector due to the lack of right-of-way north of that point.

Marie Street right-of-way proceeds south of Malabar Road to a point 850-feet past Hall Road. It was originally intended to be a Major Collector to connect to Leghorn Lane and reach Valkaria Road to the south. Difficulties with wetland issues, conservation dedications and lack of right-of-way to the south have all contributed to Marie Street being used as a Minor Collector instead of a Major Collector.

Jordan Boulevard

Jordan Boulevard runs east west in the southeast section of the Town and its right-of-way lines up with Atz Road. It was classified as a major collector for this reason. When the Industrial Land Use designation was made for the acreage off Jordan Boulevard to provide for an industrial park, Council directed that Jordan Boulevard should not be improved to Atz Road due to concern that commercial traffic would be brought through the Rural Residential area. The Town still owns the 100-foot wide right-of-way through this area which was subsequently bought by the State for conservation land and the Jordan Boulevard right-of-way has been fenced off. The Town intends to improve this right-of-way for emergency access only. Part of this Jordan Boulevard right-of-way is currently used for trail access into the Jordan Scrub Sanctuary. This roadway should be changed to a Minor Collector.

Minor Collectors

Atz, Hall, Old Mission, and Benjamin Roads are east-west roads. These roads are classified as Minor Collectors. As stated above, Marie Street and Corey Road north of Malabar Road should both be reclassified to Minor Collectors. In addition, Jordan Boulevard should be reclassified to a Minor Collector. LaCourt Lane was improved and used a Minor Collector to avoid the more expensive and challenging road improvements needed for Marie Street in order to connect Hall and Atz Roads. Eva Lane was also cut through from Malabar Road to Hall Road and thus became a Minor Collector.

Local Roads

All other remaining roads are classified as local roads. The local roads serve minimal homes on dead-end roads in the rural residential zoning and can be either paved or unpaved. Local dirt roadways can be paved by Special Assessment as stipulated in Chapter 13 of the Code of Ordinances.

Existing Parking Facilities

Parking facilities are composed of parking corresponding to the industrial and institutional properties, within the Town limits. Currently, there are no significant parking facilities within the Town of Malabar.

Existing Pedestrian and Bicycle Facilities

Malabar encourages non-motorized modes of transportation which have minimal impact on the natural environment. To maintain the mobility of a multimodal transportation system, it is vital that the Town of Malabar has a well-connected system of sidewalks, bike paths, and/or multi-use trails within the existing roadways system.

Bicycle facilities include bikeways, bike paths, paved shoulders and multi-use paths. A bicycle lane is a portion of a roadway which has been designed by striping, signage, and pavement markings for the preferential or exclusive use of bicyclist, while bicycle path is a bikeway physically separated from motorized vehicular traffic by an open space or barrier and located either within the highway right-of-way or within an independent right-of-way.

Currently, there are almost no existing pedestrian and bicycling facilities in the Town of Malabar. The Town shall continue coordination efforts with Brevard County and the Florida Department of Transportation to install sidewalks and bicycling facilities along major roadways connecting residential areas to schools, commercial and recreational areas.

Brevard County's MPO is currently working on a Master Plan known as "Bicycle, Pedestrian and Trails Master Plan" which will provide vision for future transportation planning for non-motorized uses. The Master Plan will provide inventory of all existing and proposed sidewalks, bicycle and trail facilities, and needs assessment for these facilities.

Bicycle, Pedestrian & Trails Advisory Committee (BPTAC), as part of the Brevard MPO, provides educational support and guidance for improved non-motorized modes of transportation.

Existing Sideways and Bicycle Needs Assessment

Malabar prides itself on its rural lifestyle, anti-sprawl, and slow growth principles. Yet new development and an increasing population compel the Town to improve pedestrian, bike, and equestrian connectivity in order to ensure the Town's character and livability remain intact. Pedestrian and bicycle facilities are most needed around schools, civic centers, shopping centers, community centers, bus stops, parks and other activity centers. Currently the Town has neither bicycle facilities nor sidewalks, except in the Brook Hollow and Weber Woods subdivisions. There is a need to analyze sidewalk deficiency and

continuity on the arterial and collector roadways, near the recreational facilities including access to multi-use trails within the Environmentally Endangered Lands (EELS) and the hospital and medical offices in Palm Bay, Brevard MPO's Master Plan will evaluate the deficiencies and provide recommendations to mitigate the deficiencies in existing sidewalks and bike path system. To improve pedestrian safety, crosswalks should be provided at all major intersections. For safety, adequate lighting along sidewalks is necessary and should be provided.

Based on a preliminary analysis of the sidewalks and bicycle system, the following are a series of observed recommendations:

- There is a need to provide sidewalks along arterials and local streets especially near educational and community centers, and parks.
- Improve connectivity among the sidewalks and bike paths for efficient and safe sidewalk and bike path system.
- Incorporate recommendations from the Master Plan when completed.
- Signaling conforming to FDOT standards should be provided to bicyclist, pedestrian, and motorists. Accessibility and safety around the existing school and existing and emerging daycare facilities is also essential.
- Push-button crosswalks should be installed at major intersections.
- Adequate lighting on sidewalks is required for safety.
- The elevations and grades along sidewalks and handicapped ramps must address ADA requirements.
- Pedestal for signal needs to be provided at all signalized intersections.

GREENWAYS

A greenway is a corridor of protected open space that is managed for conservation and/or recreation. Greenways follow natural land or water features, like ridges or rivers, or human landscape features like abandoned railroad corridors or canals and link natural reserves, parks, cultural and historic sites with each other and, in some cases, with populated areas. They include abandoned railroad corridors converted into multi-use recreational trails, winding paddling trails that follow rivers or shorelines, large-scale natural areas, and even bicycle paths in urban areas.

The Greenways and Trails Committee was formed in 1995 to preserve the unique natural resources and develop greenways and trails to enhance the quality of life. The Town of Malabar took the lead in 1996 by including the development of trails in their management plans for conservation lands acquired in coordination with the County's Environmentally Endangered Lands (EEL) program and the Florida Communities Trust. The Town of Malabar, in coordination with the Brevard Metropolitan Planning Organization (MPO) staff, held several public workshops designed to gather input and recommendations from stakeholders regarding the preferred locations and types of trails, and how to link these trails to surrounding neighborhoods and communities. In 2001, Malabar opened its first trailhead for the Sandhill Trail. Brevard County recognized the need for greenways and adopted the Brevard County Greenways and Trails Master Plan in 2001.

Brevard County MPO included five multiuse trails in Transportation Improvement Program (TIP) within Brevard County. Al Tuttle Trail links the Malabar Scrub Sanctuary and Jordan Scrub Sanctuary in Malabar via the Sand Hill Trail and to other natural areas outside of the Town's limits such as the preserve by Valkaria Airport, the Turkey Creek Sanctuary, and the Sebastian Buffer Preserve. The multi-use corridor will have equestrian paths and will be kept natural (not paved) in environmentally sensitive areas. The Town of Malabar will continue to coordinate with Brevard County for identification and establishment of greenways.

EXISTING CHARACTERISTICS OF THE MAJOR TRIP GENERATORS

The Town of Malabar is a small rural Town and most of the major regional attractions or generators like shopping malls, and employment centers are outside the Town limits. Most local commercial developments and retail lie along US-1 and Malabar Road.

EXISTING PUBLIC TRANSIT FACILITIES

The transit service is provided within the County through Space Coast Area Transit (SCAT). Space Coast Area Transit Service is operated under the Brevard County Commissioners and provides fixed route service, paratransit, van pool, and volunteer services. Paratransit service is operated throughout the County Monday through Saturday, with limited service on Sunday. The van pool program provides vehicles to lease to private agencies and commuters.

Currently no fixed route bus service including community bus service is provided within the Town of Malabar, however, paratransit service is available for the residents of Malabar on certain routes. There are no intermodal facilities in the area. The Town supports establishment of a passenger rail line along the east coast, and recently passed a resolution encouraging FDOT to pursue a feasibility study for the establishment of passenger rail service along the Florida East Coast Railroad (FEC).

Needs Assessment

There are certain factors which govern transit like population, density and household income. For an efficient transit system, a certain population density and other supporting

factors are needed. Based on Malabar’s current population, it appears regular fixed route bus service may not be a viable option. The Town should coordinate with the County if transit becomes part of future plans.

TRANSPORTATION LEVEL OF SERVICE (LOS) STANDARDS

Adopted Level of Service

Chapter 9J-5 requires local governments to adopt level of service (LOS) standards during the peak hour for roadways. Factors, which influence the level of service, are number of lanes, number of vehicles, speed, control type, number of access connections, maneuverability, safety and convenience of the public who will utilize the facilities. The roadway level of service (LOS) standard is a qualitative assessment of the road user’s perception of the quality of flow of traffic. The LOS standard is represented by letters “A” through “F”, with “A” representing the most favorable conditions and “F” representing the least favorable.

Levels of Service Standards

The level of service standard is used as a guide for planning purposes, to identify the needs and to plan for the improvements necessary to maintain a desired level of service. Factors which influence the level of service are number of lanes, number of vehicles, speed, control type, number of access connections, maneuverability, safety and convenience of the public who will utilize the facilities.

The description of level of service standards in transportation planning are defined as follows:

LOS A – Ideal conditions of primarily free-flow traffic conditions at average travel speed with minimal delay.

LOS B – Unimpeded traffic flow at average travel speed, the maneuverability is a little restricted within the flow.

LOS C – Traffic flow is stable, but drivers are more restricted in their choice of speeds and ability to maneuver as compared to LOS B.

LOS D – Traffic flow is unstable; speeds are tolerable for short periods of time but subject to sudden variance.

LOS E – Traffic flow is unstable and flow rates variable. This flow is characterized by significant delays and lower operating speeds.

LOS F – Traffic flow at extremely low speeds, congested roadways, high approach delays, and driving comfort is very low.

County Roads and Local Roads

The county and local roads level of service will conform to the Brevard County and the Town’s adopted LOS standards.

State Roadways Florida Intrastate Highway System (FIHS)/Strategic Intermodal System (SIS)

Rule 9J-5.0055(2) (c), F.A.C., requires local governments to adopt the LOS standards established by the Florida Department of Transportation. Rule 14.94003 for facilities on the Florida Intrastate Highway System (FIHS) (SIS) as noted in Table 2-1.

Interstate 95 is part of the Florida Intrastate Highway System (FIHS)/Strategic Intermodal System (SIS) and classified with an adopted level of service standard of “C”. It is strongly recommended by the Florida Department of Transportation (FDOT) that local governments should involve the FDOT in development review process at an early stage if new proposed development impacts any SIS facility.

TABLE 2-1

Statewide Minimum Level of Service Standards				
Statewide Minimum Level of Service Standards for the state highway system, roadways on the Strategic intermodal System (SIS). Roadways on the Florida Intrastate Highway System (FIHS) and the roadway facilities funded in accordance with Section 339.2819, Florida Statutes, the Transportation Regional Incentive Program (TRIP).				
	SIS AND FIHS FACILITIES		TRIP FUNDED FACILITIES AND OTHER STATE ROADS ³	
	Limited Access Highway ⁴ (Freeway)	Controlled Access Highway ⁴	Other Multilane ⁴	Two-Lane ⁴
Rural Areas	B	B ¹	B	C
Transitioning Urbanized Areas, or communities	C	C	C	C
Urbanized Areas Under 500,000	C(D)	C	D	D
Urbanized Areas Over 500,000	D(E)	D	D	D
Roadways Parallel to Exclusive Transit Facilities	E	E	E	E
Inside TCMA's	D(E) ²	E ²	... ²	... ²
Inside TCEA's ² and MMTD's ²	... ²	... ²	... ²	... ²
Level of service standards inside of parentheses apply to general use lanes only when exclusive through lanes exist.				
1. For rural two-lane facilities, the standard is C.				
2. Means the Department must be consulted as provided by Section 163.3180 (5), (7), or (15), Florida Statutes, regarding level of service standards set on SIS or TRIP facilities impacted by TCMA's, MMTD's, or TCEA's respectively.				
3. Means the level of service standards for non-TRIP facilities may be set by local governments.				
4. It is recognized that certain roadways (i.e., constrained roadways) will not be expanded by the addition of through lanes for physical, environmental, or policy reasons. In such instances, a variance to the level of service may be sought pursuant to Section 120.542, Florida Statutes.				

Source: FDOT Chapter 14-94. Not updated in 2019.

Statewide Minimum Level of Service Standards

- (1) Specific assumptions and restrictions that apply to these minimum LOS standards are:
 - (a) The minimum LOS standards represent the lowest acceptable operating conditions in the peak hour.

- (b) Definitions and measurement criteria used for the minimum LOS standards can be found in the Transportation Research Board's Highway Capacity Manual Special Report 2000.
 - (c) When calculating or evaluating level of service pursuant to this rule, all calculations and evaluations shall be based on the methodology contained in Transportation Research Board's Highway Capacity Manual Special Report 2000, the Department's 2007 *Quality/Level of Service Handbook*, or a methodology determined by the Department to be of comparable reliability. Any methodology superseded by the Highway Capacity Manual 2000, such as a methodology based on the 1997 Highway Capacity Manual or *Circular 212*, shall not be used.
- (2) Minimum LOS Standards for SIS Connectors and TRIP Funded Facilities are:
- (a) Minimum LOS Standards for SIS Highways.
 - 1. Limited access SIS highways shall adhere to the limited access FIHS LOS standards.
 - 2. Controlled access SIS highways shall adhere to the controlled access FIHS LOS standards.
 - 3. These standards shall apply regardless whether the facility is FIHS, SHS, or under another jurisdiction.
 - (b) Minimum LOS Standards for SIS Connectors. The minimum LOS standard for SIS connectors shall be LOS D.
 - (c) Minimum LOS Standards for Regionally Significant Roadways Funded by the TRIP.
 - 1. Regionally significant roadways utilizing TRIP funding shall adhere to the Other State Roads Standards in Chapter 14-94, F.A.C.
 - 2. These LOS standards apply to the TRIP funded portions of the roadway facilities extending to their logical termini for LOS analysis.

Specific Authority 163.3180(10), 334.044(2) FS. Law Implemented 163.3180(10), 163.3184(4), 334.03, 334.044(10)(a), (12), (19), 339.155(2), 339.2819, 339.61-64 FS. History-New 4-14-92, Amended 5-8-06.

The Town of Malabar shall adopt the following generalized two-way peak hour level of service standards for Florida's urbanized areas within the Town of Malabar:

TABLE 2-2: ADOPTED LEVEL OF SERVICE STANDARDS

FACILITY TYPE	PEAK HOUR LEVEL OF SERVICE
Local Road	D
Collector Roadway	D
Minor Arterial	D
Major Arterial	D

Source: Town of Malabar

Based on above Table, all the roadways including paved and unpaved roadways within the Town of Malabar will have an adopted LOS 'D' standard.

ROADWAY ANALYSIS

Existing Roadway Capacities

Brevard County MPO conducts traffic counts throughout the County to evaluate transportation needs and plan for future improvements. The Brevard County Traffic County Program also helps to identify the need for new signals in county.

Pursuant to Rule 9J-5.019, F.A.C. the capacity of existing roadways to serve the existing land use was assessed using a peak hour peak direction level of service analysis. The 2007-2008 annual daily traffic volumes were obtained from the Brevard County Traffic Count Program. The daily bi-directional volumes were converted into peak hour peak direction volumes by multiplying them with peak hour and directional factors. Peak-hour factors 'K' and directional factors 'D' are generally used to convert AADT to peak-hour peak direction volumes for planning purposes. K₁₀₀ is the factor for the 100th highest traffic volume hour of the year to the AADT. The 100th highest hour is representative of typical weekday peak hour traffic during the peak travel season. K₁₀₀ or K is used to convert AADT to peak hour or vice versa. D, the Directional Distribution Factor, is the proportion of an hour's total volume occurring in the higher volume direction. The D factor is used in converting AADT to directional peak traffic. The values for K and D factors were obtained from the *FDOT 2007 Quality/Level of Service Handbook*.

Then, the existing peak hour peak direction level of service was determined using the *FDOT Generalized Peak Hour Directional Volumes for Florida Urbanized Areas* (Table 4-7 and 4-9). Based on this methodology, the calculated level of service for existing roadways is listed in **Table 2-3**.

TABLE 2-3

EXISTING PEAK HOUR PEAK DIRECTION LEVEL OF SERVICE

ROADWAY	FROM	TO	AREA TYPE	CLASSIFICATION	ADPT LOS	# LANES (2-WAY)	PK HR PK DIR CAP (1)	2007 AADT VOL ₂	K ₁₀₀ ³	D ₁₀₀₃	PK HR PK DIR VOL ₄	LOS
SR 5/US1	Valkaria Road	SR 514/Malabar Rd	U	State Arterial Class I	D	4	1,860	16,620	0.0950	0.5500	868	B
	SR 514/Malabar Rd	Robert Conlan Blvd	U	State Arterial Class I	D	4	1,860	22,840	0.0950	0.5500	1,193	B
SR507/Babcock St	Valkaria Rd	Foundation Park Blvd	U	State Arterial Class I	D	2	860	19,220	0.0950	0.5500	1,004	F
SR514/Malabar Rd	Babcock St	SR 5/US 1	U	State Arterial Class I	E	2	860	13,570	0.0950	0.5500	709	C
SR9/I-95 ⁵	SR514/Malabar Rd	CR 516	U	Freeway	C	4	2,940	57,500	0.0950	0.5500	3,004	D

Note:

1. The existing 2007 volumes are directly taken from Brevard County Traffic County Program
2. The values for adopted level of service are directly taken from the FDOT 2007 Level of Service Tables 4-7 for Generalized Peak Hour Directional Volume.
3. Peak hour K and D factors are taken from the FDOT 2007 Level of Service Tables 4-7 & 4-9 for Generalized Peak Hour Directional Volume.
4. The peak hour peak direction volume is calculated from multiplying 2007 AADT with K and D factors.
5. The adopted level of service for SIS and FIHS facilities in urbanized areas under 500,000 is C. The 2006 AADT volume for I-95 is directly taken from the Brevard County LOS Report.

These existing roadway levels of service for the peak season 2007 are depicted in **Map TRN-4**.

Existing Roadway Needs

The level of service analysis for existing conditions indicates that all the roadways within the Town of Malabar, except SR-9/I-95 and SR 507/Babcock Street, are operating at the adopted level of service. Currently, SR 507/Babcock Street is operating at below adopted level of service standard, however improvements are planned in the MPO's LRTP on Babcock Street. The widening of I-95 is programmed in FDOT's five-year work program. The Town shall coordinate with Brevard County, Brevard County MPO, Florida Department of Transportation District V for needed improvements to address the deficiency on SR-9/I-95 and SR 507/Babcock Street. To maintain the adopted level of service on roadways, Brevard County has an impact fee program for new developments. The Town supports improvements to parallel facilities, encourages other modes of transportation, and promotes travel demand management (TDM) techniques to reduce traffic on the FIHS facilities.

The travel demand techniques (TDM) include vanpool, car pool, employer incentives, ride share programs, and alternate work hours. The Town will continue to work with the County and FDOT to explore and discuss these alternatives to reduce traffic from the FIHS facilities. The Town shall continue to co-operate with County for development approval and access connection on County roads.

Malabar Road Corridor Planning

Malabar Road is a two lane east west roadway which passes through the Town and connects US-1 with I-95. Residents have expressed an interest in developing Malabar Road as a corridor that incorporates low density office and commercial uses in order to promote economic development and provide additional services to the Town.

It is recommended to conduct a feasibility study to evaluate the impacts and identify the areas best suited for development of the corridor, as well as pursue Access Management Plan along Malabar Road to address right of way limitations. The Land Development Code should be revised to include regulatory provisions based on the recommendations from feasibility study. These regulations should, at a minimum address permitted land uses, densities, design standards, signage, and required improvements along the corridor. To that end, the Capital Improvements Element should be amended to create a program to allocate funds for the corridor project and any required improvements.

Recently, the Town passed a resolution to widen Malabar Road. FDOT recently completed a feasibility study on widening of Malabar Road from Babcock Street to US-1. Recently, the widening of Malabar Road from Babcock Street to US-1 is approved by the MPO's Technical Advisory Committee (TAC). The following improvements will help to enhance Malabar Road Corridor:

- Promote urban design standards;
- Encourage mixed use development;
- Pedestrian friendly design;
- Provisions for transit;
- Provide adequate parking.

Recommendations

The following recommendations are provided to improve the existing transportation system:

- Pursue to develop Corridor Plan for Malabar Road;
- Pursue to develop an Access Management Plan for US-1 and Malabar Road;
- Develop a pedestrian and bicycle plan to identify and address the deficiencies;
- Pursue to develop a Greenway Plan;
- Reduce the crashes at the intersections and mid-block;
- Implement of land development regulations regarding driveway access;
- Improve over all traffic operation efficiency through incorporating the Intelligent Transportation System (ITS) techniques to reduce delays at the intersections;
- Improve pedestrian safety and ensure that crosswalks and pedestrian heads are present at all signalized intersections;
- Resurface roadways to improve overall operations.

EXISTING HURRICANE EVACUATION ROUTES

The hurricane season is from June 1 to November 30. An important component of evacuation is the clearance time. The clearance time is a fixed period of time based on a specific scenario with a given level of threat and behavioral response. It is recommended that Town shall continue coordinating with the County in continuing to maintain or improve hurricane evacuation times.

The roadways surrounding the Town of Malabar which are critical in the evacuation process are shown in **Map TRN-5**.

FUTURE TRANSPORTATION SYSTEM (2025) AND FUTURE TRANSPORTATION NEEDS ANALYSIS

Future Roadways

The future roadway system will consist of existing roadways since no new roadways are identified in capital improvement projects or Brevard County MPO's LRTP.

The anticipated future roadway system and future number of through lanes are depicted in **Map TRN-6**. The anticipated future functional classification is shown in **Map TRN-3**.

FUTURE PEDESTRIAN AND BICYCLE PLAN

Cost Feasible Pedestrian, Bicycle and Greenway Projects

Since transportation needs are greater than funding available for the identified improvements, all the projects are evaluated against a set of criteria.

The cost feasible projects in the 2025 LRTP are selected based on the ranking, cost and impact of the project on improving connectivity within region. Cost feasible bicycle and pedestrian projects are the projects that should be included with cost feasible roadway projects. Currently, there are no cost feasible pedestrian or bicycle projects planned within the Town; however, there is one greenway trail planned through the Town.

The following showcase trails are funded through Brevard County MPO:

- East Central Florida Regional Rail Trail,
- Brevard Zoo Trail,
- St. Johns River Heritage Trail,
- North Merritt Island Pioneer Trail,
- South Brevard Linear Trail.

The South Brevard Linear Trail known as Al Tuttle Trail passes through Town of Malabar. The Trail will link the communities of Malabar, Palm Bay, Grant-Valkaria, and Micco to existing parks, conservation areas, and community destinations. The planned multiuse trail will provide amenities for joggers, hikers, bicyclists, roller bladers, equestrians, and physically challenged. The planned greenways will help to protect environmentally sensitive lands and wildlife, as well as provide access to recreation places. Greenways, as another transportation alternative, can help reduce air pollution, road congestion, and energy consumption.

Future Needs

It is recommended that Town of Malabar should continue to work with Brevard County and the FDOT and, install new pedestrian and bicycle facilities in the Town. The streets or roadways which provide access to parks, community centers, entertainment places, and main pedestrian generators needs to have a well inter-connected pedestrian and

bicycle path system for an efficient transportation system. To achieve this goal, continued coordination with Brevard County and FDOT is needed.

Following are specific transportation recommendations:

- Apply for grant applications;
- Coordinate with FDOT and Brevard’s MPO and Bicycle, Pedestrian & Trails Advisory Committee (BPTAC) to address the deficiencies in the system;
- Work together with BPTAC to Improve the awareness among public and provide educational programs to school children;
- Identify the funding resources, and apply for grant funding;
- Provide education material at activity centers like community centers;
- Improve the safety conditions through the development of neighborhood associations;
- Develop a community vision towards the non-motorized uses;
- Increase coordination with stakeholders and new developments to provide sidewalks and bicycle facilities in and around the developments; and
- Install new benches and shade trees for pedestrian friendly design.

Future Transit Needs

Since Malabar is a small rural town, it is anticipated that most of the residents will travel to other cities to meet their employment, entertainment and educational needs. Currently the Town of Malabar has a low degree of transit demand. The Brevard County MPO conducted a Transit Quality of Service analysis to better understand the future transit needs, policy/service delivery projects and identifying the transit supportive areas in Brevard County. Based on 2005 Transit Quality of Service Report prepared by the Brevard County MPO, Malabar does not have any transit supportive areas within the Town.

The Town of Malabar should coordinate with Brevard County Transit to include bus service through the Town of Malabar.

FUTURE ROADWAY CONDITION ANALYSIS

The future 2025 volumes were obtained from the Brevard County MPO. The Central Florida Regional Planning Model (CFRPPM IV) was employed based on a travel demand modeling software known as the Florida Standard Urban Transportation Modeling Structure (FSUTMS).

COST FEASIBLE ROADWAY PROJECTS

The Transportation Improvement Program (TIP) for Brevard County is a five year financially feasible multimodal transportation program prepared by Brevard County MPO. The roadway projects planned in the FDOT five-year work program and Brevard County MPO’s Transportation Improvement Program (TIP) are listed in **Table 2-4A**.

TABLE 2-4a: FDOT FIVE YEAR WORK PLAN FY 2009-2013

Roadway	From	To	Description	Phase
I-95	Brevard County line	S of SR 514/Malabar Rd	Add Lanes and Rehabilitate Pavement	P D & E Study, Preliminary Engineering & ROW
I-95	S of SR514/Malabar Rd	Palm Bay Road	Add Lanes and Rehabilitate Pavement	Preliminary Engineering & Construction
Babcock St at SR 514/Malabar Rd		Intersection Reconstruction	Add Lanes and Reconstruct	Highway/Right of Way
SR507/Babcock St	N of SR514/Malabar Rd	Palm Bay Road	Resurfacing	Construction

The cost feasible roadway projects included in the MPO's 2025 Long Range Transportation Plan (LRTP) are shown in **Table 2-4B**.

TABLE 2-4B: BREVARD COUNTY MPO 2025 COST FEASIBLE PROJECTS

Roadway	From	To	Description	Phase
SR507/Babcock St	Valkaria	SR514/Malabar Rd	Widen to 4 lane	Preliminary Engineering
SR507/Babcock St	SR514/Malabar Rd	Melbourne	Widen to 6 lane	Preliminary Engineering

Recently, the widening of Malabar Road from Babcock Street to US-1 was approved by the MPO's Technical Advisory Committee and is part of the 2025 LRTP.

Future Roadway Level of Service Analysis

The major concern in terms of transportation is to provide sufficient and adequate facilities to cope with the planned growth in the area. From the data available, population and development growth trends, and planned projects, the area is being analyzed to address these issues. The Town of Malabar's future needs were evaluated based on data available, consistent with Brevard County, the Brevard MPO's LRTP, and FDOT.

Year 2025 traffic projections were obtained from the Brevard County MPO. The Brevard County MPO uses the Central Florida Regional Planning Modal (CFRPM IV) for future projections. The future average annual daily traffic volumes were used to evaluate future level of service. The daily volumes were converted into peak hour peak direction volumes by multiplying them with peak hour 'K' and directional 'D' factors. The general values for K and D factors were obtained from the FDOT *2007 Quality/Level of Service Handbook*. Then the future peak hour peak direction level of service was determined using the '*FDOT Generalized Peak Hour Directional Volumes for Florida Urbanized Areas*' (Table 4-7).

Based on this methodology, the calculated level of service for future conditions is listed in **Table 2-5**.

The level of service for 2025 network is displayed in **Map TRN-7**.

TABLE 2-5 FUTURE (2025) PEAK HOUR PEAK DIRECTION LEVEL OF SERVICE

ROADWAY	FROM	TO	AREA TYPE	CLASSIFICATION	ADPT LOS	# LANES (2-WAY)	PK HR PK DIR CAP (1)	2007 AADT VOL ₂	K ₁₀₀ ³	D ₁₀₀₃	PK HR PK DIR VOL ₄	LOS
SR 5/US1	Valkaria Road	SR 514/Malabar Rd	U	State Arterial Class I	D	4	1,860	39,390	0.0950	0.5500	2,058	F
	SR 514/Malabar Rd	Robert Conlan Blvd	U	State Arterial Class I	D	4	1,860	45,870	0.0950	0.5500	2,397	F
SR507/Babcock St	Valkaria Rd	Foundation Park Blvd	U	State Arterial Class I	D	4	1,860	20,754	0.0950	0.5500	1,084	B
SR514/Malabar Rd	Babcock St	SR 5/US 1	U	State Arterial Class I	D	4	1,860	12,314	0.0950	0.5500	643	C
SR9/I-95 ⁵	SR514/Malabar Rd	CR 516	U	Freeway	C	6	4,550	59,742	0.0950	0.5500	3,122	B

Note:

1. The values for adopted level of service are directly taken from the FDOT 2007 Level of Service Tables 4-7 & 4-9 for Generalized Peak Hour Directional Volume.
2. 2025 AADT volume were obtained from Brevard County MPO's 2025 LFTP
3. Peak hours K and D factors are taken from the FDOT 2007 Level of Service Tables 4-7 for Generalized Peak Hour Directional Volume.
4. The peak hour peak direction volume is calculated from multiplying 2025 AADT with K and D factors.

Future Roadway Needs

The level of service analysis for future conditions indicates that all the roadways except US-1 within the Town of Malabar will be operating at adopted level of service. The Town shall coordinate with Brevard County, Brevard County MPO, Florida Department of Transportation District V for needed improvements to address the deficiency on US-1. The Town supports improvements to parallel facilities along I-95, encourages other modes of transportation, and promotes travel demand management (TDM) techniques to reduce traffic from the FIHS and non-FIHS facilities. The Town should continue to coordinate with County for development approval and access connection on County roadways.

Greenhouse Gas Emission Reduction

The Town will strive to reduce greenhouse gas emissions by reducing traffic congestion and air pollution as much as possible. Currently the Town is not experiencing traffic congestion on any roadways with the Town limit, however the Town will keep residents informed and aware of the connection between their transportation choices, possible traffic congestion and air pollution. The Town will help to emphasize simple, convenient actions people can take to improve air quality and fewer vehicles on roadways. Some of the things that the Town will be doing to promote alternative forms of transportation include solidifying a greenway/equestrian trail plan to promote horse riding and identifying new greenways.

Future Evacuation Routes

It is the Town's policy to maintain or improve the mobility on the roadways to reduce the clearance time. The clearance time is a fixed time period on a specific scenario with a given level of threat and behavioral response.

The future evacuation routes are shown on **Map TRN-5**.

TRANSPORTATION ELEMENT GOALS, OBJECTIVES, AND POLICIES

§2-1 Transportation Goals, Objectives, and Implementing Policies.

This section stipulates goals, objectives, and implementing policies for the Transportation Element pursuant to 163.3177(6)(b), F.S., and §9J-5.007(3), F.A.C.

GOAL 2.1: EFFECTIVE MULTIMODAL TRANSPORTATION SYSTEM

Plan for a safe, convenient, and efficient motorized and non-motorized transportation system which shall be available for existing and anticipated future users of the system.

2-1.1 Objective:

Safe, Convenient, and Efficient Transportation System. Establish a safe, convenient and efficient motorized and non-motorized transportation system through development and implementation of level of service (LOS) standards.

2-1.1.1 Policy:

Level of Service Standards. The Town hereby adopts that following peak hour LOS standards for non FIHS and non-SIS facilities:

- a. US-1: LOS Standard D (FDOT facility)
- b. Malabar Road (SR 514); LOS Standard D (FDOT facility)
- c. Babcock Street (SR 407); LOS Standard D (FDOT facility)
- d. Collector Roadways: LOS Standard D
- e. Paved Local Roadways: LOS Standard D
- f. Unpaved Local Roadways: LOS Standard D

2-1.1.2 Policy:

Level of Service Standards. The Town hereby adopts the following peak hour LOS standards for FIHS and SIS facilities within the Town:

- a. I-95: LOS Standard C (FIHS and SIS facility)

2-1.1.3 Policy:

Master Plan for Road Paving. By 2010 The Town shall prepare and adopt a plan and schedule for paving local streets. The plan shall establish mechanisms for funding road paving projects and the schedule for

implementation shall designate relative priorities for needed road improvements and shall establish a time frame for such improvements.

2-1.1.4 Policy:

Criteria for Evaluating Proposed Roadway Improvement. Future roadway improvement proposal shall be evaluated and assigned a relative priority based on specific criteria below cited:

- a. Whether the project is needed to protect public health and safety, to fulfill the Town's legal commitment to provide facilities and services, to preserve or achieve full use of existing facilities; or
- b. Whether the project increases efficiency of use of existing facilities, prevents or reduces future improvement cost, provides service to developed areas lacking full service, or promotes in-fill development.

2-1.1.5 Policy:

Review of Proposed Developments. The Town shall review all proposed development for consistency with adopted LOS standards. No development shall be approved that is projected to generate a traffic volume which would decrease the existing LOS below the adopted standard.

2-1.1.6 Policy:

Assessments in New Developments. The Town shall continue to implement the impact fee ordinance which assesses new developments an equitable pro data share of the costs to provide roadway improvements to serve the development.

2-1.1.7 Policy:

Adequate Facilities Ordinance. The Town shall continue to implement adequate facilities requirement as included in the Land Development Code. The Town shall prepare annual report on the adequacy of public facilities. The adequate facilities ordinance mandates that future applications for development shall include a written evaluation of the inputs of the anticipated development on the traffic system level of service. Prior to the issuance of a building permit, the Town shall render a finding that the applicant has provided assurance that the proposed development shall be serviced with adequate roadway capacity including any traffic system improvements required to maintain adequate levels of service. The developer's application shall include written assurances that any required improvements shall be in place concurrent with the impacts of the development (i.e., by the time a certificate of occupancy is granted by the Town.)

2-1.1.8 Policy:

On-Site Transportation Improvements. The Town shall continue to implement land development regulations which require new developments to provide safe and convenient on-site traffic flow considering motorized and non-motorized vehicle parking and internal circulation needs.

2-1.1.9 Policy:

Access Management. The Town shall continue to implement land development regulations for:

- Controlling connections and access points of driveways and roadways to existing roadways;
- Connectivity through cross access easements among all new development and redevelopment projects;
- Preventing conflicts between vehicular, pedestrian and rail traffic; and
- Providing a traffic circulation system which is designed to accommodate the demands of emergency service delivery systems.

2-1.1.10 Policy:

Monitor Intersections with High Crash Rates. The Town shall continue to coordinate with Brevard County and law enforcement agencies to monitor the intersections with high crash rate and implement improvements to reduce accidents.

2-1.1.11 Policy:

Intelligent Transportation System (ITS). The Town shall incorporate Intelligent Transportation System (ITS) techniques to improve traffic operations and reduce delays at intersections.

2-1.1.12 Policy:

Adequate Signage and Traffic Controls. The Town shall continue to provide proper signage and adequate traffic control on Town roadways for efficient and safe traffic circulation.

2-1.1.13 Policy:

Transit Service. The Town shall coordinate with Brevard County, Space Coast Areas Transit (SCAT) service and MPO to expand bus service to the Town of Malabar.

2-1.1.14 Policy:

Transportation Demand Management Techniques. The Town shall support alternate modes of transportation and encourage transportation demand

management techniques including ridesharing, van pool, and parking strategies.

2-1.1.15 Policy:

Public Involvement. The Town shall encourage public involvement in transportation planning and transportation improvement projects.

2-1.1.16 Policy:

Establishment of Passenger Rail Line. The Town shall support Florida Department of Transportation efforts towards the establishment of passenger rail line along the Florida East Coast (FEC) corridor.

2-1.2 Objective:

Right-of-Way Acquisition. The Town shall protect existing and future right-of-way from building encroachment. By 2010 additional transportation system right-of-way acquisition needs shall be identified and relative priorities for land acquisition shall be established.

2-1.2.1 Policy:

Transportation Map. The Town hereby adopts that Future Transportation System Map. Additional right-of-way (R/W) needs for future roadway and drainage improvements shall be identified based on an assessment to be completed by 2010. The findings regarding specific additional R/W needs for roadway and drainage facility improvements shall be incorporated as an amendment to Future Transportation System Map.

2-1.2.2 Policy:

Standards of Future Road R/W Acquisition. The Town hereby adopts the following minimum standards for road rights-of-way:

- a. Arterial Roadways: 150' R/W
- b. Major Collector Streets: 100' R/W
- c. Minor Collector Streets: 70' R/W
- d. Local Streets: 60' R/W (if swale drainage)
50' R/W (if curb and gutter)

2-1.2.3 Policy:

Mandatory R/W Dedication/Fees in Lieu. The Town shall continue to implement a program for mandatory dedication or fees in lieu thereof as a condition of development approval associated with plats, replats, PUDs, or site plans where such development generate a need for new or improved roadways. The purpose and intent of such program shall be to assure that:
1) adequate road R/W and necessary roadway improvements are dedicated

and developed concurrent with the impacts of new development; and 2) the cost of such improvements shall be borne by the developer generating the need for the facilities.

2-1.3 Objective:

Future Roadway Improvements. The Town shall coordinate with the FDOT and with the Brevard County MPO to attain roadway improvements needed to accommodate future transportation system improvements needed to accommodate system demands.

2-1.3.1 Policy:

FDOT Planned Roadway Improvements. The Town shall provide necessary coordination in achieving planned FDOT improvements to Town roadways.

2-1.3.2 Policy:

FDOT Planned Roadway Improvements. Brevard County plans to pave Corey and Weber Roads and the Town shall participate in funding a portion of the scheduled improvement pursuant to their interlocal agreement on this subject.

2-1.3.3 Policy:

Corridor Planning along Malabar Road. The Town shall pursue a Corridor Plan for Malabar Road to enhance and improve traffic operations along Malabar Road.

2-1.3.4 Policy:

Access Management Plan along Malabar Road. The Town shall pursue an Access Management Plan for Malabar Road as part of Corridor Plan.

2-1.3.5 Policy:

Improvements along Malabar Road. The Town shall coordinate with Brevard County and FDOT for the capacity improvements along Malabar Road.

2-1.3.6 Policy:

Overlay Zoning District. The Land Development Code shall be amended in order to create an overlay zoning district allowing for commercial/office development along Malabar Road based on the recommendations of the Corridor Plan feasibility study.

2-1.3.7 Policy:

Regulatory provisions. The Land Development Code shall be amended to incorporate overlay zoning district regulatory provisions and performance

standards. The provisions may include permitted land uses, densities, design standards, signage, and required improvements along the corridor.

2-1.4 Objective:

Facilities for Bicycle Pedestrian Ways and Greenways. The Town shall consider bicycle, pedestrian ways and greenways in planning for transportation facilities.

2-1.4.1 Policy:

Planning for Bicycle and Pedestrian Ways. The Town shall by 2010 prepare a plan for developing bicycle and pedestrian ways which connect residential areas to recreational areas and major activity centers. The plan shall include programs for implementation and anticipated funding sources.

2-1.4.2 Policy:

Bicycle and Pedestrian Facilities Required for New Development. The Town's land development regulations shall incorporate provisions requiring that new subdivisions, replats, planned unit developments, and site plans accommodate bicycle and pedestrian traffic needs. Similarly multiple family residences as well as shopping facilities, recreational areas, and other public uses shall provide storage areas for bicycles.

2-1.4.3 Policy:

Adoption of Master Plan for Pedestrian, Bicycle and Greenways. The Town of Malabar shall adopt the Brevard County Bicycle, Pedestrian and Greenway Plan for an efficient multimodal transportation system.

2-1.4.4 Policy:

Improved Connectivity on Sidewalks. The Town of Malabar shall continue to coordinate with Brevard County for missing sidewalks and bicycle ways and provide connectivity among them.

2-1.4.5 Policy:

Right-of-way Acquisition for Greenways. The Town shall continue to support Brevard County for the development of Greenway Plans and ensure that sufficient right-of-way is preserved to construct and maintain the multiuse trails as shown on Brevard County's Master Plan.

2-1.4.6 Policy:

Improved Access. The Town shall encourage the continued development of a greenway system that supports interconnectivity among and between recreational areas as a means of improving access.

2-1.4.7 Policy:

Linear Open Spaces. The Town shall continue to identify appropriate linear open spaces for potential greenway network programming, potential acquisitions, planning and development.

2-1.4.8 Policy:

Equestrian Crossing. Explore options for equestrian crossing of Malabar Road within greenway plans.

2-1.5 Objective:

Coordinating Traffic Circulation Planning. The Town shall coordinate transportation system planning with the plans and programs of the Brevard County Metropolitan Planning Organization (MPO), the FDOT Five (5) Year Transportation Plan, the City of Palm Bay, the Town of Grant-Valkaria and the East Central Florida Regional Planning Council (ECFRPC).

2-1.5.1 Policy:

Implementing Transportation Planning and Coordination. The Town shall review present and future transportation plans and programs of FDOT, Brevard County, the City of Palm Bay, and the ECFRPC in order to establish consistency with the Town's Comprehensive Plan.

2-1.5.2 Policy:

Coordination among Transportation Agencies. The Town shall coordinate with Brevard County, the Brevard MPO, FDOT, East Central Florida Regional Planning Council and neighboring municipalities for future transportation planning and roadway improvements and schedule meetings on regular basis to discuss regional and local transportation needs, and alternate solutions to meet r=transportation demands.

2-1.6 Objective:

Managing Traffic Circulation and Land Use. The Town shall coordinate the Transportation Element and implementing programs with goals, objectives, and policies of the Future Land Use Element, including the Future Land Use Plan Map.

2-1.6.1 Policy:

Integrated Traffic Circulation and Land Use Planning. The Town shall continually monitor and evaluate the impacts of existing and proposed future land development on the transportation system in order to achieve integrated management of the land use decisions and traffic circulation impacts.

2-1.6.2 Policy:

Traffic Circulation Performance Criteria. The Town shall continue to implement performance criteria in the Land Development Code which require that future land development comply with traffic circulation level of service standards. The performance criteria require that new development bear an equitable share of costs for traffic circulation system improvements necessary to accommodate traffic generated by the proposed development.

2-1.6.3 Policy:

Traffic Circulation Site Plan Review Criteria. The Town shall continue to implement Land Development Regulations regarding traffic circulation site plan review criteria. The criteria shall address such factors as trip generation; design of efficient internal traffic circulation and parking facilities including minimizing pedestrian and vehicular conflict, off-street parking, as well as safe and convenient circulation and maneuverability; control of access points; potential need for acceleration/deceleration lanes; adequacy surface water management.

CHAPTER THREE

HOUSING ELEMENT

INTRODUCTION

Local Governments are required to prepare and adopt a Housing Element consistent with the provisions of Chapter 163, Part III of the Florida Statutes. The purpose of the Housing Element is to provide guidance for development of appropriate plans and policies to meet identified or projected deficits in the supply of housing for moderate income, low income and very-low income households, group homes, foster care facilities, and households with special housing needs, including rural and farmworker housing. These plans and policies address government activities, as well as provide direction and assistance to the efforts of the private sector.

To that end, this Element presents an overview of the existing and projected future conditions pertinent to the preparation of the housing goal, objectives and policies for the Town's Comprehensive Plan. The best available data is provided from the US Census, Brevard County, and The Florida Housing Data Clearinghouse, maintained by the Shimberg Center for Affordable Housing, supplemented by local research.

Preliminary Housing Analysis

Information from the 2000 Census and the Shimberg Center has been used to provide the following comparative characteristics between Malabar and Brevard County. Although these figures have changed since the Census was conducted, noting the similarities and differences between Malabar and the County as a whole in 2000 provides a context for better understanding current housing market conditions in the Town of Malabar.

Housing Type: Residential uses a major development characteristic of Malabar. The 1,228 total housing units reported for the town (including 81 seasonal units) in 2000 comprised 0.5% of the County's total housing stock of 222,072 reported units. GIS analysis has identified 1,801 acres in Malabar that have an existing and developed residential land use. This represents 21.66% of the Town's total land area of approximately 8,315.59 acres.

Total units and the percentage of housing inventory by type of unit are shown in Table 3-1.

TABLE 3-1: DWELLING UNITS BY STRUCTURE TYPE, 2000

Dwelling Units	Malabar	Malabar	Brevard County	Brevard County
	Number	Percent	Number	Percent
Single Family:	957	77.9%	146,810	66.1%
1, detached	947		135,412	
1, attached	10		11,398	
Multi-Family:	17	1.4%	49,971	22.5%
2	17		3,690	
3 or 4	0		7,978	
5 to 9	0		10,771	
10 to 19	0		9,364	
20 or more	0		18,168	
Mobile Homes	182	14.8%	24,092	10.8%
Other	72	5.9%	1,199	0.5%
TOTAL	1,228	100%	222,072	100%

The vast majority of the residential housing in Malabar is low-density, single family. The Town has kept a rural character that is defined by large lots with density typically restricted to 1 dwelling unit per 1.5 acres. These large lot residential uses are predominant throughout the Town with slightly higher development along the east side of the FEC railroad and north of Malabar Road, specifically on Country Cove Circle and Briar Creek Blvd. It has been the Town’s intent to keep developments higher than 1 dwelling unit to 1.5 acres east of US 1 and north of Malabar Road.

Housing Tenure: Housing tenure refers to the financial arrangements under which someone has the right to live in a house or apartment, either owner-occupied or renter-occupied. The Affordable Housing Needs Assessment (AHNA), prepared by the Shimberg Center for Affordable Housing, reported 92% of all households in Malabar were owner-occupied in 2005. (Statewide, Florida’s homeownership rate is 70.3%.) The remaining 8% were renter-occupied units. Housing tenure characteristics are detailed in Table 3-2.

TABLE 3-2: HOUSEHOLDS BY TENURE, 2005

Tenure	Malabar	Malabar	Brevard County	Brevard County
	# of Households	Percent	# of Households	Percent
Owner Occupied	1,042	92%	168,857	75%
Renter Occupied	90	8%	57,098	25%
Total Occupied Units	1,132	100%	225,955	100%

Housing Vacancy: Table 3-3 shows the housing vacancy characteristics for the Town of Malabar and Brevard County as reported in the 2000 Census. At the time of the Census,

141 housing units in the Town were vacant. This represents a vacancy rate of 11.5% for the Town, which is comparable to the overall Brevard County rate of 10.8%. Not counting units which had been rented or sold and were awaiting occupancy and units held for occasional use, the Town of Malabar's vacancy rate was 5.2%. There were 19 vacant housing units for sale and 33 vacant units for rent.

TABLE 3-3: HOUSING VACANCY, 2000

Status	Malabar	Malabar	Brevard County	Brevard County
	# of Units	Percent	# of Units	Percent
For rent	33	23.4%	5,937	24.9%
For sale	19	13.5%	3,613	15.1%
Other	0	0%	0	0%
Seasonal, recreational, occasional use	81	57.4%	11,575	48.5%
Rented or sold, not occupied	8	5.7%	1,416	5.9%
TOTAL	141	100%	23,877	100%

Housing Age: The Town's housing stock, by age of structure, is summarized in Table 3-4. 140 units were identified in the 2000 Census as being built before 1960, which underscore the need to conduct a historic resources inventory. Town records indicate 170 building permits were issued for single family homes between January 2000 and August 2008. Countywide data for the same timeframe is not readily available.

TABLE 3-4: AGE OF HOUSING STRUCTURES, 2000

Year Built	Malabar	Malabar	Brevard County	Brevard County
	# of Units	Share by Decade	# of Units	Share by Decade
1999-March 2000	32	28.2%	5,162	22.2%
1995-1998	90		57,098	
1990-1994	227		26,322	
1980-1989	376	30.6%	68,720	30.9%
1970-1979	251	20.4%	38,617	17.4%
1960-1969	115	9.4%	42,097	19.0%
1950-1959	44	11.4% (before 1960s)	17,962	10.5% (before 1960s)
1940-1949	33		2,625	
1939 or earlier	63		2,795	
Total	1,228	100%	222,072	100%

Source: Affordable Housing Needs Assessment (AHNA), prepared by the Shimberg Center for Affordable Housing

Monthly Housing Rent: Table 3-5 compares the monthly gross rents for specified renter-occupied housing units in the Town with the Brevard County totals for the year 2000. The median rent paid by Malabar households in 2000 was \$573 per month, compared to a countywide median rent of \$604, and a statewide median rent of \$641. It bears repeating

this data is nearly a decade old, and rents have increased substantially since that time. In Brevard County and the surrounding metro area, the HUD Fair Market Rent in 2007, representing rent for a typical modest apartment, was \$488 for a studio apartment, \$597 for a one-bedroom, \$703 for a two-bedroom, \$947 for a three-bedroom, and \$1,056 for a four-bedroom unit. Municipality-specific information for 2007 is not available.

TABLE 3-5: MONTHLY GROSS RENT, RENTER-OCCUPIED HOUSING UNITS, 2000

Contract Rent	Malabar	Malabar	Brevard County	Brevard County
	# of Units	Percent	# of Units	Percent
Less than \$200	0	0%	1,782	3.5%
\$200-299	11	12.0%	1,414	2.8%
\$300-499	16	17.4%	10,427	20.7%
\$500-749	25	27.2%	22,047	43.9%
\$750-999	11	12.0%	8,022	16.0%
\$1000-1499	15	16.3%	2,669	5.3%
\$1500 or more	0	0%	846	1.7%
No cash Rent	14	15.2%	3,065	6.1%
TOTAL	92	100%	50,272	100%
Median rent per month	\$573		\$604	

Source: Affordable Housing Needs Assessment (AHNA), prepared by the Shimberg Center for Affordable Housing

Housing Value: Based on figure delineated from the Brevard County Property Appraiser, the average just value (fair market value) for a single-family home in Malabar in 2006 was \$280,203, which is \$57,149 more than the countywide average (\$223,054). Statewide, the average value of a single-family home in 2006 was \$255,436. Table 3-6 shows the value of owner-occupied housing units in the Town as reported in the 2000 Census.

TABLE 3-6: MEDIAN HOME VALUE, 2000

Value	Malabar	Malabar
	# of Units	Percent
Less than \$50,000	23	2.9%
\$50,000-99,999	186	23.4%
\$100,000-149,999	298	37.4%
\$150,000-199,999	152	19.1%
\$200,000-299,999	73	9.2%
\$300,000-499,999	56	7.0%
\$500,000-999,999	0	0%
\$1,000,000 or more	8	1.0%
TOTAL	796	100%

Source: 2000 Census of Population and Housing. Prepared by: Calvin, Giordano & Associates, Inc.

Median Sales Price: The average sales price for a single-family home in Malabar was \$363,146 in 2006. The median sales price that year was \$317,500, compared to a countywide and statewide median sales price of \$220,600 and \$250,500 respectively. Table 3-7 charts the median sales price for single family homes in Malabar and Brevard

County from 2001 through 2006. According to Shimberg, there are no condominiums in the Town of Malabar. Additionally, it is important to note that 2006 may represent peak sales prices in the real estate boom experienced in the first half of this decade. Sales prices may be lower for the remainder of the decade.

TABLE 3-7: MEDIAN SIGNLE-FAMILY HOME SALES PRICES, 2001-2006

Year	Median Sales Price for Single Family Homes	
	Malabar	Brevard County
2001	\$135,000	\$108,400
2002	\$163,450	\$119,400
2003	\$206,000	\$130,900
2004	\$232,500	\$159,000
2005	\$300,000	\$212,000
2006	\$317,500	\$220,600

Source: Brevard County Property Appraiser tax rolls, compiled by Shimberg Center – Florida Housing Data Clearinghouse

Monthly Owner-Occupied Costs: Of the total number of owner-occupied housing units in Malabar, 70.7% were mortgaged and 29.3% were not mortgaged at the time of the 2000 Census. Table 3-8 shows the monthly owner costs of owner-occupied housing units in the Town in 2000.

TABLE 3-8: MONTHLY COSTS OF OWNER-OCCUPIED HOUSING UNITS, 2000

Mortgage Status and Elected Monthly Costs	Malabar	Malabar	Brevard Cty	Brevard Cty
	# of Units	Percent	# of Units	Percent
Mortgaged Units	563	70.7%	83,409	71.1%
Less than \$300	0	0.0%	545	0.7%
\$300-499	19	3.4%	5,075	6.1%
\$500-699	103	18.3%	15,946	19.1%
\$700-999	175	31.1%	28,289	33.9%
\$1,000-1,499	203	36.1%	22,640	27.1%
\$1,500-1,999	45	8.0%	7,024	8.4%
More than \$2000	18	3.2%	3,890	4.7%
Non-Mortgaged Units	233	29.3%	33,878	28.9%
Less than \$300	105	45.1%	18,790	55.5%
\$300-499	101	43.4%	11,976	35.4%
\$500-699	8	3.4%	2,180	6.4%
\$700-999	19	8.2%	738	2.2%
More than \$1000	0	0%	194	.6%
TOTAL REPORTED UNITS	796	100%	117,287	100%

Source: 2000 Census of Population and Housing. Prepared by Calvin, Giordano & Associates, Inc.

AFFORDABLE HOUSING NEEDS

Cost Burden: Cost-burdened households pay more than 30% of income for rent or mortgage costs. In 2005, according to the Florida Housing Data Clearinghouse, 231 Malabar households (20%) paid more than 30% of their household income for housing. By comparison, 24% of households countywide and 29% of households statewide were cost-burdened. Also, in 2005, 94 households in Malabar (8%) paid more than 50% of income for housing. The following table further delineates the cost burden by owner (A) and renter (B).

TABLE 3-9: AMOUNT OF INCOME PAID FOR HOUSING HOUSEHOLD BY COST BURDEN, 2005

A. Owner-Occupied Households, 2005								
	NO COST BURDEN		COST BURDEN					
	0% - 30%		30% - 50%		50% or more		Total Owners	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Malabar	839	80.5%	123	11.8%	80	7.7%	1,042	100%
Brevard Cty	134,721	79.8%	20,800	12.3%	13,336	7.9%	168,857	100%
B. Renter-Occupied Households, 2005								
	0% - 30%		30% - 50%		50% or More		Total Renters	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
	Malabar	62	68.9%	14	15.6%	14	15.6%	90
Brevard Cty	36,375	63.7%	10,489	18.4%	10,234	17.9%	57,098	100%

Source: Shimberg Center – Florida Housing Data Clearinghouse

Household Income: In Table 3-10, household income is measured as a percentage of the median income for the County of area, adjusted for size. In Malabar and the surrounding metro area, the HUD-estimated median income for a family of four was \$55,600 in 2007. The following figures for Malabar have been extrapolated based on formulas provided by the University of Florida’s Shimberg Center for Affordable Housing. Of the 1,132 households in Malabar in 2005, 163 (14%) were both cost-burdened and in the low or very-low income bracket. At the opposite spectrum, 732 Malabar households (65%) are of moderate or above moderate incomes and have no cost burden. These statistics suggest the housing in Malabar is relatively stable compared to many other parts of the state.

TABLE 3-10: HOUSEHOLDS BY TENURE, INCOME, AND COST BURDEN, 2005

A. Owner-Occupied Households, 2005				
	Household Income as a Percentage of Area Median Income (AMI)			
	0-50% AMI	50.01 – 80% AMI	80.01 – 120% AMI	120.01%+ AMI
	Very Low	Low	Moderate	Above Moderate
No Cost Burden	55	101	222	460
At 30% or More Cost Burden	34	40	18	36

At 50% or More Cost Burden	67	11	3	6
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B. Renter-Occupied Households, 2005				
	Very Low	Low	Moderate	Above Moderate
No Cost Burden	4	8	16	34
At 30% or More Cost Burden	2	3	1	3
At 50% or More Cost Burden	5	1	0	0

Source: Shimberg Center – Florida Housing Data Clearinghouse, prepared by Calvin, Giordano & Associates, Inc.

Elderly Households: According to the Shimberg Center, 280 households in Malabar (24.7%) were headed by a person age 65 or older in 2005. In comparison, 30.5% of Brevard County’s households and 27.2% of households statewide were headed by elderly persons. In Malabar, 271 elderly households (96.8% of all elderly households) own their homes, and 56 elderly households (20%) pay more than 30% of income for rent or mortgage costs. These statistics suggest Malabar’s elderly households share similar housing characteristics with the Town’s population at large.

HOUSING CONDITIONS

Substandard Housing: Individual housing units may be considered substandard if the unit lacks complete plumbing for exclusive use of the residents, lack of complete kitchen facilities, lack of central heating, and overcrowding (which is defined as more than one person per room living in a unit). The 2000 Census provides data regarding these interior conditions of the housing stock. Table 3-11 contains a summary of the measure of substandard housing conditions for Malabar and Brevard County in 2000. 26 housing units (2.4% of all units) in Malabar were considered overcrowded, which is statistically similar to the countywide percentage of 2.5%. Reportedly, all homes in Malabar had central heating, and the percentage of substandard kitchen and plumbing facilities were relatively low.

TABLE 3-11: CONDITION OF HOUSING STOCK SUMMARY, 2000

Substandard Condition	Malabar	Malabar	Brevard County	Brevard County
	# of Units	Percent	# of Units	Percent
Overcrowded (more than one person per room)	26	2.4%	5,021	2.5%
Lacking complete kitchen facilities	8	0.7%	783	0.4%
Lacking central heating	0	0%	1560	0.8%
Lacking complete plumbing facilities	16	1.3%	590	0.3%

Source: 2000 Census of Population and Housing

Subsidized Housing: Section 9J-5.010 of the Florida Administrative Code requires local housing elements to provide an inventory of renter-occupied housing developments currently using federal, state, or local subsidies. Although there are no such facilities in Malabar according to the Affordable Housing Needs Assessment (AHNA) data, to ensure future affordable housing needs are met, the Town has developed a series of policies regarding subsidized housing.

Group Homes: Through Housing Objective 3.1.4, the Town provides opportunities for group homes and foster care facilities. However, no facilities were listed in the inventory provided by the Affordable Housing Needs Assessment (AHNA).

Dormitories and Campus Housing: There is no dormitory or campus housing in Malabar.

Mobile Homes: 182 mobile homes in Malabar were identified in the 2000 Census. There are three mobile home parts in the Town: Camelot R.V. Park and Southern Comfort Mobile Home along the US 1 corridor, and Enchanted Lakes Estates on Malabar Road.

Historically Significant Housing: As the Town’s housing stock ages, an historic resources inventory should be conducted to look at all structures built before 1960 and identify a list of potential historic resources. Currently, the Old Malabar Element School is the only historic structure identified by the Florida Department of Historic Resources.

Farmworker Housing: There are no rural or farmworker households within the Town according to the Affordable Housing Needs Assessment (AHNA).

NEEDS ASSESSMENT

Population and Household Projections: Florida Statutes, Chapter 9J-5.010(2)(b) requires that an affordable housing assessment be performed using methodology established by the Florida Department of Community Affairs.

By 2030, Malabar is projected to have a population of 4,145, representing a 45.8% growth rate over 25 years, or an average increase of 1.83% per year. Table 3-12 summarizes the projected housing needs through 2030.

TABLE 3-12: PROJECTIONS: POPULATION, HOUSEHOLDS, AND DWELLING UNITS, MALABER, 2005-2030

Year	Dwelling Units	Households	Population
2005	1,259	1,133	2,842
2010	1,412	1,270	3,142
2015	1,568	1,411	3,426
2020	1,722	1,549	3,687
2025	1,844	1,659	3,925
2030	1,969	1,772	4,145

Source: Shimberg Center – Florida Housing Data Clearinghouse. Prepared by: Calvin, Giordano & Associates, Inc.

With just over 1,300 additional residents projected by 2030, approximately 710 new units will be required through 2030 to accommodate an additional 639 households. This equates to about 25-26 new units per year. Residential acreage required to accommodate projected needs is sufficient: The Future Land Use Element has determined there are 1,962.7 acres of vacant land which have a “residential” Future Land Use designation. Thus there is the capacity for up to 1,568 additional dwelling units.

Although the Town is expected to have an adequate supply of existing and newly constructed residential units to meet future demand, some of the households will be faced with a cost burden. The following tables provide a more detailed needs assessment - by household size, tenure, and income-based on the methodology, data, and analysis developed by the University of Florida’s Shimberg Center of Affordable Housing.

Size of households: Using population projections provided by Shimberg, the number of Malabar households by size can be projected through 2030.

TABLE 3-13: HOUSEHOLD PROJECTIONS BY HOUSEHOLD SIZE

SIZE	2005	2010	2015	2020	2025	2030
1-2	762	855	954	1,052	1,128	1,209
3-4	297	334	366	400	425	449
5+	74	81	91	97	106	114

Source: Shimberg Center – Florida Housing Data Clearinghouse

Affordable Housing Demand: Table 3-14 presents the very-low, low, and moderate-income housing needs estimates and projections through 2030.

TABLE 3-14: PROJECTED HOUSING AFFORDABILITY BY INCOME AND TENURE, MALABAR, 2005-2030

A. Owner-Occupied Households				
	Household Income as a Percentage of Area Median Income (AMI)			
	0-50% AMI	50.01-80% AMI	80.01%-120% AMI	120.01+% AMI
Year	Very Low	Low	Moderate	Above Moderate
2005	156	153	243	503
2010	177	175	273	559
2015	206	201	304	603
2020	236	228	335	647
2025	257	250	359	680
2030	279	272	386	714

B. Renter-Occupied Households				
	Household Income as a Percentage of Area Median Income (AMI)			
	0-50% AMI	50.01-80% AMI	80.01%-120% AMI	120.01+% AMI
Year	Very Low	Low	Moderate	Above Moderate
2005	11	11	18	37
2010	13	13	20	41
2015	15	15	22	45
2020	17	17	25	48
2025	19	18	26	50
2030	21	20	28	53

Source: Shimberg Center – Florida Housing Data Clearinghouse. Prepared by: Calvin, Giordano & Associates, Inc.

The analysis suggests that 261 of the additional 639 households projected through 2030 will have an income less than 80% of the area median income. Of these low and very-low income households, 242 (93%) will be owner-occupied, while 19 (7%) will be renter-occupied. Overall, these projections point out the stability of income and population in the Town.

CONCLUSION

No significant deficit of affordable housing exists nor is redevelopment projected to occur in the Town’s short (5-year) or long (10-year) term planning periods. Malabar has met its housing needs with the existing development and will continue to meet its housing needs as its population steadily increases.

Malabar’s continued efforts to maintain the infrastructure, including drainage, landscape, transportation and roads will prolong the life of its older neighborhoods. In addition, increased and proactive code enforcement activity is required to sustain the integrity of the Town.

The following goals, objective and policies provide residents with housing choice and assurance of a quality, highly maintained area, all of which demonstrates the advances Malabar is taking to address the housing needs of the different demographics and income levels of its residents.

HOUSING ELEMENT GOAL, OBJECTIVES, AND POLICIES

§3-1 *Housing goals, objectives, and implementing policies.* This section stipulates goals, objectives, and implementing policies for the Housing Element pursuant to §163.3117(6)(f), F.S. and §9J-5.010(3)(a-c), F.A.C.

Goal 3-1

Housing: Allocate land area for accommodating a supply of housing response to the diverse housing needs of the existing and projected future Town population and assist the private sector in providing affordable quality housing in neighborhoods protected from incompatible uses and served by adequate public facilities.

3-1.1 Objective:

Promote affordable quality housing. The Town of Malabar shall provide for adequate and affordable housing for existing and future residents, households with special needs, rural and farmworker households, and very low, low, and moderate income households consistent with the needs identified in Tables 3-12, 3-13, and 3-14 through the short term (5 year) and long term (10 year) planning timeframes.

3-1.1.1 Policy:

Technical assistance, information and referral services. Provide technical assistance, information and referral services to the private sector in order to maintain a housing production capacity sufficient to meet the projected housing market demand.

3-1.1.2 Policy:

Developing public/private partnerships. Coordinate with the Florida Housing Coalition and other appropriate organizations to review alternatives for affordable and workforce housing.

3-1.1.3 Policy:

Affordable housing for low- and moderate-income households. The Town shall promote access to a broad range of housing opportunities with a full complement of urban services through cooperation and coordination with the private sector. The Town acknowledges a regional need for affordable low- and moderate-income housing and shall coordinate with ECFRPC, Brevard County, and the FL-DCA in promoting fair housing. Fair housing issues shall be coordinated through the Brevard County Housing Authority.

3-1.2 Objective:

Achieve housing stock free of substandard units. The Town shall strive to eliminate substandard housing conditions and blighting influences and improve structural and aesthetic housing conditions as defined by the Town Code of Ordinances and the Florida Building Code.

3-1.2.1 Policy:

Code enforcement activities: The Town shall proactively implement code enforcement activities in order to achieve a housing stock free of substandard units.

3-1.3 Objective:

Mobile home sites. The Town of Malabar shall continue to provide adequate land area to accommodate the demand for mobile home residences within its corporate limits.

3-1.3.1 Policy:

Building code compliance: Building codes within the Town shall be consistent with a mandated State criterion governing construction in coastal areas. Similarly, the building code shall prohibit permanent residential structures, including mobile homes, which do not incorporate design measures responsible to hurricane hazards.

3-1.4 Objective:

Provide opportunities for group homes and foster care facilities. The Town shall support the provision of adequate sites for housing Florida Department of Children and Families licensed or funded group and foster homes on a regional housing market basis (as mandated by Chapter 419, F.S.), to foster nondiscrimination in housing and to encourage effective, healthful, residential alternatives to inappropriate institutionalization.

3-1.4.1 Policy:

Policies for foster care facilities. To advance the provision of foster care facilities within the Town of Malabar, single family foster care homes shall continue to be allowed in all residential districts classified in the Zoning Code.

3-1.4.2 Policy:

Policies for group homes. Group homes shall be allowed in multiple family zoning districts providing they meet land development code performance standards, such as those provided by the Florida Department of Children and Families. In addition, such facilities shall be regulated in order to control

their magnitude and distribution and to assure locations accessible to public and private services generally required by group home residents.

3-1.5 Objective:

Preserve historically significant housing. Housing resources identified as historically significant shall be preserved for residential uses.

3-1.5.1 Policy:

Promote identification of the Town's historically significant housing resources. By December 2010 the Town shall conduct a historic resources inventory to look at all structures built before 1960 and identify a list of potential historic resources. Such efforts shall include determination of their worth and vulnerability, as well as implementation of preservation management policies as such resources are identified.

3-1.5.2 Policy:

Rehabilitation and adaptive re-use of historically significant housing. Assist the rehabilitation and adaptive re-use of historically significant housing through available technical and economic assistance programs.

3-1.5.3 Policy:

Grants for preserving historically significant housing. The Town shall assist property owners of historically significant housing in applying for and utilizing available State and federal assistance programs.

3-1.5.4 Policy:

Collaborative preservation. The Town shall work collaboratively with the South Brevard Historical Society, the Brevard County Historical Commission, and the Florida Bureau of Historic Preservation to provide public information, education, and technical assistance relating to historic preservation programs.

3-1.6 Objective:

Relocation housing. Uniform and equitable treatment of persons and businesses displaced by State and local government programs shall be provided consistent with §421.55, F.S.

3-1.6.1 Policy:

Provide alternative housing sites for displaced structures and residents thereof. Coordinate with the private sector in assuring that alternative sites, in comparable housing facilities are available to persons displaced through public action prior to their displacement.

3-1.7 Objective:

Conserve neighborhood quality and existing housing stock. The useful life of the existing housing stock shall be conserved through effective implementation of laws, ordinances, and programs directed toward preserving neighborhood quality, including conservation of natural resources, maintenance of community facilities, and code enforcement activities.

3-1.7.1 Policy:

Promote maintenance of housing stock and neighborhood conservation. Continue to enforce the Town's building, housing, plumbing, energy, electrical, and other construction codes in order to promote maintenance of standard housing and to achieve necessary corrective action where noncompliance exists or comes into existence in the future.

3-1.7.2 Policy:

Plan supporting facilities and services necessary for quality residential neighborhoods. Sufficient systems for delivery of public facilities and services supportive to a quality residential environment shall be planned, designed and implemented. A capital improvement program and budget predicated on continuing review and evaluation of evolving housing problems and issues shall be the principal tool for realizing this objective.

3-1.7.3 Policy:

Minimize potential blighting influences. Potential blighting influences within residential areas shall be minimized by promoting use of best management principles and practices of land use planning, urban design and landscaping in development and site plan review. For instance, adverse impacts of land use transition shall be minimized by managing the location as well as the density or intensity of mixed or conflicting residential and non-residential uses and by requiring adequate screening, landscaping, and other design features which promote land use compatibility and appropriate land use transition.

3-1.7.4 Policy:

Coordinate public/private partnerships. In addressing housing issues requiring unique partnerships involving the public and private sector, the Town shall promote effective communication and innovative approaches which involve partnerships between the public and private sectors.

3-1.7.5 Policy:

Continuing housing programs. The Town shall carry out the following housing related programs:

- a. *Population and housing research and information system.* Maintain and periodically update the population and housing information system.
- b. *Housing trends.* Monitor and evaluate population and housing trends. Analysis of land use interrelationships shall be included in the continuing evaluation.
- c. *Review plans and policies.* Review and amend as necessary adopted plans and policies based on continuing analysis of problems and issues related to housing and other plan elements. The review shall include consideration of the Town's regulatory and administrative requirements for site plan review and permitting in order to assure that these policies and procedures do not impose unreasonable construction time requirements or building costs to providers of housing stock. This review shall include analysis to further the concept of one-stop permitting procedures, in policy adopted by the ECFRPC. Major shifts in the magnitude, distribution, and demographic characteristics of the population which are indicative of changes in housing demand shall be analyzed. Similarly, shifts in the magnitude, distribution and structural characteristics of the Town's housing stock shall be analyzed on a continuing basis.
- d. *Fiscal management.* Review and evaluate residential development and infrastructure policy, including fiscal implications. Each year fiscal management policies including the capital improvement program and budget shall be reviewed, evaluated and refined to reflect current program priorities.
- e. *Administer housing code and other related codes.* Administer adopted housing and energy codes and other housing related codes.
- f. *Public assistance and information referral.* Provide housing information and referral services to the public pursuant to adopted goals, objectives and policies of this Housing Element.
- g. *Intergovernmental coordination.* Coordinate local housing program activities including discussions of related fiscal problems and issues with other public agencies at all levels of government pursuant to the Intergovernmental Element of this plan.
- h. *Manage current developmental impacts.* Evaluate and manage impacts of proposed development pursuant to existing ordinances, including, but

not limited to impacts on residential neighborhoods, local housing supply and demand, public facility impacts, and natural environmental factors.

3-1.7.6 Policy:

Review the impact of change indicators on housing policy. Major shifts in the magnitude, distribution, and characteristics of population and housing shall serve as indicators of change in various aspects of housing supply and demand. The policy implications of major changes in housing supply and demand shall be considered in the Town's Evaluation and Appraisal Report.

CHAPTER FOUR

PUBLIC FACILITIES ELEMENT

PURPOSE

The purpose of this element is to provide for necessary public facilities and services correlated to the future land use projections. The Town of Malabar sold its Water Utility to Palm Bay in 2012 with conditions that Malabar customers would be billed no differently than Palm Bay customers; Palm Bay Utility Department (PBUD) would be permitted to operate within all existing Malabar rights-of-way and utility easements; and would pay to Malabar a Franchise fee of 6% for the right to operate within Malabar. PBUD is the provider for sanitary sewer and potable water services. Most Malabar residences use potable water wells and septic systems. The Town does maintain the drainage system except for the Melbourne-Tillman Canal and provides solid waste pick up under contract. The following shows the providers of these services.

TABLE 4-1: TOWN OF MALABAR SERVICE PROVIDERS

Sanitary Sewer	Palm Bay Utilities Department
Solid Waste	Brevard County Solid Waste Management Department Waste Management Inc. (household trash, yard pick up)
Drainage	Town of Malabar Public Works Melbourne-Tillman Drainage District St Johns River Water Management District (SJRWMD)
Potable Water	Palm Bay Utilities Department
Ground Water Aquifer Recharge	Town of Malabar Public Works St Johns River Water Management District (SJRWMD)

Source: Town of Malabar, July 2018

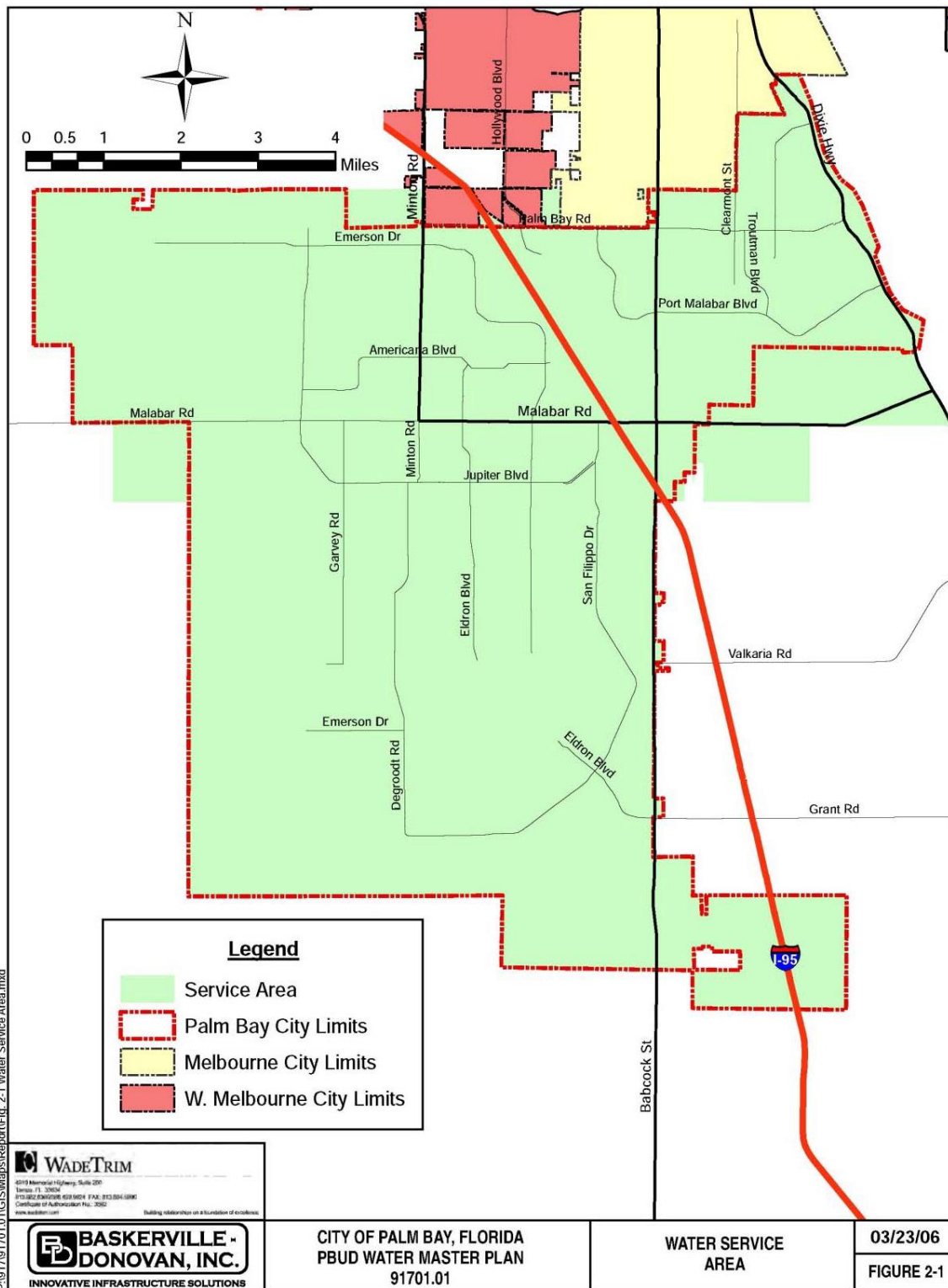
This report is organized to provide analysis information about each area of service. The element conclusion contains the goals, objectives and policies for all the utilities services.

EXISTING CONDITIONS AND DATA

Sanitary Sewer Analysis

Sanitary sewer facilities are defined in §9J-5.003(82), F.A.C., as: “structures or systems designed for the collection, transmission, treatment, or disposal of sewage and includes trunk mains, interceptors, treatment plants and disposal systems.” The Florida Department of Health, through Brevard County Environment Services Department maintains administrative control over permitting of septic tanks and package treatment plants. The Department monitors these systems for compliance with quality control standards of the Florida Department of Environmental Protection (FDEP).

FIGURE 1: PALM BAY UTILITY DEPARTMENT SANITARY SEWER SERVICE AREA



Geographic Service Area

The Town of Malabar provides sewage collection for approximately 13% of residents within the Town limits. See Figure 1 for the service area boundary. Areas not served by sewage collection are served by private lift stations or by package treatment plants.

Types of Land Uses Served

As shown in the Future Land Use Element, forty-eight percent (48%) of the land area in the Town of Malabar is designated for residential development (3067.68 land acres). Commercial uses comprise six percent (6%) of the Town (409.22 acres) and light Industrial use designations make up one percent (1%) of the land area within Malabar (53.26 acres). Vacant/undeveloped Conservation lands, rights-of-way, Institutional lands, and park lands undesignated make up the remaining land uses in the Town (33% or 2135.77 acres). Table 1-1 of the Future Land Use Element provides the general land uses, by acreage, for the Town of Malabar.

Capacity, Demand and Level of Service

The Town of Malabar sold the transmission lines to Palm Bay Utility Department (PBUD) for the portion of the Town where sewage collection is provided. PBUD operates the Troutman Waste Water Treatment Plant (WWTP), a 4.0 Million Gallon per Day (MGD) plant located on the east side of Troutman Boulevard and the Troutman Water Reclamation Facility (WRF), a 1.2 MGD plant on the west side of Troutman Boulevard. The discharge of treated wastewater from the WWTP is accomplished by a 3000-foot Deep Injection Well (DIW). The DIW has a permit to discharge 5.0 MGD, and a design capacity of 10.0 MGD. The PBUD is designing a 2.0 MGD WRF to be sited at update the South Regional Utilities Campus. This is sufficient to serve the PBUD service area in excess of the 10-year planning period. The discharge of treated wastewater from the WRF is accomplished by a non-restricted public access reuse system that supplies irrigation for several locations and cooling water to the Harris Corporation and Intersil Corporation. The Palm Bay Utility Corporation has projected the following flows based upon population projections. These flows account for the entire Palm Bay service area, including the Town of Malabar. Based upon the projected flow, the PBUD has sufficient capacity for the growth projected within their service area through the year 2018 update.

TABLE 4-2: FLOWS BASED ON POPULATION PROJECTIONS

<i>Year</i>	<i>Total Average Daily Flow (MGD)</i>	<i>Existing and Planned Treatment Capacity (MGD)</i>
2008	3.71	5.20
2009	3.85	5.20
2010	4.00	7.00
2011	4.14	7.00
2012	4.29	7.00

2013	4.43	7.00
2014	4.89	7.00
2014	5.35	7.00
2016	5.82	7.00
2017	6.28	7.00
2018	6.74	7.00
2019	7.42	7.00
2020	8.11	7.00
2021	8.79	7.00
2022	9.48	7.00
2023	10.16	7.00
2024	10.84	7.00
2025	11.53	7.00
2026	12.21	7.00
2027	12.90	7.00
2028	13.58	7.00

Source: Palm Bay Utilities Department

Package Treatment Plants

Four private wastewater package treatment plants service three mobile home parks and the Harris Corporation. The permitted capacity of the treatment plants are as follows:

TABLE 4-3: PERMITTED CAPACITY OF TREATMENT PLANTS

<u>Package Treatment Plant</u>	<u>Permitted Capacity</u>
Harris Corporation	35,000 GPD
Enchanted Lakes Mobile Home Park	10,000 GPD
Camelot Mobile Home Park	20,000 GPD
Southern Comfort Mobile Home Park	15,000 GPD

Wastewater treatment methods utilized by each plant are as follows:

TABLE 4-4: WASTEWATER TREATMENT METHODS

<u>Package Treatment Plant</u>	<u>Treatment Method</u>
Harris Corporation	Attached Growth Biological Contractor with two percolation ponds
Enchanted Lakes	Extended Aeration
Camelot	Extended Aeration
Southern Comfort	Extended Aeration

According to the Florida Department of Environmental Protection, the plants have had no detrimental impacts on the environment.

Septic Tanks

The remaining developments within the Town are served by private septic tanks and waste disposal drain fields. Septic tanks are regulated by the Florida Department of Environmental Protection (FDEP) and the Florida Department of Health, Brevard County.

Solid Waste Analysis

Solid waste is defined in §9J-5.002(88), F.A.C., as: “sludge from a waste treatment works, water supply treatment plan, or air pollution control facility or garbage, rubbish, refuse, or other discarded material, including solid, liquid, semi-solid, or containing gaseous material resulting from domestic, industrial, commercial, mining, agricultural, or governmental operations.”

Solid waste facilities are defined in §9J-5.002(89), F.A.C., as “structures or systems designed for the collection, processing or disposal of solid wastes, including hazardous wastes, and includes transfer stations, processing plants, recycling plants, and disposal systems.”

Solid waste collection is provided to the Town under contract with Waste Management Inc. Hazardous wastes are discussed in the Conservation Element. The Town coordinates with Brevard County on solid waste issues, including landfill issues herein discussed. The DEP enforces State standards governing environmental and public health and water quality control standards.

Geographic Service Area/Types of Land Uses Served

Solid waste handling and disposal is provided by Waste Management Inc. for the entire Town.

Design Capacity of the Facility

Solid waste handling and disposal is performed by the Solid Waste Department of Brevard County. The County owns and operates the Central Disposal Facility, Sarno Transfer Station and Landfill, Mockingbird Mulching Facility and the Titusville Transfer Station. The Central Disposal Facility has permitted capacity for nearly 10 years. There is an additional 16 years of capacity in the southern expansion area. The Central Disposal Facility is used for Class I and Class III materials. The County is investigating extending the useful life of the Sarno Road Landfill. The County is currently obtaining the required permits to construct a new solid waste facility on County owned property on US-192.

Current and Future Demand and Level of Service

The Level of Service for solid waste collection is 6.85 Pounds per Capita per Day (PCD). The transfer station serving the Town will be able to maintain this LOS for the duration of the 10-year planning period. The following table illustrates the approximate solid waste

volume generated by the Town, based on the population projections and the anticipated level of service.

TABLE 4-5: TOWN OF MALABAR SOLID WASTE VOLUME

<i>Year</i>	<i>Population</i>	<i>Solid Waste Generation (Lbs. per day)</i>
2005	2,842	19,468
2010	3,142	21,523
2015	3,426	23,468
2020	2,933	25,256
2025	2,992	26,886
2030	3051	28,393

Source: Calvin, Giordano & Associates Inc.

Impact on Adjacent Natural Resources

No solid waste facilities such as transfer stations or landfills are located within the Town’s corporate limits. Therefore, the Town experiences none of the potential adverse environmental impacts which these facilities frequently generate on natural resources.

Drainage Analysis

Drainage facilities are defined in §9J-5.003(24), F.A.C., as “as system of man-made structures designed to collect, convey, hold, divert or discharge stormwater, and includes stormwater sewers, canals, detention structures, and retention structures.”

Drainage within the Town of Malabar is provided by a system of swales, ditches, inlets and pipes that convey runoff into the Indian River Lagoon and Turkey Creek. The Town has been divided into three large drainage basins called Turkey Creek Basin, Goat Creek Basin and the Indian River Lagoon. Turkey Creek Basin is further divided into 9 sub-basins; Goat Creek Basin has 5 sub-basins and the Indian River Lagoon has 2 sub-basins in the Town.

The Town of Malabar signed an inter-local agreement with Brevard County to join the Brevard County Stormwater Utility Program in 2000. Funding for the stormwater program is collected on tax bills via the non-ad-valorem process and has averaged around \$50,000 annually since 2000. The Town increased the fee in 2017 to \$52 per ERU and will increase it to \$64 per ERU in 2020 to fund the Utility. The Town contracts with the County to administer the Utility, perform annual inspections for credits and submit the information to the County Tax Office for billing. Stormwater projects are discussed or proposed by the Town. Through this program, the County acts as the stormwater administrator for the Town, ensuring that the procedures and policies enacted in the Town are consistent with that of the County. This partnership has proven to be a more efficient and cost-effective approach to stormwater management.

The Town Council has paid civil engineering persons to produce projects that would result in the most beneficial impact for the dollar. Malabar Council then held workshops and prioritized these projects, assigned estimated costs and has included them in their annual budgets and Capital Improvement Plans since 2014. As the stormwater assessment fees accrue, projects are scheduled.

Types of Land Uses Served

Land use within the Town of Malabar is primarily comprised of low density rural residential development.

Design Capacity and Level of Service

The Town’s stormwater management and flood protection ordinance was updated in 2014 to comply with FEMA and the Flood Plain Management regulations set forth in 44 C.F.R. part 60 and the flood-resistant construction requirements in the Florida Building Code. These are explained in the Coastal Management Element but will reduce the flood risk and associated losses due to flooding. It requires a minimum on-site stormwater management system based on a 10-year frequency, 24-hour duration storm event. Off-site stormwater management system improvements must be based on a 25-year frequency, 24-hour duration storm event. The Town requires retention or detention with filtration of the run-off from the first one (1) inch of rainfall. The on-site retention or detention must be designed so that the additional stormwater generated by development will not exceed the peak pre-development run-off rate generated by the site prior to the proposed development unless there is a legal positive outfall available which has sufficient capacity to accommodate the additional run-off.

The National Flood Insurance Program administered by the Federal Emergency Management Agency (FEMA) has identified the following flood zones within the Town:

TABLE 4-6: FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD ZONES

Zone	Description
A	An area inundated by 1% annual chance flooding, for which no base flood elevations (BFE’s) have been determined.
AE	An area inundated by 1% annual chance of flooding, for which BFEs have been determined.
X	Areas determined to be outside the 500-year floodplain, determined to be outside the 1% and 0.02% annual chance floodplains. Areas of minimal flood hazard from the principal source of flood in the area.
X500	Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood. An area inundated by 0.2% annual chance of flooding.

Source: Federal Emergency Management Agency (FEMA)

Map FLU-4 *FEMA Flood Zones*, locates the flood zones within the Town. Nearly the entire Town is classified as zone X, which is defined as areas determined to be outside the 500-year floodplain and determined to be outside the 1% and 0.2% annual chance floodplains. This is an area of minimal flood hazard from the principal source of flooding in the area. Existing land uses found within the floodplain are illustrated in the Future Land Use Element.

Impact on Adjacent Natural Resources

The stormwater flowing from the Town northward into Turkey Creek enters Turkey Creek tributaries north of the Town limits. Prior to entering Turkey Creek, the run-off from the Town merges with run-off from the extensive Melbourne-Tillman Water Control District system.

Furthermore, tests of water quality within Turkey Creek cannot provide valid indicators of water quality within the run-off volumes generated by the Melbourne-Tillman Water Control District, as volumes generated by drainage ways within the Town include run-off from the Interstate Highway I-95, Highway 1, State Road 514 (Malabar Road) and both the Town of Malabar and City of Palm Bay.

The Town's drainage system includes two outfalls into the Indian River Lagoon. These outfalls are located approximately one-quarter (1/4) mile south of Malabar Road and near the junction of U.S. 1 and Rocky Point Road, respectively. Florida Department of Environmental Protection (FDEP) and Brevard County have no data available regarding potential point source pollutants generated by these outfalls. However, the Town maintains a Coastal Preservation zone which limits development east along a large portion of Indian River Lagoon frontage.

Potable Water

Potable water facilities are defined in §9J-5.003(67), F.A.C., as "a system of structures designed to collect, treat, or distribute potable water, and includes water wells, treatment plants, reservoirs and distribution mains."

The Town of Malabar's potable water is primarily derived from on-site shallow wells, which withdraw water from the surficial aquifer. The private wells within the Town are owned by individual homeowners and may require some treatment within the household to remove sulphur and salts. The Harris Government Systems development operates and maintains a private water treatment plant. The three mobile home parks within the Town also maintain private water treatment facilities. The characteristics of these facilities are herein discussed.

Geographic Service Area

Approximately 20% of the population is served by public water supply mains. See Figure 2 for the service area boundary. Areas not served by water distribution are served by private wells or by package treatment plants.

Types of Land Uses Served

As shown in the Future Land Use Element, twenty six percent (26%) of the land area in the Town of Malabar is made up of residential development. Commercial uses comprise less than three percent (3%) of the Town and light industrial use make up less than one percent (1%) of the land area within Malabar. Vacant/undeveloped lands, right-of-ways and park lands make up the remaining land uses in the Town. Table 1-1 of the Future Land Use Element provides the general land uses, by acreage, for the Town of Malabar.

Capacity, Demand and Level of Service

The Town's Public Works Department owns and maintains a water distribution system that purchases its water from the PBUD under a thirty-year contract signed May 5, 1993. PBUD operates the Troutman Water Treatment Facility and the South Regional Water Treatment Facility. The Troutman Water Treatment Facility has both a Lime Softening (LS) Water Treatment Plant (WTP) and a Reverse Osmosis (RO) WTP. The LS WTP withdraws water from 35 Surficial Aquifer wells and one Floridan Aquifer well that is used for blending during peak demand.

The permitted withdrawal rates for this plant are 4.7 MGD declining 0.1 MGD per year until 2021, when the withdrawal rate will be 3.4 MGD for the Surficial Aquifer wells and 0.72 MGD for the Floridan Well. The RO WTP has 3 Floridan Aquifer wells permitted to withdraw 2.61 MGD. The current capacity of the TO WTP is 1.5 MGD with the ability to expand to 3 MGD. The South Regional Water Treatment Facility is an RO facility with five Floridan Aquifer wells with a permitted withdrawal of 5.09 MGD in 2007 expanding to 10.49 MGD in 2021. There is sufficient capacity for the 10-year planning period. There are also seven private water treatment plants located within the Town. The level of service provided by the PBUD is 75 GCD for residential property and 7,500 GCD for commercial and industrial property.

Although the Town of Malabar falls within the jurisdiction of the St Johns River Water Management District, they have been exempted from the requirement to develop a 10-year Water Facilities Supply Plan because the Town lies outside the "Priority Resource Cation Area."

Private Water Treatment Plants

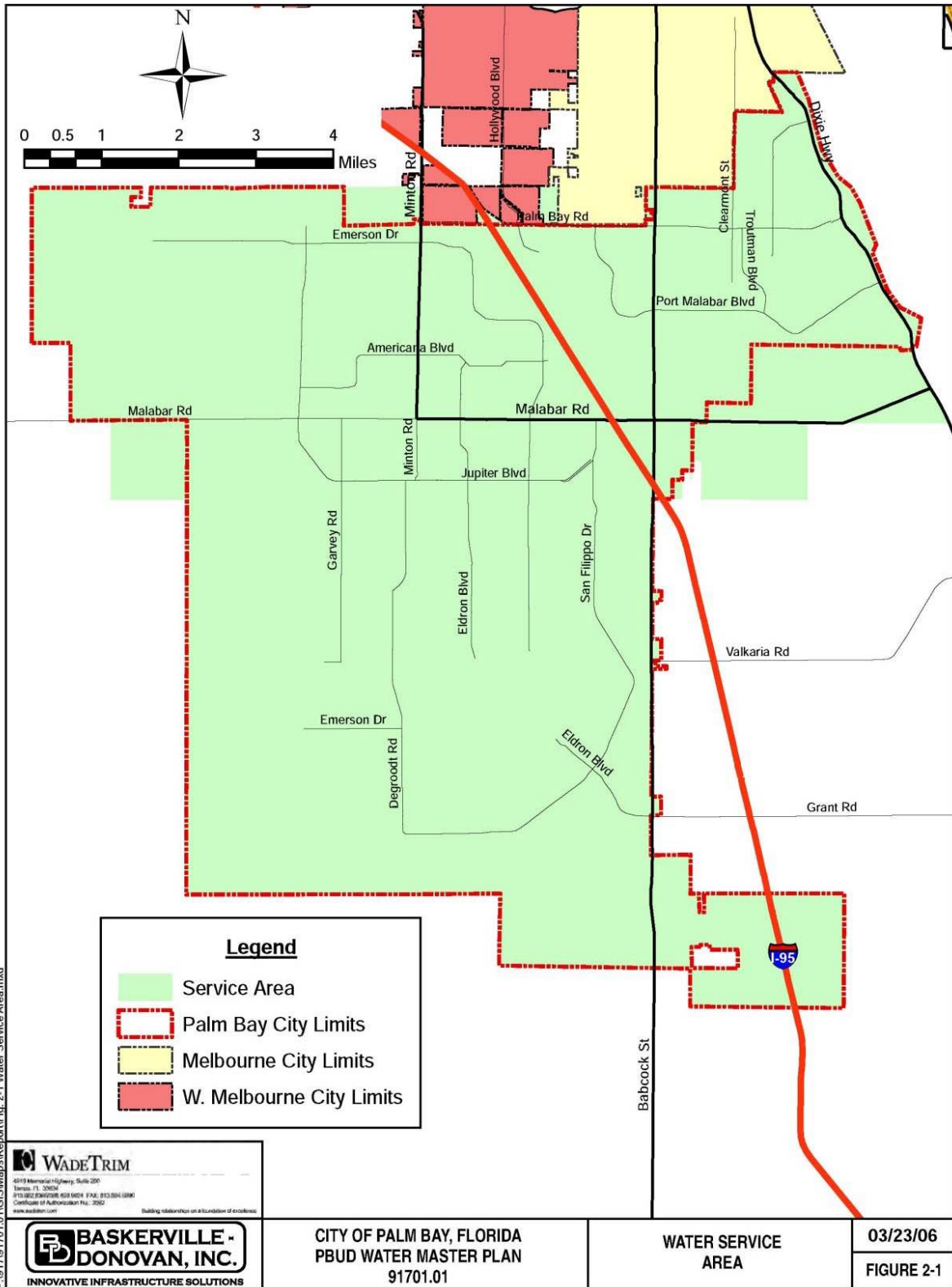
The designed capacity and estimated flow of the seven private potable water treatment plants are shown below:

TABLE 4-7: POTABLE WATER TREATMENT PLANTS DESIGNED CAPACITY AND ESTIMATED FLOW

<u>Private Water Treatment Plant</u>	<u>Designed Capacity</u>	<u>Estimated Current Flow</u>
Bayside Discovery Center	28,000 GPD	230 GPD
Harris Corporation	128,000 GPD	22,000 GPD
Enchanted Lakes Mobile Home Park	86,000 GPD	14,200 GPD
Camelot Mobile Home Park	37,440 GPD	10,500 GPD
Southern Comfort Mobile Home Park	57,000 GPD	12,500 GPD
Data Management Associates	12,000 GPD	1,250 GPD

Source: FDEP

FIGURE 2: PALM BAY UTILITIES DEPARTMENT POTABLE WATER SERVICE AREA



All the private water treatment plants employ chlorination methods in the purification of water drawn from the surficial aquifer. According to permit records maintained by the Florida Department of Environmental Protection, all plants are currently in compliance with State regulations.

No abnormal impacts are presently caused by any of these facilities. Although each facility draws water from the surficial aquifer, no detrimental impacts to groundwater levels or quality have been identified.

Each facility will adequately serve the residents or industry during the next five-year and ten-year planning period. As shown in the above table, all facilities have sufficient remaining capacity to handle any additional water demands created during this period.

Private Wells

The remaining developments within the Town are served by private wells.

Impact on Adjacent Natural Resources

No comprehensive data is available to quantify the cumulative impacts of private wells. As development pressures mount, and the Town approaches the future land use and population projections identified in the land use analysis, the Town should investigate potential area wide problems of groundwater depletion and the possible degradation of water quality caused by the proliferation of private wells.

Natural Groundwater Aquifer Recharge Areas

No areas within the Town have been adopted by the St Johns River Water Management District as prime groundwater recharge areas for the Floridan aquifer. The Floridan aquifer is recharged in eastern Osceola County and very little down migration of water is possible due to two factors: 1) a confining layer of silt and clay and various other materials separates the surficial and deep (Floridan) aquifer; and 2) the potentiometric surface of the aquifer is approximately +30 feet NGVD (National Geodetic Vertical Datum); this upward pressure will not permit recharge except under extremely high head conditions. There are no deep aquifer recharge areas within the Town of Malabar.

The top of the surficial aquifer within Malabar is generally located between five (5) and ten (10) feet below the ground surface but may be much closer to the ground surface depending upon the amount of rainfall which is present. The rainfall in the area recharges the surficial aquifer, and as such, the water table depth fluctuates with the amount and intensity of the rainfall.

Existing Natural Drainage and Recharge Area Regulations and Programs

The Town's adopted regulations in the Flood Prevention Code, General Provisions, Subdivisions, Required Improvements, Site Plan, Surface Water Management and Concurrency Management Articles in the Land Development Regulations that provide for

maintaining and preserving groundwater recharge areas. The purpose and intent of the zoning regulations, stormwater management and subdivision ordinances are briefly described herein.

Zoning Regulations

These regulations define the type of development that may occur on a given site, and further determine the maximum lot coverage.

Stormwater Management and Flood Protection Ordinance

This ordinance requires on-site stormwater management planning that, in part, will enhance groundwater recharge. In recharge areas, developers must limit run-off from the proposed site to the greatest extent practical. Requirements for stormwater retention include facilities which have the capacity to retain the first inch of run-off from the site. Requirements that provide for the maintenance of existing watercourses, so that the flood carrying capacity is not diminished, are also included. Further requirements as described in Florida Statutes 163.3177.

Subdivision Ordinance

The Ordinance establishes standards of subdivision design which encourage and lead to the development of sound and economically stable communities, and the creation of healthful living environments. In addition, provision which place the cost for needed improvements on the developer are included so the Town will not have to bear the costs of supplying services to poorly planned subdivisions.

The Town's zoning regulations, stormwater management and flood protection and subdivision ordinances accomplish an adequate degree of protection for natural drainage and recharge areas. Malabar's existing land use has generally developed in a manner favorable to natural groundwater recharge and natural flood protection.

PUBLIC FACILITIES ELEMENT GOAL, OBJECTIVES, AND POLICIES

Goal 4-1:

Insure availability of needed public facilities in a manner which protects investments in existing facilities and promotes orderly, compact growth.

4-1.1 Objective:

Insure Available Public Capacity. The Town shall adopt procedures to ensure that at the time a development permit is issued, adequate facility capacity is available or will be available when needed to serve the development.

4-1.1.1 Policy:

Level of Service Standards. The following level of service standards are hereby adopted and shall be used as the basis for determining the availability of facility capacity and the demand generated by a development.

Sanitary Sewers:

300 gallons per day per dwelling unit;
150 gallons per day per mobile home unit;
1089 gallons per day per acre for commercial/light industrial

Solid Waste:

6.85 pounds per capita per day

Drainage:

Off-Site: 25-year, 24-hour design storm
Off-Site: 10-year, 24-hour design storm

Potable Water:

Residential – 100 gallons per capita per day;
Commercial/Industrial – 7,500 gallons per day per gross acre.

To ensure that these levels of service standards are maintained, methodologies for determining available capacity and demand shall incorporate appropriate peak demand, co-efficient for each facility and for the type of development proposed.

4-1.1.2 Policy:

Compliance with Level of Service Standards. All improvements for replacement, expansion or increase in capacity of facilities shall be compatible with the adopted level of service standards for the facilities. Issuance of development orders or permits shall be conditioned upon demonstration of compliance with applicable federal, state, and local permit requirements for Potable Water Supply.

4-1.1.3 Policy:

Demand and Supply Information System. The Town shall develop procedures for updating facility demand and capacity information and shall prepare annual summaries of capacity and demand information for respective facilities and/or service areas.

4-1.1.4 Policy:

Coordination Between Future Land Use and Potable Water/Wastewater System needs. The Town shall adopt land development regulations which insure that incremental decisions by the Town concerning potable water and wastewater system needs, plans and the location and timing of improvements shall be consistent with land use and conservation resource management policies stipulated in the Comprehensive Plan.

4-1.1.5 Policy:

Planning for Potable Water and Wastewater Systems. The Town shall coordinate with Brevard County and the City of Palm Bay in order to establish the potential for preparing and implementing an areawide management plan for achieving cost effective areawide potable water and wastewater systems.

4-1.1.6 Policy:

Stormwater Management for new development. All new development shall be required to construct entire stormwater management improvements on site.

4-1.2 Objective:

Maintaining a Schedule of Public Facility Capital Improvement Needs. The Town shall develop and maintain a five-year schedule of capital improvement needs for public facilities and shall annually update the schedule as stipulated in the Capital Improvements Element.

4-1.2.1 Policy:

Capital Improvement Schedule. The Town Council, after considering the recommendations of the Planning and Zoning Board, shall annually evaluate and rank capital improvement projects proposed for inclusion in the five-year schedule of capital improvement needs.

4-1.2.2 Policy:

Public Facility Evaluation Criteria. Proposed capital improvement projects shall be evaluated and ranked according to the following priority level guidelines.

- a. "Level 1": Whether the project is needed to:
 - Protect public health and safety.
 - Fulfill the Town's legal commitment to provide facilities and services
 - Preserve or achieve full use of existing facilities.
- b. "Level 2": Whether the project accomplishes the following:
 - Increases efficiency of existing facilities.
 - Prevents or reduces future improvement costs.
 - Provides service to developed areas lacking full service or promotes in-fill development.
- c. "Level 3": Whether the project:
 - Represents a logical extension of facilities and services in a manner consistent with future Land Use Element goals, objectives and policies, including the Future Land Use Map.

4-1.3 Objective:

Procedures and Standards for On-Site Wastewater Treatment Systems. The Town shall assist in assuring implementation of State regulations imposing mandated standards for inspections, operation, and maintenance of on-site wastewater treatment systems.

4-1.3.1 Policy:

Use of On-Site Wastewater Treatment Systems. Use of on-site wastewater treatment systems shall be limited to the following conditions:

- a. Existing septic tank and package treatment plants may remain in service until such time as centralized service is made available.
- b. Use of septic tank systems for new development shall be restricted to sites on which the Brevard County Environmental Services Unit

renders a finding that the site and facility design is in compliance with State and local regulations governing the same.

- c. Use of package treatment plans shall comply with applicable laws governing the location, use, and design of the facility. Package treatment plants shall be designed in a manner which facilitates integration into an areawide or regional system in the future.

4-1.3.2 Policy:

Coordinate with the Brevard County Environmental Services Unit. The Town's land development regulations shall require that all proposed development which impacts an existing septic tank or generates need for a new septic tank be required to provide evidence of approval by the Brevard County Environmental Health Unit prior to receiving a development order or permit from the Town. Any such approval by the Town shall be conditioned upon the applicant's compliance with Brevard County requirement for ongoing facility maintenance and operation.

4-1.3.3 Policy:

Conditions Governing Development Orders or Permits. Issuance of development orders or permits shall be conditioned upon demonstration of compliance with applicable federal, State, and local permit requirements for on-site wastewater treatment systems.

4-1.3.4 Policy:

Compliance with On-Site Wastewater Treatment and Water Quality Regulations. The Town shall coordinate with appropriate federal, State, and County agencies and amend local ordinances to require that issuance of permits for replacement or expansion of existing on-site wastewater treatment systems is conditioned upon compliance with current regulatory requirements and water quality standards.

Goal 4-2:

The Town shall assure that existing deficiencies in public facilities are corrected by undertaking the following projects:

4-2.1 Objective:

Reconcile Existing Deficiencies, The Town shall assure that existing deficiencies in public facilities are corrected by undertaking the following projects:

- a. Wastewater System Projects. The Town shall coordinate with Brevard County and the City of Palm Bay in order to assess the potential for an areawide management plan for achieving a cost effective areawide wastewater

system(s), including wastewater reuse through such programs as use of “graywater” for spray irrigation. No existing deficiencies have been identified.

- b. Solid Waste Projects. The Town shall coordinate with Brevard County’s South County landfill site acquisition study efforts. In addition, the Town shall continue coordination and efforts to meet or exceed a thirty percent (30%) reduction in solid waste volumes by 2013.
- c. Potable Water System Projects. The Town shall coordinate with Brevard County, the City of Palm Bay in order to assess the potential for an areawide management plan for achieving a cost-effective area-wide potable water system(s).

The Town shall work with appropriate County and State public agencies in order to initiate a periodic County or State monitoring program of groundwater. This program is desirable since the Town relies on private wells withdrawing from the shallow surficial aquifer, on septic tanks for sewage treatment and has areas of poorly drained soils. The monitoring program will check possible contamination from septic tank leakage.

Also, the Town shall work through the St. Johns River Water Management District to initiate a SJRWMD program or other appropriate areawide approach designed to analyze existing or potential future problems surrounding existing practices of withdrawing potable water resources. Any needed areawide improvements shall be investigated on an areawide basis.

- d. Drainage Projects: Prepare an engineered master plan for stormwater management and drainage facilities by 2013. The master plan shall incorporate the following:
 - Engineered analysis confirming the natural sub-drainage basins within the Town together with major tributaries within each sub-basin.
 - Identification of floodways, drainage corridors, and other features comprising the Town’s natural and manmade drainage system.
 - Analysis and recommendations concerning needed land acquisition and/or identification of lands which should be specifically regulated in order to preserve floodways together with drainage corridors and achieve effective stormwater management

- Include a schedule of requisite improvement projects together with assigned priorities and costs.
- Recommended implementation program for funding, managing, and continually maintaining the stormwater management system. The implementation program should include a management framework for achieving equitable assessments required to implement the stormwater management program.
- Recommended land use restrictions, including changes to existing stormwater management and flood prevention regulations.

4-2.1.1 Policy:

Compliance with Capital Improvements Element. All major public facility projects shall be undertaken in accordance with the schedule provided in the Capital Improvements Element of this plan as may be hereinafter amended.

4-2.1.2 Policy:

Priority for Correcting Existing Deficiencies. In developing the annual schedule of capital improvement projects, the Town shall assign the highest priority to those projects required for purposed of correcting existing deficiencies.

4-2.1.3 Policy:

Existing Deficiencies Not to be Increased by New Development. The Town shall issue no development order for new development which would result in an increase in demand on deficient facilities prior to completion of improvements needed to bring the respective facility up to standard. The Town shall include an adequate facilities requirement as part of the updated Land Development Code. The adequate facilities ordinance shall mandate that future applications for development shall include a written evaluation of the impact of the anticipated development on the levels of services for the water and wastewater systems, solid waste system, drainage, recreation, and the traffic circulation system. Prior to issuing a building permit the Town shall (1) render a finding that the applicant has provided written assurance that the proposed development shall be served with each of the above cited facilities with a level of service at least equal to that level of service stipulated in Policy 4-1.1.1; and (2) consult with the Palm Bay Utilities Department and the Town's Utilities Department to determine if adequate water supplies will be available to serve the development by the anticipated

date of issuance of a certificate of occupancy or its functional equivalent. The developer's application shall include written assurances that any required improvements shall be in place concurrent with the impacts of the development (i.e., by the time a certificate of occupancy is granted by the Town).

4-2.1.4 Policy:

Coordinate with Brevard County Hazard Waste Planning Efforts. The Town shall help Brevard County as the County assesses and plans for hazardous Waste management in a manner consistent with the provisions of §403.7265, F.S.

4-2.2 Objective:

Meeting Projected Public Facility Demands to 2018. The Town shall meet projected public facility demands through the year 2018 by undertaking the following projects:

- a. Wastewater System Projects. The Town shall participate with the City of Palm Bay Utility Department in implementing and updating as necessary, their master wastewater system. This plan shall:
 - Identify an area-wide organizational framework for managing the area-wide system;
 - Describe and prioritize sub-area service boundaries;
 - Establish an engineering system of wastewater facility improvement needs; and
 - Estimate the cost of engineering and constructing the requisite area-wide system improvements.
- b. Solid Waste Projects. Coordinate with Brevard County to ensure capacity for the Town at the County owned and operated southern expansion area.
- c. Potable Water System. The Town shall coordinate with the Palm Bay Utility Department in the implementation of their master potable water system plan. This plan shall:
 - Identify an area-side organizational framework for managing the area-wide system;
 - Describe and prioritize sub-area service boundaries;
 - Establish an engineered system of potable water facility improvement needs; and
 - Estimate the cost of engineering and constructing the requisite area-wide system improvements.

4-2.2.1 Policy:

Coordinate with Capital Improvements Element. A public facility project shall be undertaken in accordance with the schedule provided in the Capital Improvements Element of this Plan.

4-2.2.2 Policy:

Public Facility Planning and Management Efficiency. In scheduling the location, timing and staging of public facility improvements, the Town Council shall use the following criteria:

- a. Minimize disruption of services;
- b. Prevent duplication of labor; and
- c. Maintain service levels for all respective facilities.

4-2.2.3 Policy:

Additions of Public Facility Project Approvals. All required federal, State, and County permits shall be obtained before the Town undertakes or authorizes contractors to undertake construction and/or operation of facilities.

4-2.2.4 Policy:

Maintain Maintenance Records. The Town shall keep an accurate and up to date log of maintenance records for improvements and repairs throughout their facilities.

4-2.3 Objective:

Meeting Projected Demands for the Year 2008 through the Year 2013. Specific improvement surrounding wastewater, potable water, and drainage systems for the year 2008 through the year 2013 shall be predicted on the master plans for the respective public facilities schedule for completion during the five-year increment: 2002-2007.

4-2.3.1 Policy:

Evaluate Needs for Existing Facility Improvements. The Town Council shall use the annual summaries of facility capacity and demand information to evaluate the needs for the timing and location of projects to extend or increase the capacity of existing or planned future facilities. As these studies and projects are completed, scheduling and prioritization of needed facilities will be incorporated into the annual Capital Improvements Program.

4-2.3.2 Policy:

Scheduling Needed Capital Improvements. The Town Council shall assure that projects required to meet projected demands for the years 2008 through 2013 shall be in the Capital Improvements Element of this plan in accordance with the requirement of §163.3177(3), F.S.

Goal 4-3:

Provide adequate stormwater drainage in order to protect against flood conditions and prevent degradation of quality of receiving waters.

4-3.1 Objective:

Protect Natural Drainage Features. The Town shall adhere to the stormwater drainage and flood prevention regulations as well as Comprehensive Plan level of service standards as needed in order to protect natural drainage features and insure that future development utilizes stormwater management systems compatible with the Town's master stormwater drainage plan which is scheduled for completion by 2013. The Town shall amend development regulations to incorporate the following considerations:

- a. Consistent with ECFRPC policy, the Town shall coordinate with the ECFRPC, FEDP, and the SJRWMD in identifying any urban drainage systems which are not compliant with Chapter 17.25, F.A.C. Where such non-compliant systems are found to contribute significantly to the degradation of surface waters, the Town shall coordinate with the FEDP, SJRWMD, and Brevard County in order to achieve a regional approach to improved drainage and retrofitting as may be appropriate;
- b. Existing stormwater engineering, design and construction standards for on-site systems should be evaluated and amended as needed;
- c. Specific standards for erosion and sediment controls to be used during development should be provided; and
- d. Periodic inspection of on-site systems should be required to assure continuance of system design and maintenance.

4-3.1.1 Policy

Buffer Zone Requirements. The Town shall develop buffer zone requirements for areas adjacent to natural drainage features. Such regulations may be required prior to the completion of the master drainage plan. If so, the buffer zone requirements shall reflect an interim standard recommended by the Town Engineer. The buffer zone requirement may be

superseded by regulations predicated on the findings of the master stormwater drainage plan.

4-3.1.2 Policy:

Managing Land Use in the Floodplain. The Town shall prepare and adopt necessary revisions to the Town's stormwater management and floodplain regulations based on the findings of the master stormwater drainage plan within one (1) year after adoption of the stormwater master plan. These regulations shall address necessary restrictions on encroachment, alteration, and compatible use of the floodplain and major drainage corridors.

4-3.1.3 Policy:

Implementing Master Drainage Plan. The Town shall establish a program and funding mechanisms necessary to implement the adopted master stormwater drainage plan, including, but not necessarily limited to:

- a. Plans for protecting natural drainage corridors and other natural drainage features, including acquiring necessary drainage easements;
- b. Funding mechanisms necessary for achieving drainage improvements within each sub-basin; and
- c. Special consideration of the impacts of existing and future land development adjacent to the Indian River Lagoon which is an "Outstanding Florida Water". The master drainage plan shall address the fact that state requirements mandate that the level of treatment for stormwater discharging directly into this water is fifty percent (50%) above normal FDER standards cited in 17-25.035(i)(I), F.A.C.
- d. Organizational structure and funding mechanisms for carrying out necessary operation and maintenance programs.

4-3.1.4 Policy:

Inspection and Maintenance of Drainage Systems. As part of the master stormwater drainage plan implementation program the Town shall insure that major drainage systems are inspected and receiving required maintenance on at least an annual basis.

4-3.1.5 Policy:

Project Funding. The Town shall seek funding for stormwater management projects through state and federal agencies such as TMDL grants through the FDEP.

4-3.1.6 Policy:

Low Impact Development. The Town shall investigate the feasibility of incorporating LID (low impact development) techniques into future development.

Goal 4-4:

The functions of natural groundwater aquifer recharge areas within the Town shall be protected and maintained.

4-4.1 Objective:

Coordinate Issues Surrounding Aquifer Recharge. The Town shall coordinate with Brevard County and the St Johns River Water Management District in providing for maintenance of aquifer recharge area functions.

4-4.1.1 Policy:

Protect Surficial Aquifer Recharge Areas. Although the Town has no prime deep aquifer recharge areas which have been identified by the St Johns River Water Management District, the Town has abundant surficial aquifer recharge areas. Requirements shall be incorporated into the Town's land development regulations which require retention of open space for all development in order to preserve the quality and quantity of water resources within the surficial aquifer.

4-4.1.2 Policy:

Deep Aquifer Water Conservation. In order to protect the quality and quantity of deep aquifer water resources, the Town shall coordinate with the St Johns River Water Management District and other applicable regulatory agencies in identifying free flowing deep aquifer wells and in requiring corrective measures, including capping, plugging, or installing regulatory devices which control the discharge of water from the deep aquifer.

4-4.1.3 Policy:

Retain Run-off to Maximize Recharge. The Town shall amend the stormwater management regulations in order to require retention of stormwater run-off to maximize groundwater recharge.

4-4.1.4 Policy:

Coordinate with Other Recharge Protection Programs, The Town will coordinate with local, State, and federal agencies to achieve regional aquifer recharge protection objectives.

CHAPTER FIVE

COASTAL MANAGEMENT ELEMENT

PURPOSE

The purpose of the Coastal Management Element is to protect human life and limit public expenditures in areas that are subject to destruction by natural disaster. It is also to plan for, and where appropriate, restrict development and redevelopment activities where such activities would damage or destroy coastal resources. The added redevelopment component will include strategies that reduce repeated flood risks, encourage best practices to reduce losses due to flooding and claims made under flood insurance policies issued in this State, be consistent with the flood-resistant construction requirements in the Florida Building Code and continue to participate in the National Flood Insurance Program Community Rating System administered by FEMA.

COASTAL AREA

The boundary of the Coastal Planning Area sometimes also referred to as the Coastal Area, for the Town is the area east of U.S. Highway 1 to the Indian River Lagoon. Map CST-1 Coastal Planning Area, identifies the Coastal Planning Area of the Town.

The Town is in southern Brevard County. Brevard County is an Atlantic Ocean coastal county located near the middle of the Florida peninsula. The County is composed of the mainland component and the Barrier Islands separated from the mainland by the Indian River Lagoon estuary system. The Town is on the mainland component along the western shore of the Indian River. The Town is separated from the Atlantic Ocean by a Barrier Island and the Indian River lagoon. The nearest ocean access for the Town is the Town of Indialantic approximately three miles north and across the Melbourne 192 Causeway; and through the Sebastian Inlet, approximately 10 miles to the south. The Cape Canaveral Inlet, also providing ocean access, is located approximately 30 miles to the north.

Land Use in the Coastal Area (CA)

There are approximately 3.5 miles of Town shoreline abutting the Indian River. As shown on the Coastal Planning Area Map, the Town's Coastal Planning Area contains the narrow strip of land that falls between U.S. Highway 1 and the shoreline at the south end of Town, south of the U.S. Highway 1 and Rocky Point Road juncture. The Coastal Planning Area also contains the lands located between U.S. Highway 1 and Rocky Point Road at the south end of the Town.

All except the two northernmost parcels and the very southernmost parcel in the narrow strip of land immediately along the shoreline have special zoning designation assigned

by the Town as Coastal Preservation with the use restricted to water dependent non-commercial piers, boat slips and docks. There is a commercial use on the northernmost parcels; the southernmost parcel is vacant but will allow the development of a single-family residential unit.

North of the U.S. Highway 1 and Rocky Point Road juncture there are 48 separate parcels within this narrow strip of shoreline land. The portion of the Coastal Planning Area that is south of the U.S. Highway 1 and the Rocky Point Road juncture contains 82 parcels, 45 of which include the narrow strip of land on the east side of Rocky Point Road immediately along the shoreline, providing direct water access for these 45 parcels. The use in this southern portion of the Coastal Planning Area is low density single family residential. Development and redevelopment site plans within the Coastal Area shall be reviewed for compliance with the goals, objectives and policies of the Town's Comprehensive Plan; as well as consistency with flood resistant construction methods in the Florida Building Code.

The Town has no identified blighted areas in need of redevelopment within the Coastal Area (CA) and has no Community Redevelopment Authority.

The Future Land Uses within the CA are identified on Map FLU-9 *Future Land Use*.

Natural Resources in the Coastal Area

Map FLU-7 *Habitat and Land Coverage* identifies and maps the native habitats within the Town. The Rocky Point subdivision contains some Pineland habitat, although this occurs on developed single family residential parcels. There are 93 separate parcels along the estuary shoreline; two of the shoreline parcels are developed, one has the potential for a single family residential development and the remaining 90 parcels are use restricted to water dependent non-commercial piers, boat slips and docks.

The southernmost vacant shoreline parcel contains a dense, canopy coverage; the remaining shoreline parcels contain mainly herbaceous coverage, maintained in a mowed state on most parcels, with scattered palm or canopy species present. Data is not available on historic shoreline improvements, but the immediate shoreline is not bulk-headed and appears to be a relatively unimproved, rocky shoreline. There are no saltmarshes along the shoreline. The submerged land adjacent to the Town contains seagrass beds.

Access Facilities

Although nearly the entirety of the Town's shoreline is restricted to water dependent non-commercial piers, boat slips and docks, these parcels are all under private ownership and provide water access only for each of the adjacent upland property owners. There is no publicly-owned waterfront or designated public water access in the Town. The Town is exploring the possibility of obtaining grants, gifts, contributions, and other financial resources for the purchase of land contiguous to the Indian River and is exploring

appropriate joint public and private ventures to provide access facilities to the Indian River.

Although there are no designated scenic overlook facilities, the location of U.S. Highway 1 along the Indian River does provide nearly two miles of scenic overlook opportunities to the estuary for motorists and pedestrians.

Estuarine Pollution Conditions

The Town of Malabar municipal boundary extends into the Indian River Lagoon (IRL). The IRL is a lineal estuarine system that extends along more than a third of Florida's east coast between the Barrier Islands and the Atlantic Coastal Ridge; it extends over 155 miles from Ponce de Leon Inlet in Volusia County south to Jupiter Inlet in Palm Beach County. Numerous freshwater wetlands and sloughs undergo a transition into riverine systems that connect directly to the IRL. The lagoon interacts with the saline waters of the Atlantic Ocean through the inlets, providing tidal exchange with fresh water discharged into the lagoon from the inland rivers.

The IRL provides a higher species diversity than in any other estuary in North America. Due to the distinct characteristics of this system, portions of the IRL have been designated as aquatic preserves. The eastern edge of the Town abuts the *Indian River – Malabar to Vero Beach Aquatic Preserve*, which was established on October 21, 1969 by the Governor and Cabinet by resolution. In 1975, the Florida Legislature established the Florida Aquatic Preserve Act as codified in Chapter 258 Florida Statute (F.S.). Aquatic Preserves are administered under Chapters 18-20 and 18-21, Florida Administrative Code (F.A.C.). The surface water area of the Indian River – Malabar to Vero Beach Aquatic Preserve is approximately 43.4 square miles of 27,966 acres. The preserve is managed by the Florida Department of Environmental Protection Office of Coastal and Aquatic Managed Areas. This Aquatic Preserve overlaps temperate and the subtropical zones creating a highly diverse system; because of this diversity, it is included in the U.S. Environmental Protection Agency's (EPA) National Estuary Program. It is also designated as Outstanding Florida Water, which provides increased water protection measures.

Overall, the natural hydrologic regime of the IRL has been heavily influenced over the years by human activities. Residential and commercial construction in the late 1800s and early 1900s increased the need for inlets to increase commerce. In the 1930s and 1950s much of the lagoon salt marsh was impounded for mosquito control purposes and the Atlantic Intracoastal Waterway was expanded and deepened to be more navigable.

Through the cooperative efforts by a variety of federal, state, county and local governments, as well as non-governmental organizations, efforts have begun to address the long-term health and viability of the estuarine lagoon and associated wildlife. A variety of organizations have monitoring and research underway in the IRL and its watershed. The St Johns River Water Management District (SJRWMD) continues to implement and update the *Indian River Lagoon Comprehensive Conservation and Management Plan*

(CCMP). The Brevard County Stormwater Program (BCSP) provides assistance and recommendations for the selection and implementation of the most efficient and cost-effective stormwater treatment methods. The Brevard County Natural Resource Management Office and the University of Florida Brevard County Extension Service have initiated and are jointly sponsoring the development of the Brevard County Comprehensive Maritime Management Master Plan (CM3P). The Indian River Lagoon Surface Water Improvements and Management (SWIM) program, administered cooperatively through the SJRWMD and the South Florida Water Management District (SFWMD) has been designed to develop and execute a combination of research and practical implementation projects to protect or restore the environmental resources of the Lagoon. This program has three goals:

- Attain and maintain water and sediment of sufficient quality to support a healthy, seagrass-based estuarine ecosystem;
- Attain and maintain a functioning seagrass ecosystem which supports endangered and threatened species, fisheries and wildlife; and
- Achieve heightened public awareness and coordinated interagency management.

The Town's drainage system includes two outfalls into the Indian River. One is located approximately one-quarter (1/4) mile south of Malabar Road and the other is near the junction of U.S. Highway 1 and Rocky Point Road. No data is available regarding potential point source pollutants generated by these outfalls. For that development in the Town that pre-dates the required Best Management Practices for stormwater run-off, unpretreated run-off may still be a non-point source water quality issue for the lagoon. However, currently, over 77 percent (77%) of the area of the Town is undeveloped native habitats. By requiring that surface water management systems be designed and operated consistent with the state standards and the Town's adopted level of service, the Town can limit specific and cumulative impacts of new development and redevelopment upon water quality. On 90 of the 93 shoreline properties that abut the IRL, the Town maintains a Coastal Preservation designation which restricts the use of these parcels to water dependent non-commercial piers, boat slips and docks; limiting the run-off potential from shoreline development.

The Atlantic Intracoastal Waterway (ICW), which runs within the IRL, also runs off the coast of the Town. The ICW is managed and maintained by the Florida Inland Navigation District (FIND), a Special State Taxing District. Maintenance dredging has created Spoil Islands that run along the edge of the ICW. There are several Spoil Islands in the IRL at the southern end of the Town. The Spoil Island Working Group (SIWG), which consists of 12 federal, state, and county government agencies and six non-governmental organizations, was created to implement the Indian River Lagoon Spoil Island Management Plan put forth by the Florida Inland Navigation District (FIND). The Spoil

Island Project is a coordinate effort towards managing the spoil islands for recreational and environmental interests.

Historic Resources

The Bureau of Archaeological Research with the Florida Office of Cultural and Historic Preservation maintains the Florida Master Site File (MSF); a database that contains information on archaeological and historic resources in Florida. The state Master Site File also contains those sites listed on the National Register. Map FLU 2 *Historic Sites*, identifies and locates the historic resources contained on the MSF. There are two sites within the Coastal Area of the Town; a prehistoric burial mound located in the Rocky Point subdivision and a prehistoric shell midden located at Malabar Road and U.S. Highway 1.

On December 24, 1883, Malabar received official designation from the U.S. Postal Service. President Chester A. Arthur appointed R.A. Ward the first Postmaster for the local population of 25. Two times a week, weather permitting, a mailboat, depicted in the Malabar Town seal, hoisted sail and traveled along the shallow Intracoastal Waterway from Jacksonville to deliver the mail. A palmetto shack served as the post office just north of Malabar Road. This was close to a pier located north of the Malabar Road – U.S. Highway 1 intersection today. Although never built, the State of Florida had proposed a mule canal to travel inland from this area. Later the steamboat arrived and dropped off mail further to the south at Orange Avenue on piers that extended over 300 feet to reach the deeper water these craft required. In 1893 the railroad replaced mailboats for delivery of mail and other commodities.

Although the first Post Office and historic mailboat stop is not identified in the MSF, the Town considers it as a site of local historic significance. The historic mailboat is an important piece of the Town’s history and makes the Town of Malabar unique.

Infrastructure in the Coastal Area

The public sewer and water systems do not extend into the Coastal Area (CA) of the Town. All development within the CA is served by a private self-service well and septic system. The public infrastructure found in the CA are the roads in the Rocky Point and Coquina Point subdivisions and two drainage system outfalls into Indian River.

COASTAL HIGH HAZARD AREA

Pursuant to Chapter 163.3178(2)(h) F.S. the “Coastal High Hazard Areas” (also referred to as “high-hazard coastal areas”) means the area below the elevation of the category 1 storm surge line as established by a Sea, Lakes, and Overland Surges from Hurricanes (SLOSH) computerized storm surge model. Map CST-2 *Coastal High Hazard Areas*, identifies the Coastal High Hazard Area (CHHA) within the Town. Pursuant to Chapter 163.3178(2)(f)1 F.S. now includes sea-level rise as one of the causes of flood risk that must be addressed in the redevelopment principles that reduce the flood risk, storm surge, stormwater run-off and reduce repeat flood related claims. These regulations are

included in the Malabar Land Use regulations which shall be utilized to assist in protecting public and private property from the effects of hurricane winds and flooding.

Infrastructure in the Coastal High Hazard Area

The current SLOSH model indicates only a very small area in the Town of Malabar falls within the CHHA. This area is more than two miles inland from the Indian River. The CHHA is a riverine area at the confluence of two streams at the very northwest corner of the Town. Mapping indicates most of the CHHA is undeveloped; however, approximately 10 single family residential properties along Briar Creek Boulevard and Hollow Brook Lane do fall within the CHHA as identified on the CHHA Map. These homes are served by public sewer and water, the Town infrastructure for these services falls in the CHHA. The Town of Malabar shall ensure that construction of infrastructure related improvements coincide with the demands generated by development or redevelopment and are consistent with intensities and densities identified in the Future Land Use element.

NATURAL DISASTER PLANNING

Within the Town there is a potential for impacts from lightning, wildfires, floods and tropical storms, but the most significant natural disaster threat the Town needs to plan for is the event of a hurricane. Hurricanes have the potential to occur from June through November; heavy rainfall, high winds, storm surge and widespread flooding may accompany these storms. Records indicate that the Town has been brushed or hit by a hurricane 45 times from 1871 through 2017.

During a hurricane evacuation, a significant number of vehicles will have to be moved across the local and regional road network. The quantity of evacuating vehicles will vary depending upon the magnitude of the hurricane, publicity and warnings provided about the storm and behavioral response characteristics of the vulnerable population. The Town and County must be prepared to evacuate highly vulnerable populations on critical routes, often concurrently with evacuees from outside the County. There are limited route choices to leave, Map CST-3 *Evacuation Routes* identifies the designated evacuation routes. There are no emergency shelters located within the Town.

U.S. Census Data estimates the 2017 total population for Malabar as 2,866 with an estimated 2017 County population of 575,211. The Town coordinates with the County in disseminating information concerning the need of residents to evacuate at various hurricane threat levels and strives to educate the general citizenry regarding emergency preparedness plans. The Town also coordinates with the County in continuing to maintain or improve hurricane evacuation times and in annually updating the County's Comprehensive Emergency Management Plan and updating hurricane evacuation shelter assignments as well as other policy formulation surrounding emergency preparedness. The Town includes criteria in their 5-year schedule of Capital Improvement Projects to ensure structural transportation improvements to maintain sufficient

evacuation routes and the inclusion and prioritization of projects that are hazard mitigation initiatives.

The Town has developed and has in place a current Emergency Management Plan and has in place a mutual aid agreement with the Brevard County and the State of Florida. The Town also participates in the County Unified Local Mitigation Strategy. The Town coordinates their Post Disaster Redevelopment with the County Emergency Management Office.

Living close to Cape Canaveral Air Station (CCAS) and the Kennedy Space Center (KSC) also imposes a limited degree of risk. Residents of Malabar and Brevard County should be aware that launch accidents may occur, and residents should be aware of the associated hazards. The Kennedy Space Center sometimes has launches that have major radiological sources on board; launches of this type are advertised many years in advance to receive public and private input. An integrated Brevard County Emergency Management and U.S. Air Force team follows specific guidelines to ensure the public's safety. Public safety is the number one priority of all agencies associated with the launching of these vehicles. Additionally, the southern part of Brevard County from Malabar Road south, is in the 50-mile ingestion pathway of the St Lucie Nuclear Power plant located on Hutchinson Island near Fort Pierce. Brevard County has a plan for sheltering and for hosting evacuees from the plant's 10-mile emergency planning area and for providing medical and emergency support as well as decontamination for those that might have a need for decontamination or medical care.

COASTAL ELEMENT GOALS, OBJECTIVES, AND POLICIES

Goal 5-1:

Coastal Management. Restrict development activities that would damage or destroy coastal resources and protect human life and limit public expenditures in areas subject to destruction by natural disasters.

5-1.1 Objective:

Protect Coastal Resources, Wetlands, Estuary, Living Marine Resources, and Wildlife Habitats. Protect, conserve, and enhance the natural resources of the Town's incorporated area, including wetlands, the estuarine shoreline, and other natural coastal resources in a manner consistent with the East Central Florida Regional Planning Council (ECFRPC) policies and by:

- a. Preventing potentially adverse impacts of development and redevelopment on wetlands;
- b. Managing the impacts of development on the Indian River Lagoon, including estuarine resources such as living marine organisms, seagrasses, coastal marsh, and mangroves together with adjacent environmentally sensitive transition areas;
- c. Regulating the impacts of development on wildlife habitats; and
- d. Managing vegetative landscaping, including prohibition of noxious exotic species consistent with the ECFRPC Strategic Regional Policy Plan.

5-1.1.1 Policy:

Development Restrictions in Wetlands. Future land uses that are incompatible with the protection or conservation of wetlands and wetland functions shall be directed away from wetlands. The Town shall strictly enforce the Town's adopted wetland development restrictions and interpretations and shall:

- a. As a condition of development approval, require project approval from all applicable external jurisdictional agencies regarding the protection of wetland habitats and functions;
- b. Require buffering between wetlands and land uses that negatively impact wetland ecosystems;

- c. Ensure that where wetland impacts can occur, mitigation shall be considered as one means to compensate for the loss of wetland functions; and
- d. Preserve the Town Councils right to require dedication of a conservation easement to preserve wetland functions and provide for exceptions where the subject land area no longer retains the characteristics, functions and value of a wetland.

5-1.1.2 Policy:

Protect the Indian River Lagoon. For site plan approval, the Town shall require that surface water management systems be designed and operated consistent with the Town's adopted drainage level of service. The Town shall continue to make efforts to prevent negative impacts from development of the Indian River Lagoon and its tributaries designated as Class II Waters, by implementing, and revising when necessary, the adopted surface water protection regulations.

5-1.1.3 Policy:

Protect, Stabilize, and Enhance the Estuarine Shoreline. Compliance with the approved permits from state, federal or other local governments, when applicable, for protection of submerged and shoreline resources shall be incorporated into the Town planning process. Where deemed appropriate by the Town, the site plan shall include the planting of native shoreline vegetation to promote shoreline stability and protect water quality.

5-1.1.4 Policy:

Protect Living Marine Resources, Coastal Marsh, and Seagrass Beds. Consistent with ECFRPC policies, activities within an estuarine basin and/or coastal marsh area that will adversely impact seagrass beds and other valuable submerged aquatic vegetation shall be prohibited, unless an overriding public benefit can be shown and adequate mitigation and monitoring measures are included.

5-1.1.5 Policy:

Manage Impact of Coastal Development on Tidal Flushing and Circulation Patterns. Tidal flushing and circulation patterns generally shall not be altered by development activities. No development shall produce changes in the tidal flushing and circulation patterns unless the Town and other public agencies having jurisdiction have granted requisite permits. No such permit shall be granted by the Town unless all other agencies having

jurisdiction have granted clearance and the applicant has submitted hydrographic information sufficient to clearly demonstrate that no adverse environmental impacts shall be occasioned by the proposed changes in tidal flushing and circulation patterns. Finally, no alteration in tidal flow shall be permitted which causes stagnation or siltation.

5-1.1.6 Policy:

Promote propagation of Fish and Wildlife. The Town shall incorporate procedures for coordination with the Florida Fish and Wildlife Conservation Commission, the U.S. Fish and Wildlife Service and the Marine Resources Council of East Central Florida, as appropriate, in reviewing the implications of development proposals, including proposed subdivisions and site plan review petitions. Such coordination shall be designed to assist in identifying potential adverse impacts of the proposed development on wildlife including marine habitats and fisheries.

5-1.1.7 Policy:

Managing Spoil Islands. The Town shall coordinate with the Florida Inland Navigation District and the Spoil Island Working Group (SIWG) to promote management of the Spoil Islands for environmental benefit and for recreation compatible with environmental benefits.

5-1.2 Objective:

Prioritizing Shoreline Uses and Promoting Public Access to Shoreline. The Town shall prioritize shoreline uses, giving priority to water dependent uses.

5-1.2.1 Policy:

Implementing Policies for Shoreline Land Uses. In developing land use policies for shoreline uses, first priority shall be directed toward:

- a. Non-structural shoreline protection uses such as native shoreline revegetation programs;
- b. Approved water-dependent estuarine shoreline uses such as: fish and wildlife production, recreation, pervious accessways, small dock facilities and residential multi-slip dock facilities without commercial fuel tanks or other commercial services;
- c. Water related or enhanced uses such as utilities requiring access to water, water enhanced recreation, and other water related uses consistent with the land development code. Lowest priority shall be directed to non-water dependent uses.

Second priority shall be direction toward water-related uses such as:

- a. Parking facilities for shoreline access;

- b. Residential structures which comply with the building code for structures within the coastal building zone; and
- c. Recreational facilities which comply with applicable codes.

5-1.2.2 Policy:

Public Access: There is no publicly owned waterfront or designated public water access in the Town. The Tow shall explore the possibility of obtaining grants, gifts, contributions, and other financial resources for the purchase of land contiguous to the Indian River and explore appropriate joint public and private ventures to provide public access to the Indian River.

5-1.2.3 Policy:

Coastal Preserve: The Town shall maintain the Coastal Preservation designation along the shoreline parcels and ensure these parcels are restricted to water access uses.

5-1.2.4 Policy:

Blueway Programs: Coordinate with blueway programs in waterfront access programs to the fullest extent possible.

5-1.2.5 Policy:

Partnerships: The Town shall consider partnerships with homeowners' associations and non-profit organizations that have water access facilities to increase waterfront access by 2011.

5-1.3 Objective:

Limit Public Expenditures in the Coastal High-Hazard Area. The Town shall limit future public expenditures for new infrastructure which subsidize growth within the coastal high-hazard areas, except for restoration or enhancement of natural resources.

5-1.3.1 Policy:

Public Investment in Coastal High-Hazard Area. The Town shall limit future public expenditures for new infrastructure which will subsidize growth within the Coastal High Hazard Area. Expenditures for restoration and maintenance are exempt from these limitations and expenditures for the enhancement of natural resources or for public land acquisition is encouraged.

5-1.3.2 Policy:

Coastal High Hazard Areas Infrastructure. The Town shall examine the inventory of existing infrastructure in the Coastal High Hazard Areas and

give consideration for the relocation, mitigation, or replacement, as deemed appropriate by the Town, of the existing inventory when state funding is anticipated to be needed.

5-1.4 Objective:

Avoid Permanent Population Concentrations in Coastal High Hazard Areas. Direct permanent population concentrations away from known or predicted coastal high hazard areas.

5-1.4.1 Policy:

Restrict Development in Coastal High Hazard Areas. The Town shall through land use designation and development review, regulate and limit the type of uses in the designated Coastal High Hazard Area. Protection of human life and protection of natural resource systems shall be maximized. The Town shall direct population concentrations away from known or predicted High Hazard Areas.

5-1.5 Objective:

Hurricane Evacuation. The Town shall coordinate with the County in attaining a hurricane evacuation time of less than twelve (12) hours for a Category III storm.

5-1.5.1 Policy:

Hurricane Evacuation Logistical Support. In order to prevent unnecessary evacuees crowding roads and shelters, the Town shall coordinate with the County in disseminating information concerning the need of residents to evacuate at various hurricane threat levels. The Town shall coordinate with the County and the Brevard County Emergency Management Director in assisting the implementation of the County's campaign to educate the general citizenry regarding emergency preparedness plans, including specific citizen directives.

5-1.5.2 Policy:

Continued Planning and Coordination with the County in Emergency Preparedness, Including Advance Plans for Safe Evacuation. In order to provide for safe and efficient evacuation of the residents of the Town of Malabar and other communities in the event of a hurricane, the Town shall continue to plan and coordinate with Brevard County in annual updates of the Brevard County Emergency Management Plan, including the evacuation plan. This update shall enable the County and incorporated municipalities to plan for future population densities to ensure compliance with the adopted LOS established in this Plan.

The Town shall also coordinate with the County in updating hurricane evacuation shelter assignments as well as other policy formulation surrounding land use and emergency preparedness.

5-1.5.3 Policy:

Emergency Shelter. The Town shall explore the feasibility of the utilization as qualified emergency shelter space, any newly constructed public buildings.

5-1.6 Objective:

Hazard Mitigation and Coastal High Hazard Areas. The Town shall carry out development activities in a manner which minimizes the danger to life and property occasioned by hurricane events.

5-1.6.1 Policy:

Coastal High Hazard Area Defined. Pursuant to Chapter 163.3178(2)(h) F.S. the “Coastal High Hazard Areas” (also referred to as “high hazard coastal areas”) means the area below the elevation of the category 1 storm surge.

5-1.6.2 Policy:

Coordinate Update of the Hazard Mitigation Plan. The Town shall coordinate with the County in updating the hazard mitigation annex of the Local Peacetime Emergency Plan pursuant to the five (5) year interval schedule adopted by the County. Updates of the Plan shall identify specific actions that may be implemented to reduce exposure to natural hazards. The current Plan contains no inter-agency hazard mitigation component.

5-1.6.3 Policy:

The Town shall maintain consistency with the program policies of the National Flood Insurance Program (NFIP) administered by the Federal Emergency Management Administration (FEMA) and shall monitor new cost-effective programs for minimizing flood damage. Such programs may include modifications in construction setback requirements or other site design techniques, as well as upgraded building and construction techniques. The Town’s adopted flood protection regulations shall be amended as necessitated by changes in FEMA regulations.

5-1.7 Objective:

Post Disaster Redevelopment. The Town shall plan for providing immediate response to post disaster situations.

5-1.7.1 Policy:

Post Disaster Recovery. The Town shall develop and adopt a Post Disaster Redevelopment Plan, no later than January 2010, designed to increase public safety and reduce damages and public expenditures. The Plan shall provide a basis to:

- a. Ensure a means to restore economic activity;
- b. Establish a framework for deciding whether to implement a temporary moratorium on building activity as may be required for public safety;
- c. Develop procedures for reviewing and deciding upon emergency building permits;
- d. Coordinate with State and Federal officials to prepare disaster assistance applications;
- e. Analyze and recommend to the Town Commission hazard mitigation options, including reconstruction or relocation of damaged public facilities;
- f. Recommend amendments to the Local Peacetime Emergency Plan and other appropriate policies and procedures; and
- g. Ensure timely re-entry by Town residents following an evacuation.

5-1.7.2 Policy:

Post-Hurricane Assessments. Following a hurricane event and prior to re-entry of evacuees into the evacuated area, the Town Council shall meet to hear preliminary damage assessments and to appoint a Recovery Task Force comprised of the Building Official and others as determined by the Town Council. The Recovery Task Force shall consider the following issues:

- a. Establishing a temporary moratorium on building activity;
- b. Reviewing and deciding upon emergency building permits. The redevelopment and rebuilding of facilities that encourage growth in vulnerable areas shall be limited to those activities required to extend necessary public services to existing development;

- c. Coordinating with the State and Federal officials to prepare disaster assistance applications;
- d. Analyzing and recommending to the Town Council hazard mitigation options, including reconstruction or relocation of damaged public facilities;
- e. Analyzing and recommending any needed Comprehensive Plan amendments which reflect the recommendations contained in any inter-agency hazard mitigation reports or other reports prepared pursuant to §406, Disaster Relief Act of 1974 (PL 93-288) and;
- f. Recommending amendments to the Local Peacetime Emergency Plan and other appropriate policies and procedures.

5-1.7.3 Policy:

Repair and Cleanup: In planning post-disaster redevelopment activities, factors to be considered in order to protect the public health and safety shall include:

- a. Repairs to potable water, wastewater and power facilities;
- b. Removal of debris;
- c. Stabilization or removal of structures in a perilous condition; and
- d. Minimal repairs to make structures habitable.

These considerations shall receive first priority in determining the appropriateness of emergency building permits. Long term redevelopment activities shall be postponed until the Recovery Task Force has coordinated immediate repair and clean-up operations.

5-1.7.4 Policy:

Hazard Mitigation. The Town shall coordinate with emergency management officials when making land use decisions, capital improvements and creating other planning initiatives. The Town shall, as deemed appropriate, incorporate the recommendations of the hazard mitigation annex of the local peacetime emergency plan and applicable existing interagency hazard mitigation reports into the planning programs.

5-1.7.5 Policy:

Redevelopment Plans. If structures receiving storm damage in excess of fifty (50%) percent of their appraised value shall be rebuilt, such structures shall meet all current laws and ordinances, including those enacted since construction of the subject structure. The Town shall authorize

redevelopment up to the actual built density in existence on the property prior to the natural disaster.

5-1.7.6 Policy:

Establish Building Facilities Review Committee. The Planning and Zoning Board shall be the Town's designated Public Facilities Review Committee charged by the Town Council with the responsibility for reviewing available alternatives for managing damaged public facilities following a hurricane event. The Committee shall evaluate future options for such facilities, including but not limited to, abandonment, repair in place, relocation, and reconstruction with structural modifications. The Committee shall consider these options based on the following considerations:

- a. Cost to construction
- b. Cost to maintain;
- c. Recurring damages;
- d. Impacts on land use;
- e. Impacts on the environment;
- f. Public sector; and
- g. Other relevant factors.

5-1.7.7 Policy:

Contingency Fund for Disaster Assistance. The town shall maintain a contingency fund in order to cover the Town required match for disaster assistance grants.

5-1.8 Objective:

Historic Resources. The Town shall assure that there shall be no loss of historic resources on Town owned property and land development proposals shall assure that historic resources on private property shall be protected, preserved, or reused in a manner sensitive to the historic properties of the site and/or structure.

5-1.8.1 Policy:

Promote Identification of the Town's Historic, Archaeological, and Cultural Resources. The Town shall coordinate with the Florida Office of Cultural and Historic Preservation and the South Brevard Historical Society in continuing to identify, protect, analyze, and explain the Town's historical, archaeological, and cultural resources.

5-1.8.2 Policy:

Performance Standards for Protecting Sites of Historic or Archaeological Significance. The Town shall require Land development proposals include

precautions necessary to prevent the following adverse impacts to historic or archaeological sites of significance:

- a. Destruction of alternation of all or part of such a site;
- b. Isolation from, or alteration of the surrounding environment;
- c. Introduction of visual, audible, or atmospheric elements that are out of character with a property or alter its setting;
- d. Transfer or sale of the site of significance without adequate conditions or restrictions regarding preservation, maintenance, use, or re-use;
- e. Vegetation removal shall not be permitted on a historic or archaeological site unless the vegetation to be removed is a part of a duly authorized scientific excavation, or is a part of an approved development plan; and
- f. Other forms of neglect resulting in resource deterioration.

5-2.8.3 Policy:

Alternatives to Preserving Historic or Archaeological Sites. As an alternative to preserving historic or archaeological sites, the owner of impacted lands may allow excavation of the site by the Bureau of Archaeological Research or another State approved entity prior to development. Should a site be scientifically excavated in this manner, development may proceed following completion of the scientific excavation by the approved entity.

5-1.9 Objective:

Public Services in Coastal Area. The level of service standards, service areas, and proposed phasing stipulated in other elements of the Comprehensive Plan for facilities in the coastal area and additional standards under this objective shall be applied whenever development orders or permits are requested.

5-1.9.1 Policy:

Coordinate Timing and Staging of Public Facilities with Private Development. The Town shall assure that future development is directed only to those areas where public facilities which meet the Town's adopted level of service standards are available concurrent with the impacts of the development. In order to assure appropriate timing and staging no occupancy permit shall be granted until infrastructure and services required by respective developments are in place and available for use by the development.

5-1.10 Objective:

Intergovernmental Coordination within the Coastal Area. Establish an intergovernmental coordination mechanism in order to manage coastal resources within the jurisdiction of more than one local government or public agency and assist in implementing appropriate portions of existing multi-jurisdictional resource planning and management plans addressing the coastal area, including the Indian River Lagoon and other natural systems within the Town.

5-1.10.1 Policy:

Intergovernmental Coordination within the Coastal Area. The Town shall coordinate with Brevard County, the City of Palm Bay and appropriate regional, State, and federal agencies in managing coastal resources. Management activities shall include, but not be limited to, the following:

- a. The Town shall coordinate with Brevard County and the University of Florida Brevard County Extension Service on the development of the Brevard County Comprehensive Maritime Management Master Plan (CM3P).
- b. Coordinate with the City of Palm Bay in order to assure that all future development shall be timed and staged to assure that requisite infrastructure and services are available to respective developments concurrent with the impacts of the development.
- c. All applications for development activity impacting waters of the State as well as tidally influenced coastal marsh, or other lands under the jurisdiction of the State shall be coordinated with agencies having appropriate jurisdiction.
- d. The Town shall coordinate with the SJRWMD as well as other appropriate State agencies in matters surrounding stormwater management, drainage, water quality and quantity, and consumptive use permitting.
- e. Coordination with the East Central Florida Regional Planning Council (ECFRPC) in preparing the Strategic Regional Policy Plan and amendments thereto in order to assure consistency with the ECFRPC Plan. In addition, the Town shall coordinate other planning issues of regional significance with the ECFRPC.

5-1.11 Objective:

Continuing Evaluation of Coastal Management Element Effectiveness. The Town shall use the following policies as criteria in evaluating the effectiveness of the Coastal Management Element.

5-1.11.1 Policy:

Review the Impact of Changing Conditions on Coastal Management Policy. The Town shall maintain its communications with the St Johns River Water Management District, the County and the Marine Resources Council of East Central Florida and other applicable agencies regulating and monitoring the natural resource systems to remain current regarding any significant changes in the characteristics of natural coastal resources. Policy implications of such changes shall be examined, and corrective measure shall be pursued. Coastal management policies shall be refined as needed in order to remain responsive to evolving problems and issues.

5-1.11.2 Policy:

Schedule, Budget, and Implement Programmed Activities. The timely scheduling, programming, budgeting, and implementation of programmed coastal management activities identified in this Element shall be evidence of the Town's effectiveness in carrying out a systematic program for implementing coastal management goals, objectives, and policies.

5-1.11.3 Policy:

Coordinate with Public and Private Sectors. While continually implementing and evaluating the Coastal Management Element, the Town shall maintain a process of intergovernmental coordination as well as coordination with private sector groups interested in coastal management policy and programs. The effectiveness of this approach shall be evaluated by the success of coordination mechanisms in resolving coastal management problems and issues.

5-1.11.4 Policy:

Achieve Effective Resolution of Coastal Management Goals, Objectives, and Policies. The effectiveness of the Coastal Management Element shall be measure by the Town's success in achieving coastal management goals objectives, and policies. The Coastal Management Element incorporates a systematic planning process for identifying coastal management problems and issues and implementing corrective actions.

CHAPTER SIX

CONSERVATION ELEMENT

PURPOSE

The purpose of the Conservation Element is to promote the conservation, use, and protection of natural resources in the Town.

NATURAL ENVIRONMENT

Climate

The Southeast Regional Climate Center has climate data available that is specific for the City of Melbourne which is within several miles north of Malabar. This data identifies that from 1948 to 2007, the average annual maximum temperature is 81.5° and the average annual minimum temperature is 63.1°. The average annual total precipitation is 49.36 inches. Precipitation is not distributed evenly throughout the year. Precipitation ranges from an average monthly low of 2.13 inches in December, to 7.80 inches in September. Precipitation is heaviest from June through September; with over 50% of the rainfall occurring during these four months. No snowfall has been reported during this reporting period.

Thunderstorms are common during the summer months. Hurricanes, much less frequent occurrences, have the potential to occur from June through November; heavy rainfall, high winds, and widespread flooding may accompany these storms. Records indicates that the Town has been brushed or hit by a hurricane 42 times from 1871 through 2007. A major event occurred in September of 1928 making landfall just 40 miles to the south with 130 mph winds. This was followed by an inactive period until 1950 when Hurricane King, a minor event occurred. The most recent occurrence was in 2004 when Hurricane Francis with 105 mph winds made land fall on September 5th which was followed by Jeanne with 102 mph winds on September 26th. Both storms caused moderate damage to the area.

Soils

Map FLU-3 *Soils*, provides the general distribution of soils in the Town as presented in the 1990 National Cooperative Soil Survey conducted by the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS). Table 6-1, provides a list of the soils find in the Town. Appendix 6-A *Soil Descriptions* provides a description as provided by the Natural Resource Conservation Service (NRCS), of each of the soils represented in the Town.

Table 6-1 Soil Types Found in the Town
ANCLOTE SAND
BASINGER SAND
CANAVERAL-ANCLOTE COMPLEX
CANDLER FINE SAND
EAUGALLIE SAND
FLORIDANA SAND
IMMOKALEE SAND
MALABAR SAND
MICCO MUCKY PEAT
MYAKKA SAND
PAOLA FINE SAND
POMELLO SAND
RIVIERA SAND
SATELLITE SAND
ST JOHNS SAND
ST LUCIE FINE SAND
TOMOKA MUCK
TURNBULL AND RIOMAR SOILS
VALKARIA SAND

Physiography

The Town is in southern Brevard County. Brevard County is a coastal county located near the middle of the Florida peninsula. The County is composed of barrier islands, an estuary lagoon and the mainland. The Town is located along the western shore of the Indian River Lagoon, on the mainland; it is separated from the Atlantic Ocean coastline by the narrow coastal barrier island and the Indian River Lagoon. The nearest ocean access for the Town is through the Sebastian *Inlet*, approximately 10 miles to the south. The Cape Canaveral Inlet, also providing ocean access, is located approximately 30 miles to the north.

Map FLU-5 *Topography* identifies the topography of the Town. The Town is relatively flat with elevations ranging from 0 to 30 feet. The vast majority of the Town is at 20 feet. The lowest elevation is found along the coastline and the two creeks that traverse the Town, Turkey Creek lies in the northwest corner and Goat Creek lies in the southeast corner. The Atlantic Coastal Ridge, a narrow ridge that runs along mainland coastline, forms the highest ground in the Town. It is a natural barrier to drainage of the interior, except where it is breached by shallow sloughs or rivers. From this ridge, the ground slopes gently downward to the western sandy flatlands. The Atlantic Coastal Ridge runs along the vast majority of the eastern coast of the U.S.

Soil Erosion

Due to the relatively flat topography of the Town, lack of mining or large-scale land disturbance, and the protection by the barrier island, soil erosion is not a typical problem in the Town.

Commercially Valuable Minerals

Many areas of central and southern Florida have been utilized to mine sand and lime rock materials for road building and development activities. Other than sand or lime rock substrate, there are no commercially valuable minerals in the Town. There are several inactive mining sites in the Town. Currently, commercial mining is a prohibited use and there are no active mining operations within the Town.

Floodplains

The National Flood Insurance Program administered by the Federal Emergency Management Agency (FEMA) has identified the following flood zones within the Town:

Zone	Description
A	An area inundated by 1% annual chance flooding, for which no base flood elevations (BFE's) have been determined.
AE	An area inundated by 1% annual chance of flooding, for which BFEs have been determined.
X	Areas determined to be outside the 500-year floodplain, determined to be outside the 1% and 0.02% annual chance floodplains. Areas of minimal flood hazard from the principal source of flood in the area.
X500	Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood. An area inundated by 0.2% annual chance of flooding.

Source: Federal Emergency Management Agency (FEMA)

Map FLU-4 *FEMA Flood Zones* locates the flood zones within the Town. Most of the Town is in an X zone, which is defined as areas determined to be outside the 500-year floodplain (outside the 1% and 0.2% annual chance floodplains). This is an area of minimal flood hazard. Existing land uses found within the floodplain are illustrated in the Future Land Use Element.

Land use as it relates to the discharge of stormwater and the use of natural drainage is regulated through the St Johns River Water Management District. The Florida Building Code regulates construction as it relates to flood zones.

Air

Air quality in the Town of Malabar is generally good. Based upon ambient air quality monitoring, conducted by the Florida Department of Environmental Protection (FDEP)

and documented in the *2006 Florida Air Monitoring Report*, Brevard County, and now all of Florida, is an attainment area for the six major air contaminants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), Ozone (O₃), particulate matter (PM), and sulfur dioxide (SO₂). The attainment area designation indicates that the concentrations of major pollutants are within the acceptable limits set by the Florida Department of Environmental Protection and the U.S. Environmental Protection Agency. Air quality is a matter that must be addressed at a regional level requiring local, County and regional entities to coordinate air quality maintenance and improvement efforts. In Brevard County this includes coordination with the Cape Canaveral Air Station (CCAS) and the Kennedy Space Center (KSC).

Water Resources

Map FLU-6 *Water Bodies* identifies the water bodies within the Town. Some are manmade features, and some are naturally occurring depressional ponds. Two natural water ways, Goat Creek and Turkey Creek also traverse the Town.

The predominant water feature in Malabar is the Indian River Lagoon (IRL), located between the barrier island and the Atlantic Coastal Ridge. This is a linear estuarine system that extends along more than a third of Florida's east coast. The IRL extends over 155 miles from Ponce de Leon Inlet in Volusia County south to Jupiter Inlet in Palm Beach County. The lagoon interacts with the saline waters of the Atlantic Ocean through the inlets, providing tidal exchange with fresh water discharged into the lagoon from the inland rivers.

The IRL provides a higher species diversity than any other estuary in North America. Due to the distinct characteristics of this system, portions of the IRL have been designated as Aquatic Preserves. The eastern edge of the Town abuts the *Indian River – Malabar to Vero Beach Aquatic Preserve*, which was established on October 21, 1969 by the Governor and Cabinet. In 1975 the Florida Legislature established the Florida Aquatic Preserve Act as codified in Chapter 258, F.S. Aquatic Preserves which is administered under Chapters 18-20 and 18-21, Florida Administrative Code (F.A.C.). the surface water area of the Indian River – Malabar to Vero Beach Aquatic Preserve is approximately 43.4 square miles or 27,966 acres. The preserve is managed by the Florida Department of Environmental Protection Office of Coastal and Aquatic Managed Areas. This Aquatic Preserve overlaps temperate and the subtropical zones creating a highly diverse system; because of this diversity it is included in the U.S. Environmental Protection Agency's (EOA) National Estuary Program. The aquatic Preserve has also been designated as Outstanding Florida Water Pursuant to Chapter 62.302.7, F.A.C.

Overall, the natural hydrologic regime of the IRL has been heavily influenced over the years by human activities. Residential and commercial construction in the late 1800s and early 1900s increased the need for inlets to increase commerce. In the 1930s and 1950s much of the lagoon salt marsh was impounded for mosquito control purposes and the

Atlantic Intracoastal Waterway was expanded and deepened to allow for more navigable waterways.

Through the cooperative efforts by a variety of federal, state, county and local governments, as well as non-governmental organizations, efforts have begun to address the long-term health and viability of the estuarine lagoon and associated wildlife. A variety of organizations have monitoring and research underway in the IRL and its watershed. The St Johns River Water Management District (SJRWMD) continues to implement and update the *Indian River Lagoon Comprehensive Conservation and Management Plan (CCMP)*. The Brevard County Stormwater Program (BCSP) provides assistance and recommendations for the selection and implementation of the most efficient and cost-effective stormwater treatment methods. The Brevard County Natural Resource Management Office and the University of Florida Brevard County Extension Service have initiated and are jointly sponsoring the development of the Brevard County Comprehensive Maritime Management Master Plan (CM3P). The Indian River Lagoon Surface Water Improvements and Management (SWIM) program, administered cooperatively through the SJRWMD and the South Florida Water Management District (SFWMD) has been designed to develop and execute a combination of research and practical implementation projects to protect or restore the environmental resources of the lagoon. This program has three goals:

- Attain and maintain water and sediment of sufficient quality to support a healthy, seagrass-based estuarine ecosystem;
- Attain and maintain a functioning seagrass ecosystem which supports endangered and threatened species, fisheries and wildlife; and
- Achieve heightened public awareness and coordinated interagency management.

The Atlantic Intracoastal Waterway (ICW), which runs within the IRL, also runs off the coast of the Town. The ICW is managed and maintained by the Florida Inland Navigation District (FIND), a special state taxing district. Maintenance dredging has created Spoil Islands that run along the edge of the ICW. There are several Spoil Islands in the IRL at the southern end of the Town. The Spoil Island Working Group (SIWG), which consists of 12 Federal, State, and County government agencies and 6 non-governmental organizations, was created to implement the Indian River Lagoon Spoil Island Management Plan put forth by the Florida Inland Navigation District (FIND). The Spoil Island Project is an effort towards managing the spoil islands for recreational and environmental interests.

LAND COVER

Map FLU-7 Habitats and Land Cover identifies the habitat land coverage within the Town as mapped by the Florida Fish and Wildlife Conservation Commission (FFWCC). Table 6-3 identifies and provides the acreage of the land coverage.

The FFWCC map identifies there are 8,315.51 acres within the municipal limits. The land coverage can be broadly categorized into disturbed lands, open water/undisturbed wetland or upland habitats. Section I of the Table shows the developed/disturbed land coverage; this comprises 18.83 percent of 1,565.83 acres of the total area. The bulk of this, 1,297.26 acres, is considered urban in nature. Section II of the Table represents the wetland and open water coverage; this is 32.5 percent of 2,702.57 acres of the total area. Section III of the Table represents the undisturbed native upland habitats; these are 48.67 percent or 4,047.11 acres of the total area.

	HABITAT LAND COVERAGE	ACRES	HABITAT BREAKDOWN
I.	Improved Pasture	178.08	Section I. Represents developed or disturbed land for a subtotal of 1,565.83 acres or 18.83% of the total area. Nearly 83% of this category of land is considered urban in nature.
	Unimproved Pasture	2,222.2018	
	Row/Field Crops	21.18	
	Citrus	31.67	
	Other Agriculture	19.50	
	Bare/Soil/Clear-cut	15.92	
	Low Impact Urban	458.14	
	High Impact Urban	839.12	
II.	Open Water	153.65	Section II. Represents the wetland and open water coverage for a subtotal of 2,702.57 acres or 32.5% of the total area. This is comprised of open water along with salt and freshwater native habitats.
	Intracoastal Waterway	1,467.95	
	Mangrove Swamp	0.22	
	Salt Marsh	6.59	
	Freshwater Marsh and Wet Prairie	426.84	
	Shrub Swamp	218.17	
	Mixed Wetland Forest	140.53	
Cypress Swamp	174.59		
	Hardwood Swamp	114.05	
III.	Dry Prairie	1,217.37	Section III. Represents the native upland coverage for a total of 4,047.11 acres or 48.67% of the total area. This is comprised of grassland, scrub and forested habitats.
	Grassland	2.89	
	Shrub and Brushland	45.58	
	Sand Pine Scrub	154.17	
	Xeric Oak Scrub	24.54	
	Pinelands	2,066.78	
	Mixed Pine-Hardwood Forest	259.22	
	Hardwood Hammocks and Forest	276.56	
LAND COVER TOTAL ACERAGE		8,315.51	

Source: Florida Fish and Wildlife Conservation Commission, 2003

The FFWCC mapping system provided a very broad range of mapping categories, which are all represented in Table 6-3 Habitats and Land Cover. However, for ease of viewing

we have combined some of the habitat categories on Map FLU-7. Following are the combined groups.

TABLE 6-4 HABITAT CATEGORIES

Map FLU-7 Category	FFWCC Habitats combined under this Category
Agriculture	Citrus Row / Field Crops Other Agriculture
Pasture	Improved Unimproved
Brush and Grassland	Grassland Shrub and Brush land
Oak and Pine Scrub	Sand Pine Xeric Oak Scrub
Swamp Forest	Cypress Swamp Hardwood Swamp Shrub Swamp Mixed Wetland Swamp

Source: Florida Fish and Wildlife Conservation Commission

Map FLU-10 *Wetland Habitats* identifies the wetland habitats found within the Town. This map which represents solely the wetland habitats, breaks out the four forested wetland habitats that are combined within the Swamp Forest Category on Map FLU-7. There are 1,081 acres of diverse wetland habitats found within the Town. (This excludes open water and the Intracoastal Waterway.) It is important to note that the acreage identified by the FFWCC map will not correspond to the acreage totals established in the future of existing land use maps, which are parcel based maps. The FFWCC map is not parcel-based but looks at all habitat within the municipal limits; it does not exclude lakes, roadways and public right of way lands. On the FFWCC map an individual parcel may contain multiple habitats, such as urban, pineland and open water.

Natural Habitats

Over 81 percent of the Town contains undeveloped native habitats. Pinelands at 2,066.78 acres and dry prairie at 1,217.37 acre, and Intracoastal Waterway at 1,467.95 acres are the most predominate and the least fragmented habitats occurring in the Town. This is followed by 426.84 acres of freshwater marsh and wet prairie habitat, which is more scattered and in smaller more fragmented locations.

Appendix 6-B *Listed Wildlife Species* identifies those federal and state listed animal species that may be found within the Town. Listed and other animal species depend on native vegetative communities for refuge, foraging, nesting, and denning. The size, quality and connectivity of native communities all influence wildlife utilization.

Appendix 6-C *Native Plant Species* contains a list of native plant species having the potential to occur in the Town and identifies those that are listed as either threatened or endangered by federal and State agencies.

Appendix 6-D *Invasive Pest Plant Species* identifies the invasive exotic pest plant species that may occur in the Town. Invasive exotic plant species create major problems throughout many areas of the State. The FFWCC recognize and map areas of invasive coverage in their habitat land coverage mapping program. The invasive coverage within the Town is limited to such a degree that it does not appear on the FFWCC coverage map.

Appendix 6-E *Land Coverage Descriptions* contains the descriptions of the land coverage categories located within the Town as defined by the Florida Land Use, Cover and Forms Classification System (FLUCCS).

Conservation Opportunities

Conservation opportunities are enhanced through the public ownership of land. Brevard County runs the Environmentally Endangered Lands (EEL) Program, which is dedicated to conservation through land acquisition and management. Brevard County's Parks and Recreation Department manages and assists the program. The EEL Program protects Brevard County's unique natural habitats, while managing them for their rare, threatened, endangered, or endemic plants and animals.

Three directives guide the EEL Program. The first is to conserve the natural resources of Brevard County through acquisition of environmentally sensitive lands and subsequent management of the natural resources. The second is to provide environmental education opportunities on EEL sanctuaries. The third is to provide passive recreation opportunities, such as hiking and wildlife observation. Since its start in 1990, the EEL Program has helped to protect more than 18,000 acres of threatened habitat. Much of this land has been bought in partnership with the State of Florida and the St Johns River Water Management District. The EEL Program also provides outdoor learning and recreational opportunities to Brevard County residents and visitors. There are two EEL Sanctuaries that fall within the Town, the Jordan Scrub Sanctuary and Malabar Scrub Sanctuary.

The Jordan Scrub Sanctuary is a 344-acre sanctuary that includes scenic lakes, seasonal marshes, and scrubby flatwoods. Bald eagles can be spotted, and Florida Scrub-jays can be seen foraging in the scrubby flatwoods. Adjacent to the Jordan Scrub Sanctuary is the non-EEL program 27-acre Jordan Scrub Eastern Tract, owned by the State.

The Malabar Scrub Sanctuary, which will contain the future home of the South Region Management and Education Center, is a 379-acre Sanctuary which contains xeric (dry) hammock, scrub, scrubby flatwoods, pine flatwoods, sand pine scrub, ponds, sloughs, and depression marshes. This sanctuary is a refuge for the Florida Scrub-jay, Gopher Tortoise, and Eastern Indigo snake. Adjacent to the Malabar Scrub Sanctuary is the non-EEL program 161-acre Malabar Scrub Western Tract, owned by the State.

There is over 912 acres of County of State-owned preserve lands within the Town and approximately 147 acres of Town owned park and preservation land. Map FLU-8 Parks and Conservation identifies and shows the location of these lands and the Park and Recreation Element provides further detail.

Potable Water

The Potable Water Services Element focuses on the public and domestic self-supply demand for the Town of Malabar. Approximately 20% of the Town's population is served by public water supply mains. The Harris Government Systems development operates and maintains a private water treatment plant and the three mobile home parks within the Town also maintain their own private water treatment facilities. Areas not served by these water distribution systems are served by private wells. The private wells within the Town are owned by individual homeowners and may require some treatment within the household to remove Sulphur and salts. The Town owns and maintains the public water distribution system but purchases its water from the Palm Bay Utility Department (PBUD) under a thirty-year contract. The PBUD operates the Troutman Water Treatment Facility and the South Regional Water Treatment Facility. There is sufficient capacity for the 10-year planning period.

The Troutman Water Treatment Facility has both a Lime Softening (LS) Water Treatment Plant (WTP) and a Reverse Osmosis (RO) WTP. The LS WTP withdraws water from 35 surficial aquifer wells and one Floridan Aquifer well that is used for blending during peak demand. The permitted withdrawal rates for this plant are 4.7 MGD declining 0.1 MGD per year until 2021, when the withdrawal rate will be 3.4 MGD for the surficial aquifer wells and 0.72 MGD for the Floridan Well. The RO WTP has 3 Florida aquifer wells permitted to withdraw 2.61 MGD. The current capacity of the RO WTP is 1.5 MGD with the ability to expand to 3 MGD. The South Regional Water Treatment Facility is an RO facility with five Floridan aquifer wells with a permitted withdrawal of 5.09 MGD in 2007 expanding to 10.49 MGD in 2021.

On a regional level, Brevard County and the Town of Malabar are located within the St Johns River Water Management District (SJRWMD). The St Johns River Water Management District Regional Water Supply Plan 2005 (DWSP 2005), TECHNICAL PUBLICATION SJ2006-2 provides details on the current and projected water supply for the Region.

There are no public wellfields or wellfield protection zones within the Town. However, the same vulnerabilities of public wellfield systems apply to the self-demand wells which

provide water for many residents of the Town. The Town can discourage residential source contamination through close coordination with the Florida Department of Environmental Protection and the Brevard County, the Natural Resources Management Office (NRMO), Environmental Remediation and Compliance (ERC) Section, and by providing public information regarding the safe disposal of chemicals. Specifically, information can be made available on free disposal of household hazardous wastes, information on disposal contractors available to small businesses and the special waste programs available for landfill disposal of non-typical materials, such as spill clean-ups and contaminated soils.

Ground Water

Three aquifer systems supply groundwater in St Johns River Water Management District (SJRWMD). These are the surficial, the intermediate, and the Floridan aquifers. The St Johns River Water Management District Regional Water Supply Plan 2005 (DWSWP 2005), TECHNICAL PUBLICATION SJ2006-2, describes these systems as follows:

The surficial aquifer system consists primarily of sand, silt, and sandy clay. It extends from the land surface downward to the top of the confining unit of the intermediate aquifer system, where present, or to the top of the confining unit of the Floridan aquifer system. The surficial aquifer system contains the water table, which is the top of the saturated zone within the aquifer. Water within the surficial aquifer system occurs mainly under unconfined conditions, but beds of low permeability cause semi-confined or locally confined conditions to prevail in its deeper parts.

Water in the surficial aquifer system is generally of acceptable quality for domestic use. In coastal areas such as the barrier islands, this aquifer system is prone to saltwater intrusion. The surficial aquifer system is a source of water for public supply in St Johns, Flagler, Brevard, and Indian River counties. It is also used as a source of water for domestic self-supply.

The intermediate aquifer system consists of fine-grained clastic deposits of clayey sand to clay interlayered with thin water bearing zones of sand, shell, and limestone. In most of the SJRWMD, the intermediate aquifer system yields little or no significant amounts of water. It is also known as the intermediate confining unit. The intermediate aquifer system occurs throughout most of SJRWMD. This unit lies between and collectively retards the exchange of water between the overlying surficial aquifer system and the underlying Floridan aquifer system.

Water in the intermediate aquifer system is generally acceptable for domestic use in the northern part of the SJRWMD, where chloride, sulfate, and total dissolved solids (TDS) concentrations generally meet secondary drinking water standards. However, water quality in the southern part of SJRWMD very nearly does not meet or does not meet the secondary drinking water standards for chloride and TDS concentrations. The intermediate aquifer system is used as a water source for domestic self-supply in Duval, Clay, and Orange counties.

The Floridan aquifer system is one of the world's most productive aquifers. The rocks, primarily limestone and dolomite, that compose the Floridan aquifer system, underlie the entire state. This aquifer system does not contain potable water at all locations. Water in the Floridan aquifer system occurs under confined conditions throughout most of the SJRWMD. Unconfined conditions occur in parts of Alachua, Lake, and Marion counties, where the top of the Floridan aquifer system is at or near land surface.

Water quality in the Upper Floridan aquifer varies depending on its location. Chloride and TDS concentrations in the Upper Floridan aquifer generally do not meet the secondary drinking water standards in Brevard County.

Groundwater recharge occurs when there is addition of water to the Floridan aquifer from the overlying surficial aquifer. Recharge to the Floridan aquifer occurs in areas where the elevation of the water table of the surficial aquifer is higher than the elevation of the potentiometric surface of the Floridan aquifer. In these areas, water moves from the surficial aquifer in a downward direction through the upper confining unit to the Floridan aquifer. Recharge also occurs directly from infiltrating rainfall where the limestone of the Floridan aquifer is near or at land surface. In addition, significant local recharge may occur where sinkholes have breached the upper confining unit.

Discharge from the Floridan aquifer occurs in areas where the elevation of the Floridan aquifer potentiometric surface is higher than the elevation of the water table. In these areas, water moves from the Floridan aquifer in an upward direction through the upper confining unit to the surficial aquifer. Where the elevation of the Floridan aquifer potentiometric surface is higher than land surface, springs and free-flowing artesian wells occur.

The St Johns River Water Management District (SJRWMD) and the Brevard County Office of Natural Resources Management have a voluntary cost share program to perform well abandonment (plugging) or reconstruction of problem wells on private property. Although cost share funding percentages can vary depending on the current type of property ownership, in Brevard County, supplemental funding is available so there is no cost to the well owner. Special programs from the SRJWMD for agricultural wells are also available.

Surface Water

The St Johns River Water Management District Regional Water Supply Plan 2005 states that compared to most groundwater sources in SJRWMD, surface water sources generally are of lower quality. Surface waters tend to contain silts and suspended sediments, algae, dissolved organic matter from topsoil, and chemical and microbiological contaminants from municipal wastewater discharges, stormwater runoff, and industrial and agricultural activities. The quality of surface water may vary seasonally with variation in flow rates or water levels. Salinity is one of the most important water quality considerations in SJRWMD. In the coastal rivers of SJRWMD and the tidal reaches of the

St Johns, St Marys, and Nassau rivers, the influx of seawater limits potential. Traditionally, surface water has not been used extensively for public supply in the SJRWMD.

Pollutants

Waste generators, solid waste facilities, above and underground storage tanks, and dry-cleaning facilities are licensed by the Florida Department of Environmental Protection (FDEP). Current information on these facilities is available through the Florida Department of Environmental Protection Division of Waste Management. Information on contaminated sites is also available through the U.S. Environmental Protection Agency (EPA) Resource Conservation Recovery Act (RCRA), Superfund, National Priorities List and Brownfield databases.

Within Brevard County, the Natural Resources Management Office (NRMO), Environmental Remediation and Compliance (ERC) Section is currently contracted with the Florida Department of Environmental Protection (FDEP) to inspect all petroleum storage facilities and oversee the cleanup of petroleum contamination in Brevard County in accordance with Chapters 62-761 and 62-770, Florida Administration Code (F.A.C.). The Primary responsibility of the ERC Section is to provide technical oversight, administrative activities necessary to prioritize, assess, and clean-up sites contaminated by stationary petroleum storage systems.

An August 2008 database search identifies that at this time there are no sites in the Town of Malabar listed on the U.S. Environmental Protection Agency's (EPA) Federal Superfund list or the National Priorities List (NPL). There are no designated or candidate brownfields in the Town. There are no dry-cleaning facilities, petroleum, or any other contaminated sites identified in the Town.

CONSERVATION ELEMENT GOALS, OBJECTIVES, AND POLICIES

Goal 6-1:

Conserve, protect and appropriately manage the Town's natural resources in order to enhance the quality and natural systems within the coastal community.

6-1.1 Objective:

Protect Air Quality. The Town shall meet or exceed the minimum air quality standards established by the Florida Department of Environmental Protection (FDEP) and shall support the established regulatory programs to prevent and/or minimize non-point sources of air pollution (note: The Town has no point sources of air pollution).

6-1.1.1 Policy:

Combat Erosion and Generation of Dust Particles. Land development regulations shall incorporate performance standards which combat erosion and generation of fugitive dust particles. The regulations shall require that measure be taken on building sites or cleared areas which assure that exposed, destabilized, or other altered soil is expeditiously covered with an acceptable erosion control material.

6-1.1.2 Policy:

Air Pollution and Land Use Regulations. The Town shall continue to protect against loss of air quality by maintaining land use controls which promote only activities compatible with existing land uses and natural systems and prohibit activities which generate air pollutants and other adverse impacts on the environmentally fragile ecosystem.

6-1.1.3 Policy:

Greenhouse Gas Emissions. The Town shall promote the development of multi-use trails and increasing the efficiency of the roadways through the Town to promote energy conservation.

6-1.2 Objective:

Water Quality and Quantity. The Town shall conserve, appropriately use and protect the quality and quantity of current and projected water sources and

appropriately regulate the Town's stormwater run-off and other water sources that flow into estuarine or oceanic waters.

6-1.2.1 Policy:

Water Quality, Surface Water Management and Land Use. For site plan approval, the Town shall require that surface water management systems be designed and operated consistent with the Town's adopted drainage level of service. The Town shall continue to make efforts to prevent negative impacts from development to the Indian River Lagoon and its tributaries designated as Class II Waters, by implementing, and revising when necessary, the adopted surface water protection regulations.

6-1.2.2 Policy:

Regulate Agricultural Activities to Preserve Water Quality. The Town shall encourage the utilization of agricultural Best Management Practices developed by the Florida Department of Agriculture to promote the protection of water quality. The Town shall provide, as available, educational materials on the most current Best Management Practices.

6-1.2.3 Policy:

Regulate Wastewater Treatment Discharge to Preserve Water Quality. For site plan approval, the Town shall require:

- a. Local government entities shall require customers with private septic tanks to connect to public gravity sanitary sewer collection systems within 365 days of written notice that the service is available, as required by F.S. 381.00655.
- b. New subdivisions shall provide sewerage connections for each lot in the development.
- c. New septic tank systems shall meet applicable state standards for permitting.

6-1.2.4 Policy:

Preserve and Enhance Lagoon and Canal Shoreline. Compliance with the approved permits from state, federal or other local governments, when applicable, for protection of submerged and shoreline resources shall be incorporated in the Town planning process. Where deemed appropriate by the Town, the site plan shall include the planting of native shoreline vegetation to promote shoreline stability and to protect water quality.

6-1.2.5 Policy:

Protect Surficial Aquifer Recharge Areas. Requirements shall be incorporated into the Town's land development regulations which require retention of open space for all development in order to preserve the quality and quantity of water resources within the surficial aquifer.

6-1.2.6 Policy:

Deep Aquifer Water Conservation: In order to protect the quality and quantity of deep aquifer water resources, the Town shall coordinate with the St Johns River Water Management District and other applicable regulatory agencies in identifying free flowing deep aquifer wells and in requiring corrective measures; including capping, plugging, or installing regulatory devices which control the discharge of water from the deep aquifer.

6-1.2.7 Policy:

Conservation of Potable Water Supply. In order to conserve potable water supply and to achieve a reduction in the current rates of water consumption the Town shall:

- a. Make available educational materials regarding various methods of water conservation at the household and small business level.
- b. Encourage the use of water saving plumbing fixtures on all new development.
- c. Enforce the Town's adopted landscape ordinance.

6-1.2.8 Policy:

Emergency Conservation of Water Sources. The Town shall coordinate with the St Johns River Water Management District (SJRWMD) in implementing emergency water conservation measures based on the SJRWMD plans for management of the region's water resources.

6-1.2.9 Policy:

Ensure Potable Water Supply. The Town shall ensure that existing and new development shall be serviced with an adequate supply of potable water at the adopted level of service, and that, at a minimum, meets the state water quality standards.

6-1.2.10 Policy:

Water Supply Planning. The Town shall cooperate with local, regional, state and federal agencies in the management of freshwater resources to maintain adequate freshwater supplies. The Town shall participate in the coordination of the Regional Water Supply Plan with the St Johns River Water Management District.

6-1.3 Objective:

Maintenance of Floodplain. The Town shall protect the natural functions of the 100-year floodplain in order to protect and maintain its flood-carrying and flood storage capacity.

6-1.3.1 Policy:

Enforce Policies to Maintain Floodplain. The Town shall enforce and maintain consistency with the program policies of the National Flood Insurance Program administered by the Federal Emergency Management Administration (FEMA), and;

The Town shall monitor new cost-effective programs for minimizing flood damage. Such programs may include modification in construction setback requirements or other site design techniques, as well as upgraded building and construction techniques. The Town's adopted flood protection regulations shall be amended as necessitated by changes in FEMA regulations.

6-1.4 Objective:

Protect and Preserve Wetlands. The Town's wetlands shall be protected and preserved from physical and hydrologic alterations.

6-1.4.1 Policy:

Wetland Development Restrictions. Wetlands shall be protected from physical or hydrologic alterations in order to maintain natural functions. To ensure there is no net loss of wetland functionality, the Town shall:

- a. Strictly enforce the Town's adopted wetland development restrictions and interpretations which require that for site plan review approval, no development shall be permitted in wetlands other than approved passive recreation, open space, restricted access way, bird sanctuary, natural stormwater retention / detention, natural preserve, or other similar approved uses pursuant to the Town's Stormwater Management and Flood Protection Ordinance;

- b. Require the property owner or developer of property to provide a professionally conducted wetland delineation survey for all development application purposes;
- c. Utilize the wetland definition and delineation methodology utilized by the U.S. Army Corps of Engineers, the St Johns River Water Management District and the Florida Department of Environmental Protection when addressing wetland issues. Where there is a discrepancy between a developer or owners wetland delineation and that of one of the above agencies, the Town shall employ the definition that delineates the larger area;
- d. Preserve the Town Council's right to require dedication of a conservation easement to preserve wetland functions and provide for exceptions where the subject land area no longer retained the characteristics, functions and value of a wetland;
- e. Ensure that when unavoidable wetland impacts are authorized, the proposed project has avoided and minimized the wetland impacts to the maximum extent practicable and that mitigation shall be required for all authorized impacts;
- f. Allow for flexibility in placement of a single family residential structure to provide for the maximum allowable avoidance of pre-existing wetlands that may occur on the parcel;
- g. Encourage the creation, restoration and preservation of wetlands through partnerships with public and private entities; and
- h. Require buffers between wetlands and land uses that may negatively impact the wetland ecosystem. Buffers shall be defined as the transition areas separating wetland and upland areas and in which development activities may be regulated to protect wetlands. The boundary of the buffer area shall begin at the wetland delineation line. The regulated buffer transitional area shall be no less than twenty-five (25) feet in width from the delineated wetland.

6-1.5 Objective:

Combat Soil Erosion. Reduce the incidence of soil erosion caused by land clearing, breaches in stabilized shorelines, and lands having exposed soil without vegetative cover.

6-1.5.1 Policy:

Implementing Erosion Control. Land development regulations shall require that appropriate measures be taken during land clearing and building operations to assure that exposed, destabilized or otherwise altered soil is expeditiously covered with an acceptable erosion control material. These provisions shall be incorporated in the Subdivision and Tree Landscape Ordinance.

6-1.6 Objective:

Preventing Potential Adverse Impacts of Future Mining and Excavation Activities. No mining activities shall be permitted within the Town of Malabar since the Town is characterized by natural systems which would potentially receive irretrievable losses from the impacts of such operations.

6-1.6.1 Policy:

Prohibition Against Mining Activities. Land development regulations shall prohibit mining activities based on the irretrievable losses which such intense activities may potentially impose on the Town's fragile ecosystem as documented in the Comprehensive Plan Data Inventory and Analysis.

6-1.7 Objective:

Protect Native Vegetation. The Town shall protect and retain major vegetative communities, including, but not limited to, the hardwood hammock community, wetlands, prairies and pinelands.

6-1.7.1 Policy:

Implementing Protection of Vegetative Communities. Land development regulations, including the adopted Land Clearing and Tree and Landscape Ordinance, as well as performance standards governing development activities shall be used in managing and protecting the impacts of development on major vegetative communities. These regulations shall mandate fair and equitable restoration and/or mitigative measures in order to compensate for loss of vegetation.

6-1.8 Objective:

Protecting Fisheries, Wildlife and Wildlife Habitats. The Town shall coordinate with Brevard County, the Marine Resources Council of East Central Florida, the St Johns River Water Management District (SJRWMD), the Florida Fish and Wildlife Conservation Commission (FFWCC) and the U.S. Fish and Wildlife Service (USFWS) in protecting fisheries, wildlife, and wildlife habitat.

6-1.8.1 Policy:

Manage the Impacts of Development on Fisheries. The Town shall incorporate procedures for coordinating with the Florida Fish and Wildlife Conservation Commission, the U.S. Fish and Wildlife Service and the Marine Resources Council of East Central Florida, as appropriate, in reviewing the implications of development proposals, including proposed subdivisions and site plan review petitions. Such coordination shall be designed to assist in identifying potential adverse impacts of proposed development on marine habitats and fisheries.

6-1.8.2 Policy:

Protect Wildlife and Wildlife Habitats. Land development regulations shall incorporate provisions which restrict development activities known to adversely impact endangered, threatened, or rare wildlife and wildlife habitats as well as wildlife and wildlife habitats of special concern. The Town shall further protect wildlife and wildlife habitats by use of conservation easements pursuant to stipulations incorporated into the Stormwater Management and Flood Protection Ordinance.

6-1.8.3 Policy:

The Town shall require, as part of the development review process that applicants coordinate with the U.S. Fish and Wildlife Service and the Florida Fish and Wildlife Conservation Commission for any development proposed on parcels that are mapped as providing habitat to State of federally listed wildlife species.

6-1.9 Objective:

Protect Environmentally Sensitive Lands. Designate environmentally sensitive lands for protection based on locally determined criteria which further the goals, objects and policies of the Conservation Element.

6-1.9.1 Policy:

Environmentally Sensitive Areas. The Town shall require approval from all applicable external agencies having jurisdiction regarding the protection of environmentally sensitive habitat, and shall require consistency with the policies in this Comprehensive Plan that govern:

- a. Management of surface water;
- b. Preservation of open space; and
- c. Preservation of native vegetation.

6-1.9.2 Policy:

Identification of Sensitive Lands. The Town shall coordinate and cooperate with the County and other applicable government agencies to identify sensitive lands located in the Town for conservation and appropriate use.

6-1.10 Objective:

Hazardous Waste Management. The Town shall coordinate with Brevard County as well as appropriate State and regional agencies in developing effective plans for managing hazardous waste.

6-1.10.1 Policy:

Managing Hazardous Waste. The Town shall continue to work with the County and appropriate State and regional agencies in developing an improved area-wide solid waste management program which includes more innovative solid waste management technologies that save energy and/or produce renewable energy and effectively manage hazardous waste.

6-1.10.2 Policy:

The Town shall cooperate with appropriate public agencies to assure that solid and hazardous wastes generated within the Town are properly managed to protect the environment. The Town shall report any solid or hazardous waste violation they may become aware of to the appropriate jurisdictional agency.

6-1.10.3 Policy:

Designate Environmentally Endangered Lands as Conservation on the Future Land Use Map. Within two (2) years of the adoption of this plan, lands that are managed by the Brevard County Environmentally Endangered Lands (EEL) program shall be allocated as Conservation on the Future Land Use Map.

6-1.11 Objective:

Intergovernmental Coordination for Managing Conservation Activities. Establish an Intergovernmental coordination mechanism in order to manage natural resources and assist in implementing appropriate laws, ordinances, and plans of existing State, regional and local agencies sharing responsibilities for managing natural resources within the Town.

6-1.11.1 Policy:

Intergovernmental Coordination in Managing Conservation Activities. The Town shall coordinate and cooperate with the County and adjacent local governments to conserve and appropriately use unique vegetative communities located within one or more local jurisdictions.

6-1.12 Objective:

Continuing Evaluation of the Conservation Element Effectiveness. The Town shall use the following policies as criteria in evaluating the effectiveness of the Conservation Element.

6-1.12.1 Policy:

Review the Impact of Changing Conditions on Conservation Policy. The Town shall monitor and evaluate significant changes in the characteristics of natural resources within the Town. Policy implications of such changes shall be examined, and corrective measure shall be pursued. Conservation policies shall be refined as needed in order to remain responsive to evolving problems and issues.

6-1.12.2 Policy:

Schedule, Budget and Implement Programmed Activities. The timely scheduling, programming, budgeting and implementation of programmed conservation activities identified in this Element shall be evidence of the Town's effectiveness in carrying out a systematic program for implementing conservation management goals, objectives, and policies.

6-1.12.3 Policy:

Coordinate with Public and Private Sectors. While continually implementing and evaluating the Conservation Element the Town shall maintain a process of intergovernmental coordination as well as coordination with private sector groups interested in conservation policy and programs. The effectiveness of this approach shall be evaluated by the success of coordination mechanisms in resolving conservation problems and issues.

6-1.12.4 Policy:

Achieve Effective Resolution of Conservation Goals, Objectives and Policies. The effectiveness of the Conservation Element shall be measured by the Town's success in achieving conservation goals, objectives and policies. The Conservation Element incorporates a systematic planning

process for identifying conservation problems and issues and implementing corrective measures.

ANCLOTE SERIES

The Anclothe series consists of very deep, very poorly drained, rapidly permeable soils in depressions, poorly defined drainageways, and floodplains. They formed in thick beds of sandy marine sediments. Near the type location, the mean annual temperature is about 75 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to 1 percent.

TAXONOMIC CLASS: Sandy, siliceous, hyperthermic Type Endoaquolls

GEOGRAPHIC SETTING: Anclothe soils are in depressions, flats, or poorly defined drainage ways in the Lower Coastal Plain. Slopes range from 0 to 2 percent They formed in thick beds of sandy marine sediments. The climate is humid subtropical. The average annual precipitation ranges from 52 to 57 inches, and the average annual temperature ranges from about 74 to 77 degrees F.

DRAINAGE AND PERMEABILITY: Very poorly drained; rapid permeability.

USE AND VEGETATION: Anclothe soils are used mainly for range and woodland. A few cleared areas are used for truck, bulb, and flower crops, and improved pasture. Native vegetation consists of cypress, bay, popash, pond pine, cabbage palm, red maple, and juncus species.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/A/ANCLOTE.html>

BASINGER SERIES

The Basinger series consists of very deep, poorly drained and very poorly drained, rapidly permeable soils in sloughs, depressions, low flats, and poorly defined drainageways. They formed in sandy marine sediments. Near the type location, the mean annual temperature is about 72 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to 2 percent.

TAXONOMIC CLASS: Siliceous, hyperthermic Spodic Psammaquents

GEOGRAPHIC SETTING: Basinger soils are in sloughs, low flats, depressions, and poorly defined drainageways. They formed in sandy marine sediments. Slopes range from 0 to 2 percent. The climate is humid subtropical. The average annual temperature ranges from 70 to 74 degrees F., and the average annual rainfall ranges from 50 to 60 inches.

DRAINAGE AND PERMEABILITY: Poorly and very poorly drained; rapid permeability.

USE AND VEGETATION: Most areas of Basinger soil that are cleared are used for rangeland. With water control, they are used for winter truck crops and tame pasture. The natural vegetation consists of waxmyrtle, St Johnswort, maidencane, pineland threeawn, cypress, slash pine, longleaf pine, pond pine, and other water tolerant plants.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/B/BASINGER.html>

CANAVERAL SERIES

The Canaveral series consists of very deep, somewhat poorly to moderately well drained, very rapidly permeable soils on side slopes of dune-like ridges bordering depressions and sloughs along the coast in Peninsular Florida. They formed in thick marine deposits of sand and shell fragments. Near the type location, the mean annual temperature is about 73 degrees F., and the mean annual precipitation is about 55 inches. Slopes are dominantly less than 3 percent but range up to 5 percent.

TAXONOMIC CLASS: Hyperthermic, uncoated Aquic Quartzipsamments

GEOGRAPHIC SETTING: Canaveral soils are on low dune-like ridges and side slopes bordering depressions and sloughs along the coast in the lower Coastal Plain. Slopes are dominantly 0 to 3 percent but range up to 5 percent. They formed in thick marine deposits of sand and shell fragments. The climate is humid subtropical. The average annual precipitation ranges from 50 to 60 inches and average annual temperature ranges from 72 to 74 degrees F.

DRAINAGE AND PERMEABILITY: Somewhat poorly to moderately well drained; very rapid permeability.

USE AND VEGETATION: Most areas of Canaveral soils remain in their natural state and are used for wildlife habitat and recreation. A few areas are used for building sites. The native vegetation consists of cabbage palm, scattered sawpalmetto, magnolias, bays, and slash pine with an understory of gallberry and pineland threeawn.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/C/CANAVERAL.html>

CANDLER SERIES

The Candler series consists of very deep, excessively drained, rapidly permeable soils on uplands. They formed in thick beds of eolian or marine deposits of coarse textured materials. Near the type location, the mean annual temperature is about 72 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to up to 25 percent in dissected areas.

TAXONOMIC CLASS Hyperthermic, uncoated Lamellic Quartzipsamments

GEOGRAPHIC SETTING: Candler soils are on uplands in peninsular Florida. Slopes range from 0 to 25 percent in dissected areas. They formed in thick beds of eolian or marine deposits of coarse-textured materials. The climate is humid subtropical. The average annual precipitation ranges from 50 to 60 inches, and the average annual temperature ranges from 70 to 74 degrees F.

DRAINAGE AND PERMEABILITY: Excessively drained; rapid permeability.

USE AND VEGETATION: Many areas are used for citrus crops and tame pasture. Native vegetation consists of bluejack oak, post oak, live oak, and longleaf pine with a sparse

understory of indiangrass, chalky bluestem, pineland threeawn, hairy panicum, and other annual forbs.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/C/CANDLER.html>

EAUGALLIE SERIES

The EauGallie series consists of deep or very deep, poorly or very poorly drained, slowly permeable soils in flats, sloughs and depressional areas. They formed in sandy and loamy marine sediments in Peninsula Florida. Near the type location, the mean annual temperature is about 72 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to 2 percent.

TAXONOMIC CLASS: Sandy, siliceous, hyperthermic Alfic Alaquods.

GEOGRAPHIC SETTING: EauGallie soils are on flats, sloughs, and in depressions in Peninsula Florida. Slopes range from 0 to 2 percent. They formed in thick beds of sandy and loamy marine sediments. The climate is humid subtropical. The average annual air temperature ranges from 70 to 74 degrees F., and the average annual precipitation ranges from 50 to 60 inches.

DRAINAGE AND PERMEABILITY: Poorly or very poorly drained; moderate to slow permeability.

USE AND VEGETATION: Many areas of EauGallie soils are used for citrus, truck crops, and pastureland. Natural vegetation consists of longleaf pine, South Florida slash pine, and sawpalmetto. The understory vegetation includes inkberry, southern bayberry, and pineland threeawn.

<http://ortho.ftw.nrcs.usda.gov/ods/dat/E/EAUGALLIE.html>

FLORIDANA SERIES

The Floridana series consists of very deep, very poorly drained, slowly to very slowly permeable soils on low broad flats, flood plains, and in depressional areas. They formed in thick beds of sandy and loamy marine sediments. Near the type location, the mean annual temperature is about 74 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to 1 percent.

TAXONOMIC CLASS: Loamy, siliceous, superactive, hyperthermic Arenic Argiaquolls

GEOGRAPHIC SETTING: Floridana soils are in depressional areas, floodplains, drainageways, and on low broad flats in the Lower Coastal Plain. Slopes range from 0 to 1 percent. They formed in thick beds of sandy and loamy marine sediments. The average annual temperature ranges from 72 to 76 degrees F., and the average annual precipitation ranges from 50 to 60 inches.

DRAINAGE AND PERMEABILITY: Very poorly drained; very slow permeability.

USE AND VEGETATION: Many areas of Floridana soils have been cleared and used for pasture. Where water control is adequate, it is used for growing truck crops and citrus. Natural vegetation consists of sand cordgrass, cabbage palmetto, myrtle, and pineland threeawn. In depressional areas, most of the soil has a sparse to dense cover of cypress. In floodplains, the vegetation is mostly sweetgum, blackgum, red maple, and cypress.

<http://ortho.ftw.nrcs.usda.gov/os/dat/F/FLORIDANA.html>

IMMOKALEE SERIES

The Immokalee series consists of deep and very deep, poorly drained and very poorly drained soils that formed in sandy marine sediments. They occur on flatwoods and in depressions of Peninsular Florida. Slopes are dominantly 0 to 2 percent but range to 5 percent.

TAXONOMIC CLASS: Sandy, siliceous, hyperthermic Arenic Alaquods

GEOGRAPHIC SETTING: Immokalee soils are on flatwoods and in depressions. They formed in sandy marine sediments. Slope gradients are usually 0 to 2 percent, but adjacent to swamps, ponds, marshes, and lakes, slopes range from 2 to 5 percent. Annual precipitation is about 50 to 60 inches, and mean annual air temperature is about 70 to 74 degrees F.

DRAINAGE AND PERMEABILITY: Immokalee soils are poorly drained or very poorly drained. Runoff is slow or ponded. Permeability is rapid or very rapid in the A and E horizons and moderate or moderately rapid in the Bh horizon. The water table is at depths of 6 to 18 inches for 1 to 4 months during most years. It is between a depth of 18 inches to 35 inches for 2 to 10 months during most years. It is below 60 inches during the dry periods of most years. Depressional areas are covered with standing water for periods of 6 to 9 months or more in most years.

USE AND VEGETATION: Principal vegetation is longleaf and slash pines and undergrowth of sawpalmetto, gallberry, waxmyrtle, and pineland threeawn. In depressions, water tolerant plants such as cypress, loblollybay, gorodonia, red maple, sweetbay, maidencane, blue maidencane, chalky bluestem, sand cordgrass, and bluejoint panicum are more common. Most areas are used for range and forest. Large areas with adequate water management are used for citrus, tame pasture, and truck crops.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/I/IMMOKALEE.html>

MALABAR SERIES

The Malabar series consists of very deep, poorly to very poorly drained soils in sloughs, shallow depressions, and along flood plains. They formed in sandy and loamy marine sediments. Near the type location, the mean annual temperature is about 73 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to 2 percent.

TAXONOMIC CLASS: Loamy, siliceous, active, hyperthermic Grossarenic Endoaqualfs

GEOGRAPHIC SETTING: Malabar soils are in sloughs, depressions, and along flood plains. Slopes range from 0 to 2 percent. They formed in thick beds of sandy and loamy marine sediments. The average annual temperature ranges from 72 to 74 degrees F., and the average annual precipitation ranges from 53 to 57 inches.

DRAINAGE AND PERMEABILITY: Poorly and very poorly drained; rapid permeability in the A, E, Bw and Cg horizons, and slow to very slow permeability in the Btg horizon.

USE AND VEGETATION: Large areas of the Malabar soils are used extensively for range. Some areas are used for citrus crops, truck crops, and improved pasture with adequate water control. Native vegetation consists of scattered slash pine, cypress wax myrtle, cabbage palm, pineland threeawn, and maidencane. In depressions, the vegetation is dominantly St Johnswort or maidencane.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/M/MALABAR.html>

MYAKKA SERIES

The Myakka series consists of deep and very deep, poorly to very poorly drained soils formed in sandy marine deposits. These soils are on flatwoods, high tidal areas, flood plains, depressions, and gently sloping to sloping barrier islands. They have rapid permeability in the A horizon and moderate or moderately rapid permeability in the Bh horizon. Slopes range from 0 to 8 percent.

TAXONOMIC CLASS: Sandy, siliceous, hyperthermic Aeric Alaquods

GEOGRAPHIC SETTING: Myakka soils occur on nearly level high tidal, flatwoods, flood plains, and depressional areas and gently sloping to sloping barrier islands with gradients of 0 to 8 percent. The soil formed in sandy marine deposits. Rainfall averages about 50 to 60 inches annually with mean annual air temperature of about 70 to 74 degrees F.

DRAINAGE AND PERMEABILITY: Myakka soils are poorly to very poorly drained. They have slow internal drainage and slow to ponded runoff. Permeability is rapid in the A and E horizons and moderate or moderately rapid in the Bh horizon. The water table is at depths of less than 18 inches for 1 to 4 months duration in most years and recedes to depths of more than 40 inches during very dry seasons. Depressional areas are covered with standing water for periods of 6 to 9 months or more in most years.

USE AND VEGETATION: Most areas are used for commercial forest production or native range. Large areas with adequate water control measures are used for citrus, improved pasture, and truck crops. Native vegetation includes longleaf and slash pines with an undergrowth of sawpalmetto, running oak, inkberry, waxmyrtle, huckleberry, chalky bluestem, pineland threeawn, and scattered fetterbush.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/M/HYAKKA.html>

PAOLA SERIES

The Paola series consists of very deep, excessively drained, very rapidly permeable soils on uplands. They formed in thick sandy marine deposits. Near the type location, the mean annual temperature is about 72 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to 20 percent.

TAXONOMIC CLASS: Hyperthermic, uncoated Spodic Quartzipsamments

GEOGRAPHIC SETTING: These soils are on uplands of the Coastal Plain. They formed sandy marine deposits more than 7 feet thick. The climate is humid subtropical. Slopes range from 0 to 20 percent. The average annual temperature is about 70 to 74 degrees F., and the average annual rainfall ranges from 50 to 60 inches.

DRAINAGE AND PERMEABILITY: Excessively drained; very rapid permeability.

USE AND VEGETATION: Primarily in forest. Native vegetation consists of sand pine, slash pine, longleaf pine, scrub live oak, scattered turkey oak, and bluejack oak. The undergrowth consists of cacti, mosses, lichens, creeping dodder, rosemary, and scattered sawpalmetto.

DISTRIBUTION AND EXTENT: Peninsular Florida. The series is of large extent.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/P/PAOLA.html>

POMELLO SERIES

The Pomello series consists of very deep, moderately well to somewhat poorly drained soils that are sandy to depths of more than 80 inches. Pomello soils formed in sandy marine sediments in the flatwoods areas of Peninsular Florida. Slopes range from 0 to 5 percent.

TAXONOMIC CLASS: Sandy, siliceous, hyperthermic Oxyaquic Alorthods

GEOGRAPHIC SETTING: Pomello soils are on ridges within the flatwoods in Peninsular Florida. Slopes range from 0 to 5 percent. Precipitation averages 50 to 60 inches, and average air temperature is 70 to 74 degrees F.

DRAINAGE AND PERMEABILITY: Moderately well and somewhat poorly drained. Moderately rapid permeability. The seasonally high water table is at depths of about 24 to 42 inches for 1 to 4 months.

USE AND VEGETATION: Pomello soils are mostly used for range and forest production. A few areas are used for pasture. In its northern extent of occurrence many areas are used for urban development. Native vegetation is dominated by scrub oak, dwarf live oak, sawpalmetto, longleaf pine, slash pine, and pine land threeawn.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/P/POMELLO.html>

RIVIERA SERIES

The Riviera series consists of very deep, poorly drained, very slowly permeable soils on broad, low flats and in depressions in the Lower Coastal Plain. They formed in stratified sandy and loamy marine sediments on the Lower Coastal Plain. Near the type location, the mean annual temperature is about 75 degrees F., and the mean annual precipitation is about 62 inches. Slopes range from 0 to 2 percent.

TAXONOMIC CLASS: Loamy, siliceous, active, hyperthermic Arenic Glossaqualfs

GEOGRAPHIC SETTING: Riviera soils are on broad, low flats and in depressions in the Lower Coastal Plain. They formed in stratified sandy and loamy marine sediments. The climate is humid semitropical. Slopes are less than 2 percent. The average annual temperature ranges from 74 to 76 degrees F., and the average annual precipitation ranges from 58 to 65 inches.

DRAINAGE AND PERMEABILITY: Poorly and very poorly drained; very slow permeability.

USE AND VEGETATION: When drained, Riviera soils are used for citrus, winter truck crops, and improved pasture. Native vegetation consists of slash pine, cabbage, and sawpalmetto, scattered cypress, maidencane, and pineland threeawn.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/R/RIVIERA.html>

SATELLITE SERIES

The Satellite series consists of very deep, somewhat poorly drained, rapidly permeable soils on low knolls and ridges of the Florida flatwoods. They formed in thick beds of marine sand. Near the type location, the mean annual temperature is about 74 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to 2 percent.

TAXONOMIC CLASS: Hyperthermic, uncoated Aquic Quartzipsamments

GEOGRAPHIC SETTING: Satellite soils are on low knolls and ridges on higher elevations in the Lower Coastal Plain. They formed in regolith of a thick bed of marine sand. The climate is humid semitropical. Slopes range from 0 to 2 percent. Near the type location, the average annual precipitation is ranges from 50 to 60 inches and mean annual air temperature is about 74 degrees F. Frost-free season is about 330 days.

DRAINAGE AND PERMEABILITY: Somewhat poorly drained; very rapid permeability.

USE AND VEGETATION: Most areas of Satellite soil is used for forest and range. Native vegetation consists of south Florida slash pine, sawpalmetto, pineland threeawn, and other native grasses.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/S/SATELLITE.html>

ST JOHNS SERIES

The St Johns series consists of very deep, very poorly or poorly drained, moderately permeable soils on broad flats and depressional areas of the lower Coastal Plain. They

formed in sandy marine sediments. Near the type location, the mean annual temperature is about 73 degrees F., and the mean annual precipitation is about 55 inches. Slopes range from 0 to 5 percent.

TAXONOMIC CLASS: Sandy, siliceous, hyperthermic Typic Alaquods

GEOGRAPHIC SETTING: St Johns soils are on broad flats and depressional areas of the lower Coastal Plain. They formed in sandy marine sediments. The climate is warm and humid. Slopes range from 0 to 5 percent. The average annual temperature ranges from 72 to 75 degrees F., and the average annual precipitation ranges from 50 to 60 inches.

DRAINAGE AND PERMEABILITY: Poorly or very poorly drained; moderate permeability.

USE AND VEGETATION: Most areas of St Johns soils are used for forest or rangeland. Principal vegetation of the forested areas is longleaf pine, slash pine, and pond pine with an undergrowth of sawpalmetto, gallberry, waxmyrtle, huckleberry, and pineland threeawn. Some areas that have adequate water control are used for citrus, improved pasture, and special crops.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/S/ST.JOHNS.html>

ST LUCIE SERIES

The St Lucie series consists of very deep, excessively drained, very rapidly permeable soils on dune-like ridges and on isolated knolls. They formed in marine or eolian sand. Near the type location, the mean annual temperature is about 72 degrees F., and the mean annual precipitation is about 60 inches. Slopes range from 0 to 20 percent.

TAXONOMIC CLASS: Hyperthermic, uncoated Typic Quartzipsamments

GEOGRAPHIC SETTING: St Lucie soils are on dune-like ridges and on isolated knolls. They formed in marine or eolian sand. The climate is humid semitropical. Slopes range from 0 to 20 percent. The average annual air temperature ranges from 72 to 74 degrees F., and the average annual precipitation ranges from 50 to 70 inches.

DRAINAGE AND PERMEABILITY: Excessively drained; very rapid permeability.

USE AND VEGETATION: Most areas of St Lucie soil are in scrub forest. Some areas are used for building sites and as a source of sand for concrete. Vegetation is dominated by sand live oak, sand pine, dwarf willow, sawpalmetto, rosemary, pricklypear cactus, and lichens.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/S/ST.LUCIE.html>

TURNBULL SERIES

The Turnbull series consists of very deep, very poorly drained, very slowly permeable soils near sea level and are flooded periodically by tidal overwash. They formed in clayey and sandy estuarine deposits. Near the type location, the mean annual temperature is

about 72 degrees F., and the mean annual precipitation is about 55 inches. Slopes are less than 1 percent.

TAXONOMIC CLASS: Fine, smectitic, nonacid, hyperthermic Typic Hydraquents

GEOGRAPHIC SETTING: Turnbull soils are in tidal marsh areas of estuaries. Slopes are less than 1 percent. Elevations are approximately sea level. They formed in clayey and sandy estuarine sediments. The climate is humid subtropical. The average annual precipitation ranges from 50 to 60 inches and the average annual air temperature ranges about 72 degrees F.

DRAINAGE AND PERMEABILITY: Very poorly drained; very slow permeability

USE AND VEGETATION: Turnbull soils are used for wildlife habitat. They serve as a spawning area and are an important link in the food chain of many commercial and sport fin fish as well as shellfish. Native vegetation consists of needlegrass rush, smooth cordgrass, bushy sea-oxeye, marshhay cordgrass, bigleaf sumpweed, and seashore saltgrass.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/T/TURNBULL.html>

RIOMAR SERIES

The Riomar series consists of very poorly drained, moderately deep, very slowly permeable soils that formed in loamy or clayey tidal deposits. They occur on nearly level mangrove islands and swamps. Slopes are less than one percent.

TAXONOMIC CLASS: Fine, semctitic, nonacid, hyperthermic Typic Hydraquents

GEOGRAPHIC SETTING: Riomar soils are in mangrove islands and tidal swamps, at or near sea level. These soils formed in unconsolidated loamy or clayey tidal deposits. Slopes range from 0 to 0.5 percent. Near the type location, the mean annual rainfall is about 55 inches, and the mean annual temperature is about 74 degrees F.

DRAINAGE AND PERMEABILITY: Riomar soils are very poorly drained. Permeability is very slow in the upper part of the C horizon and very slow to slow in the lower part of the C horizon. They are continuously saturated. Tides flood the surface twice daily.

USE AND VEGETATION: The major uses are for wetland wildlife habitat, for sport and commercial finfish, as shellfish and crustacean spawning grounds, and for natural erosion control during tropical storms. Also, where accessible by elevated road or levee, these areas are well suited to beekeeping for mangrove honey production. Vegetation is red, black and white mangrove, with some areas of sea rocket, saltwort, perennial glasswort, seashore saltgrass, and seashore paspalum.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/R/RIOMAR.html>

VALKARIA SERIES

The Valkaria series consists of deep, rapidly permeable soils that formed in thick beds of marine sands. These soils occur in broad, poorly defined, low gradient drainageways, depressions and low nearly level areas. Under natural conditions they are saturated at depths between 0 and 12 inches of depressional areas are covered by shallow water during the summer rainy season. Slopes are 2 percent or less.

TAXONOMIC CLASS: Siliceous, hyperthermic Spodic Psammaquents

GEOGRAPHIC SETTING: Valkaria soils are in poorly defined drainageways and in low nearly level areas. Gradients range from 0 to 2 percent. The soil formed in thick marine sands. Near the type location, average annual precipitation is about 55 inches and mean annual air temperature is about 73 degrees F.

DRAINAGE AND PERMEABILITY: Poorly or very poorly drained; slow or ponded runoff, rapid permeability. The water table is within depths of 0 to 12 inches for 2 to 6 months during most years. During periods of extended rainfall the water table is at the surface for a few days to about 3 months. In dry seasons the water table may be as deep as 30 inches. Where canals are established, the water table normally is at depths of 15 to 30 inches. Depressional areas are ponded for about 3 months or more.

USE AND VEGETATION: Where water control is adequate, these soils are used for truck crops, citrus, and improved pasture. Natural vegetation is palms, cabbage palmettos, St Johnswort, waxmyrtle, blue maidencane, chalky bluestem, pineland threeawn, and widely spaced pine and cypress. Maidencane is the most common plant in depressions.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/V/VALKARIA.html>

TOMOKA SERIES

The Tomoka series consists of deep, very poorly drained, moderately permeable soils that formed in decomposed dark reddish brown and black organic material about 27 inches thick over sand and loamy mineral material. Slopes range from 0 to 2 percent.

TAXONOMIC CLASS: Loamy, siliceous, dysic, hyperthermic Terric Haplosaprists

GEOGRAPHIC SETTING: Tomoka soils are on broad low flats, fresh water marshes and swamps. Gradients are less than 2 percent. They formed in hyprophytic nonwoody plant remains over sandy and loamy mineral material. Rainfall is about 55 inches annually and mean annual temperature is about 74 degrees F., near the type location.

DRAINAGE AND PERMEABILITY: Tomoka soils are very poorly drained. Runoff is very slow. Permeability is moderate. In drained areas, a water control system regulates the water table according to plant needs. In undrained areas, the water table is at or on the surface of the soil except during extended dry periods.

USE AND VEGETATION: Some areas are cleared and used for truck crops, corn, sod crops and improved pasture. Uncleared areas are used for water storage and as a wildlife

habitat. Native vegetation is sawgrass, lilies, reeds, sedges, myrtle and other aquatic plants. Cypress, red and white bay, maple and pond pine are common tree species.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/T/TOMOKA.html>

MICCO SERIES

The Micco series consists of deep, very poorly drained soils that formed in herbaceous organic material and sandy and loamy mineral material. These soils are on flood plains, freshwater marshes, and depressions. Slopes are less than 2 percent.

TAXONOMIC CLASS: Loamy, siliceous, dysic, hyperthermic Terric Haplohemists

GEOGRAPHIC SETTING: These soils are on flood plains, depressions, and freshwater marshes. Near the type location, precipitation averages about 55 inches annual and the (*missing information on original document*).

DRAINAGE AND PERMEABILITY: Very poorly drained. Runoff is very slow. Permeability is moderate to moderately slow.

USE AND VEGETATION: Most areas are in natural vegetation of sawgrass, lilies, sedges, cypress, bay, maple, and blackgum and used for range, wildlife habitat, or water storage areas. Some areas are drained and diked. These areas are used for truck crops, bulb crops, sod crops, and improved pasture.

<http://ortho.ftw.nrcs.usda.gov/osd/dat/M/MICCO.html>

Appendix 6-B. Listed Animal Species that may occur in the Town of Malabar

Common Name	Scientific Name	State Status	Federal Status
AMPHIBIANS			
Gopher Frog	<i>Rana capito</i>	SSC (1,2)	
FISH			
Shortnosed Sturgeon	<i>Acipenser brevirostrum</i>	E	
Mangrove Rivulus	<i>Rivulus marmoratus</i>	SSC(1)	
REPTILES			
American Alligator	<i>Alligator mississippiensis</i>	SSC (1,3)	T
Eastern Indigo Snake	<i>Drymarchon corais couperi</i>	T	T
Atlantic Saltmarsh Snake	<i>Nerodia clarkia taeniata</i>	T	T
Florida Pine Snake	<i>Pituophus melanolucus mugitus</i>	SCC(2)	
Gopher Tortoise	<i>Gopherus Polyphemus</i>	T	
BIRDS			
Piping Plover	<i>Charadrius melodus</i>	T	T
American Oystercatcher	<i>Haematopus palliatus</i>	SSC(1)(2)	
Brown Pelican	<i>Pelecanus occidentalis</i>	SSC(1)	
Black Skimmer	<i>Rynchops niger</i>	SSC(1)	
Florida Grasshopper Sparrow	<i>Ammodramus savannarum floridanus</i>	E	E
Least Tern	<i>Sterna dougallii</i>	T	
Roseate Tern	<i>Sterna dougallii</i>	T	
Limpkin	<i>Aramus guarauna</i>	SSC(1)	
Reddish Egret	<i>Egretta rufescens</i>	SSC(1,4)	
Snowy Egret	<i>Egretta thula</i>	SSC(1)	
Little Blue Heron	<i>Egretta caerulea</i>	SSC (1,4)	
Tricolored Heron	<i>Egretta tricolor</i>	SSC(1,4)	
White Ibis	<i>Eudocimus albus</i>	SSC(2)	
Florida Sandhill Crane	<i>Grus canadensis pratensis</i>	T	
Wood Stork	<i>Mycteria Americana</i>	E	E
Roseate Spoonbill	<i>Platalea ajaja</i>	SSC(1,4)	
Burrowing Owl	<i>Athene cunicularia</i>	SSC(1)	
Crested Caracara	<i>Caracara chderiway</i>	T	T
Peregrine Falcon	<i>Falco peregrinus</i>	E	
Southeastern American Kestrel	<i>Falco sparverius Paulus</i>	T	
Snail Kite	<i>Rostrhamus scoiabilis plumbeus</i>	E	E
Florida Scrub Jay	<i>Aphelocoma coerulescens</i>	T	T
Red-Cockaded Woodpecker	<i>Picoides borealis</i>	SSC	E
MAMMALS			
Sherman's Fox Squirrel	<i>Sciurus niger shermanii</i>	SSC(1)(2)	
Florida Mouse	<i>Podomys floridanus</i>	SSC(1)	
Florida Manatee	<i>Trichechus manatus</i>	T	E

E = Endangered

T = Threatened

SSC = Specials of Special Concern

U.S. Fish and Wildlife Service Species Information 2008

FFWCC 2007

www.fws.gov/endangered/wildlife.html

<http://myfwc.com/imperiledspecies/>

Reasons for SSC listings prior to January 1, 2001 are indicated by the number in parenthesis under the following criteria:

- 1) Has a significant vulnerability to habitat modification, environmental alteration, human disturbance, or human exploitation which, in the foreseeable future, may result in its becoming a threatened species unless appropriate protective or management techniques are initiated or maintained.
- 2) May already meet certain criteria for designation as a threatened species but for which conclusive data are limited or lacking
- 3) May occupy such an unusually vital or essential ecological niche that should it decline significantly in numbers or distribution other species would be adversely affected to a significant degree
- 4) Has not sufficiently recovered from past population depletion
- 5) Occurs as a population either intentionally introduced or being experimentally managed to attain specific objectives, and the species of special concern prohibitions in Rule 68A-27.002, F.A.C., shall not apply to species so designated, provided that the intentional killing, attempting to kill, possession or sale of such species is prohibited.

SCIENTIFIC NAME	COMMON NAMES	FAMILY	US	FL
<i>Acacia pinetorum</i>	PINELAND ACACIA	FABACEAE		
<i>Acalypha gracilens</i>	SLENDER THREESEED MERCURY	EUPHORBIACEAE		
<i>Acalypha ostryifolia</i>	PINELAND THREESEED MERCURY	EUPHORBIACEAE		
<i>Acer negundo</i>	BOXELDER	SAPINDACEAE		
<i>Acer rubrum</i>	RED MAPLE	SAPINACEAE		
<i>Acmella oppositifolia</i> var. <i>repens</i>	OPPOSITELEAF SPOTFLOWER	ASTERACEAE		
<i>Acrostichum danaeifolium</i>	GRIANT LEATHER FERM	PTERIDACEAE		
<i>Aeschynomene Americana</i>	SHYLEAF	FABACEAE		
<i>Agalinis fasciculata</i>	BEACH FALSE FOXGLOVE	OROBANCHACEAE		
<i>Agalinis filifolia</i>	SEMINOLE FALSE FOXGLOVE	OROBANCHACEAE		
<i>Agalinis linifolia</i>	FLAXLEAF FALSE FOXGLOVE	OROBANCHACEAE		
<i>Agalinis maritima</i>	SALTMARSH FALSE FOXGLOVE	OROBANCHACEAE		
<i>Ageratina Jucunda</i>	HAMMOCK SNAKEROOT	ASTERACEAE		
<i>Aletris lutea</i>	YELLOW COLICROOT	NARTHECIACEAE		
<i>Alternanthera flavescens</i>	YELLOW JOYWEED	AMARANTHACEAE		
<i>Amaranthus australis</i>	SOUTHERN AMARANTH	AMARANTHACEAE		
<i>Amaranthus floridanus</i>	FLORIDA AMARANTH	AMARANTHACEAE		
<i>Ambrosia artemisiifolia</i>	COMMON RAGWEED	ASTERACEAE		
<i>Ambrosia hispida</i>	COASTAL RAGWEED	ASTERACEAE		
<i>Ambrosia latifolia</i>	PINK REDSTEM; TOOTH CUP	LYTHRACEAE		
<i>Amorpha fruticosa</i>	BASTARD INDIGOBUSH; FALSE INDIOSHUB	FABACEAE		
<i>Ampelopsis arborea</i>	PEPPERVINE	VITACEAE		
<i>Amryis elemifera</i>	SEA TORCHWOOD	RUTACEAE		
<i>Andropogon arctatus</i>	PINEWOODS BLUESTEM	POACEAE		T
<i>Andropogon brachystachyus</i>	SHORTSPIKE BLUESTEM	POACEAE		
<i>Andropogon floridanus</i>	FLORIDA BLUESTEM	POACEAE		
<i>Andropogon glomeratus</i>	BUSHY BLUESTEM	POACEAE		
<i>Andropogon glomeratus</i> var. <i>glaucopsis</i>	PURPLE BLUESTEM	POACEAE		
<i>Andropogon glomeratus</i> var. <i>pumilus</i>	BUSY BLUESTEM	POACEAE		
<i>Andropogon gyrans</i>	ELLIOTT'S BLUESTEM	POACEAE		
<i>Andropogon gyrans</i> var. <i>stenophyllus</i>	ELLIOTT'S BLUESTEM	POACEAE		
<i>Andropogon longiberbis</i>	HAIRY BLUESTEM	POACEAE		
<i>Andropogon ternarius</i>	SPLITBEARD BLUESTEM	POACEAE		
<i>Andropogon virginicus</i>	BROOMEDGE BLUESTEM	POACEAE		
<i>Andropogon virginicus</i> var. <i>decepiens</i>	BROOMEDGE BLUESTEM	POACEAE		
<i>Andropogon virginicus</i> var. <i>glaucus</i>	CHALKY BLUESTEM	POACEAE		
<i>Annona glabra</i>	POND APPLE	ANNONACEAE		
<i>Apios Americana</i>	GROUNDNUT	FABACEAE		
<i>Apocynum cannabinum</i>	INDIANHEMP	ANNONACEAE		
<i>Ardisia escollonioides</i>	MARLBERRY	MYRSINACEAE		
<i>Arenaria lanuginosa</i>	SPREADING SANDWORT	CARYOPHYLLACEAE		
<i>Argemone albiflora</i>	BLUESTEM PRICKLYPOPPY	PAPAVERACEAE		
<i>Argusia gnaphalodes</i>	SEAROSEMARY; SEA LAVENDER	BORAGINACEAE		E
<i>Ariseama dracontium</i>	GREENDRAGON	ARACEAE		
<i>Arisaema triphyllum</i>	JACK-IN-THE-PULPIT	ARACEAE		
<i>Arstida condensate</i>	BIG THREEAWN; PIEDMONT THREEAWN	POACEAE		
<i>Aristida patula</i>	TALL THREEAWN	POACEAE		
<i>Aristida purpurascens</i>	ARROWFEATHER THREEAWN	POACEAE		
<i>Aristida purpurascens</i> var. <i>tenuispica</i>	HILLSBORO THREEAWN	POACEAE		
<i>Aristida purpurascens</i> var. <i>virgate</i>	ARROWFEATHER THEEAWN	POACEAE		
<i>Arisida rhizomophora</i>	FLORIDA THREEAWN	POACEAE		
<i>Aristida spiciformis</i>	BOTTLEBRUSH THREEAWN	POACEAE		
<i>Aristida stricta</i> var. <i>beyrichiana</i>	WIREGRASS	POACEAE		
<i>Aristolochia serpentaria</i>	VIRGINIA SNAKEROOT	ARISTOLOCHIACEAE		
<i>Arnoglossum floridanum</i>	FLORIDA INDIAN PLANTAIN	ASTERACEAE		

SCIENTIFIC NAME	COMMON NAMES	FAMILY	US	FL
<i>Arundinaria gigantea</i>	SWITCHCANE	POACEAE		
<i>Asclepias connivens</i>	LARGEFLOWER MILKWEED	APOCYNACEAE		
<i>Asclepias curtissii</i>	CURTISS' MILKWEED	APOCYNACEAE		E
<i>Asclepias feayi</i>	FLORIDA MILKWEED	APOCYNACEAE		
<i>Asclepias incarnate</i>	SWAMP MILKWEED	APOCYNACEAE		
<i>Asclepias lanceolate</i>	FEWFLOWER MILKWEED	APOCYNACEAE		
<i>Asclepias pedicellate</i>	SAVANNAH MILKWEED	APOCYNACEAE		
<i>Asclepias tomentosa</i>	VELVETLEAF MILKWEED	APOCYNACEAE		
<i>Asclepias tuberosa</i>	BUTTERFLYWEED; BUTTERFLY MILKWEED	APOCYNACEAE		
<i>Asclepias verticillate</i>	WHORLED MILKWEED	APOCYNACEAE		
<i>Asimina obovate</i>	BIGFLOWER PAWPAW	ANNONACEAE		
<i>Asimina parviflora</i>	SMALLFLOWER PAWPAW	ANNONACEAE		
<i>Asimina pygmaea</i>	DWARF PAWPAW	ANNONACEAE		
<i>Asimina reticulata</i>	NETTED PAWPAW	ANNONACEAE		
<i>Asplenium platyneuron</i>	EBONY SPLEENWORT	ASPLENIACEAE		
<i>Atriplex cristata</i>	CRESTED SALTBUCH	AMARANTHACEAE		
<i>Avicennia germinans</i>	BLACK MANGROVE	AVICENNIACEAE		
<i>Axonopus fissifolius</i>	COMMON CARPETGRASS	POACEAE		
<i>Axonopus furcatus</i>	BIG CARPETGRASS	POACEAE		
<i>Azolla filiculoides</i>	CAROLINA MOSQUITO FERN	AZOLLACEAE		
<i>Baccharis angustifolia</i>	SALTWATER FALSEWILLOW	ASTERACEAE		
<i>Baccharis glomeruliflora</i>	SILVERLING	ASTERACEAE		
<i>Baccharis halimifolia</i>	GROUNDSEL TREE; SEA MYRTLE	ASTERACEAE		
<i>Bacopa caroliniana</i>	LEMON BACOPA; BLUE WATERHYSSOP	VERONICACEAE		
<i>Bacopa monnieri</i>	HERB-OF-GRACE	VERONICACEAE		
<i>Balduina angustifolia</i>	COASTALPLAIN HONEYCOMBHEAD	ASTERACEAE		
<i>Bartonia verna</i>	WHITE SCREWSTEM	GENTIANACEAE		
<i>Bartonia virginica</i>	YELLOW SCREWSTEM	GENTIANACEAE		
<i>Batis maritima</i>	SALTWORT; TURTLEWEED	BATACEAE		
<i>Bejaria racemose</i>	TARFLOWER	ERICACEAE		
<i>Berchemia scandens</i>	ALABAMA SUPPLEJACK; RATTAN VINE	RHAMNACEAE		
<i>Berlandiera subacaulis</i>	FLORIDA GREENEYES	ASTERACEAE		
<i>Bidens alba</i>	BEGGARTICKS; ROMERILLO	ASTERACEAE		
<i>Bidens bipinnata</i>	SPANISH NEEDLES	ASTERACEAE		
<i>Bidens laevis</i>	BURRMARIGOLD; SMOOTH BEGGARTICKS	ASTERACEAE		
<i>Bidens mitis</i>	SMALLFRUIT BEGGARTICKS	ASTERACEAE		
<i>Blechnum serrulatum</i>	TOOTHED MIDSORUS FERN; SWAMP FERN	BLECHNACEAE		
<i>Blutaparion vermiculare</i>	SAMPHIRE; SILVERHEAD	AMARANTHACEAE		
<i>Boehmeria cylindrica</i>	FALSE NETTLE; BOG HEMP	URTICACEAE		
<i>Boerhavia diffusa</i>	RED SPIDERLING; WINEFLOWER	NYCTAGINACEAE		
<i>Borrchia frutescens</i>	BUSHY SEASIDE OXEYE	ASTERACEAE		
<i>Brickellia eupatorioides</i>	FALSE BONESET	ASTERACEAE		
<i>Buchnera Americana</i>	AMERICAN BLUEHEARTS	OROBANCHACEAE		
<i>Bulbostylis ciliatifolia</i>	CAPILLARY HAIRSEDEGE	CYPERACEAE		
<i>Bulbostylis stenophylla</i>	SANDYFIELD HAIRSEDEGE	CYPERACEAE		
<i>Bulbostylis warei</i>	WARE'S HAIRSEDEGE	CYPERACEAE		
<i>Bursera simaruba</i>	BUMGO-LIMBO	BARSERACEAE		
<i>Caesalpinia bonduc</i>	GRAY NICKER	FABACEAE		
<i>Cakile lanceolate</i>	COASTAL SEAROCKET	BRASSICACEAE		
<i>Calamintha coccinea</i>	SCARLET CALAMINT	LAMIACEAE		
<i>Calamovilfa curtissii</i>	FLORIDA SANDREED; CURTISS' SANDGRASS	POACEAE		T
<i>Callicarpa Americana</i>	AMERICAN BEAUTYBERRY	LAMIACEAE		
<i>Callisia ornate</i>	FLORIDA SCRUB ROSELING	COMMELINACEAE		
<i>Calopogon barbatus</i>	BEARDED GRASSPINK	ORCHIDACEAE		
<i>Calopogon multiflorus</i>	MANYFLOWERED GRASSPINK	ORCHIDACEAE		E

SCIENTIFIC NAME	COMMON NAMES	FAMILY	US	FL
<i>Calystegia sepium</i> subsp. <i>Limnophila</i>	HEDGE FALSE BINDWEED	CONVOLVULACEAE		
<i>Campanula floridana</i>	FLORIDA BELLFLOWER	CAMPANULACEAE		
<i>Campsis radicans</i>	TRUMPET CREEPER	BIGNONIACEAE		
<i>Campyloneurum phyllitidis</i>	LONG STRAP FERN	POLYPODIACEAE		
<i>Canavalia rosea</i>	BAYBEAN; SEASIDE JACKBEAN	FABACEAE		
<i>Canna flaccida</i>	BANCANA-OF-THE-EVERGLADES	CANNACEAE		
<i>Capparis cynophallophora</i>	JAMAICAN CAPERTREE	BRASSICACEAE		
<i>Capparis flexuosa</i>	BAYLEAF CAPERTREE	BRASSICACEAE		
<i>Capsicum annuum</i> var. <i>glabriusculum</i>	BIRD PEPPER	SOLANACEAE		
<i>Cardiospermum microcarpum</i>	HEARTSEED	SAPINDACEAE		
<i>Carex gholsonii</i>	GHOLSON'S SEDGE	CYPERACEAE		
<i>Carex longyi</i>	LONG'S SEDGE	CYPERACEAE		
<i>Carex lupuliformis</i>	FALSE HOP SEDGE	CYPERACEAE		
<i>Carphephorus carnosus</i>	PINELAND CHAFFHEAD	ASTERACEAE		
<i>Carphephorus corymbosus</i>	COASTALPLAIN CHAFFHEAD; FLORIDA PAINTBRUSH	ASTERACEAE		
<i>Carphephorus odoratissimus</i>	VANILLALEAF	ASTERACEAE		
<i>Carphephorus paniculatus</i>	HAIRY CHAFFHEAD	ASTERACEAE		
<i>Carpinus caroliniana</i>	AMERICAN HORNBEAM; BLUEBEECH	BETULACEAE		
<i>Carya aquatic</i>	WATER HICKORY	JUGLANDACEAE		
<i>Carya floridana</i>	SCRUB HICKORY	JUGLANDACEAE		
<i>Carya glabra</i>	PIGNOT HICKORY	JUGLANDACEAE		
<i>Cassytha filiformis</i>	LOVE VINE; DEVIL'S GUT	LAURACEAE		
<i>Celtis laevigata</i>	SUGARBERRY; HACKBERRY	CELTIDACEAE		
<i>Cenchrus echinatus</i>	SOUTHERN SANDBUR	POACEAE		
<i>Cenchrus gracillimus</i>	SLENDER SANDBUR	POACEAE		
<i>Cenchrus spinifex</i>	COASTAL SANDBUR	POACEAE		
<i>Centrosema arenicola</i>	PINELAND BUTTERFLY PEA; SAND BUTTERFLY PEA	FABACEAE		E
<i>Centrosema virginianum</i>	SPURRED BUTTERFLY PEA	FABACEAE		
<i>Cephalanthus occidentalis</i>	COMMON BUTTONBUSH	RUBIACEAE		
<i>Ceratiola ericoides</i>	FLORIDA ROSEMARY; SAND HEATH	ERICACEAE		
<i>Ceratophyllum demersum</i>	COONTAIL	CERATOPHYLLACEAE		
<i>Ceratopteris pteridoides</i>	WATER HORN FERN	PTERIDACEAE		
<i>Chamaecrista fasciculata</i>	PARTRIDGE PEA	FABACEAE		
<i>Chamaecrista nictitans</i> var. <i>aspera</i>	SENSITIVE PEA	FABACEAE		
<i>Chamaesyce blodgettii</i>	LIMESTONE SANDMAT	EUPHORBIACEAE		
<i>Chamaesyce bombensis</i>	DIXIE SANDMAT	EUPHORBIACEAE		
<i>Chamaesyce cumulicola</i>	COASTAL DUNE SANDMAT; SANDDUNE SPURGE	EUPHORBIACEAE		E
<i>Chamaesyce hirta</i>	PILLPOD SANDMAT	EUPHORBIACEAE		
<i>Chamaesyce hypericifolia</i>	GRACEFUL SANDMAT	EUPHORBIACEAE		
<i>Chamaesyce hyssopifolia</i>	HYSSOPLEAF SANDMAT	EUPHORBIACEAE		
<i>Chamaesyce maculate</i>	SPOTTED SANDMAT	EUPHORBIACEAE		
<i>Chamaesyce mesembrianthemifolia</i>	COASTAL BEACH SANDMAT	EUPHORBIACEAE		
<i>Chamaesyce ophthalmica</i>	FLORIDA HAMMOCK SANDMAT	EUPHORBIACEAE		
<i>Chaptalia tomentosa</i>	WOOLLY SUNBONNETS; PINELAND DAISY	ASTERACEAE		
<i>Chasmanthium laxum</i>	SLENDER WOODOATS	POACEAE		
<i>Chasmanthium laxum</i> var. <i>sessiliflorum</i>	LONGLEAF WOODOATS	POACEAE		
<i>Cheilanthes alabamensis</i>	ALABAMA LIP FERN	PTERIDACEAE		
<i>Chiococca alba</i>	SNOWBERRY; MILKBERRY	RUBIACEAE		
<i>Chionanthus virginicus</i>	WHITE FRINGETREE; OLD-MAN'S BEARD	OLEACEAE		
<i>Chrysobalanus icaco</i>	COCO PLUM	CHRYSOBALANACEAE		
<i>Chrysophyllum oliviforme</i>	SATINLEAF	SAPOTACEAE		T
<i>Chrysopsis delaneyi</i>	DELANEY'S GOLDENASTER	ASTERACEAE		
<i>Chrysopsis linearifolia</i> subsp. <i>dressii</i>	DRESS' GOLDENASTER	ASTERACEAE		
<i>Chrysopsis mariana</i>	MARYLAND GOLDENASTER	ASTERACEAE		

SCIENTIFIC NAME	COMMON NAMES	FAMILY	US	FL
<i>Chrysopsis scabrella</i>	COASTALPLAIN GOLDENASTER	ASTERACEAE		
<i>Chrysopsis subulate</i>	SCRUBLAND GOLDENASTER	ASTERACEAE		
<i>Cicuta maculate</i>	SPOTTED WATER HEMLOCK	APIACEAE		
<i>Cirsium horridulum</i>	PURPLE THISTLE	ASTERACEAE		
<i>Cirsium nuttallii</i>	NUTTALL'S THISTLE	ASTERACEAE		
<i>Cissus trifoliata</i>	SORRELVINE; MARINEVINE	VITACEAE		
<i>Cissus verticillate</i>	SEASONVINE; POSSUM GRAPE	VITACEAE		
<i>Citharexylum spinosum</i>	FLORIDA FIDDLEWOOD	VERBENACEAE		
<i>Cladium jamaicense</i>	JAMAICA SWAMP SAWGRASS	CYPERACEAE		
<i>Clematis baldwinii</i>	PINE-HYACINTH	RANUNCULACEAE		
<i>Clematis crispa</i>	SWAMP LEATHER-FLOWER	RANUNCULACEAE		
<i>Clematis reticulata</i>	NETLEAF LEATHER-FLOWER	RANUNCULACEAE		
<i>Clitoria mariana</i>	ATLANTIC PIGEONWINGS	FABACEAE		
<i>Cnidocolus stimulosus</i>	TREAD-SOFTLY; FINGER-ROT	EUPHORBIACEAE		
<i>Coccoloba diversifolia</i>	TIETONGUE; PIGEON PLUM	POLYGONACEAE		
<i>Coccoloba uvifera</i>	SEAGRAPE	POLYGONACEAE		
<i>Coelorachis rugosa</i>	WRINKLED JOINTTAILGRASS	POACEAE		
<i>Coelorachis tuberculosa</i>	FLORIDA JOINTTAILGRASS; PIEDMONT JOINTGRASS	POACEAE		T
<i>Commelina erecta</i>	WHITEMOUTH DAYFLOWER	COMMELINACEAE		
<i>Conocarpus erectus</i>	BUTTONWOOD	COMBRETACEAE		
<i>Conoclinium coelestinum</i>	BLUE MISTFLOWER	ASTERACEAE		
<i>Conradina grandiflora</i>	LARGEFLOWER FALSE ROSEMARY	LAMIACEAE		T
<i>Conyza canadensis</i>	CANADIAN HORSEWEED	ASTERACEAE		
<i>Corallorhiza wisteriana</i>	SPRING CORALROOT	ORCHIDACEAE		
<i>Coreopsis floridana</i>	FLORIDA TICKSEED	ASTERACEAE		
<i>Coreopsis leavenworthii</i>	LEAVENWORTH'S TICKSEED	ASTERACEAE		
<i>Cornus foemina</i>	SWAMP DOGWOOD; STIFF DOGWOOD	CORNACEAE		
<i>Crinum americanum</i>	SEVER-SISTERS; STRING-LILY	AMARYLLIDACEAE		
<i>Crotalaria pumila</i>	LOW RATTLEBOX	FABACEAE		
<i>Crotalaria rotundifolia</i>	RABBITBELLS	FABACEAE		
<i>Croton glanduosus</i>	BENTE CONMIGO	EUPHORBIACEAE		
<i>Croton michauxii</i>	RUSHFOIL; MICHAUX'S CROTON	EUPHORBIACEAE		
<i>Croton punctatus</i>	GULF CROTON; BEACH TEA	EUPHORBIACEAE		
<i>Cuscuta exaltata</i>	TALL DODDER	CONVOLVULACEAE		
<i>Cuscuta gronovii</i>	SCALDWEED	CONVOLVULACEAE		
<i>Cuscuta pentagona</i>	FIVEANGLED DODDER	CONVOLVULACEAE		
<i>Cynanchum angustifolium</i>	GULF COAST SWALLOWWORT	APOCYNACEAE		
<i>Cynanchum northropiae</i>	FRAGRANT SWALLOWWORT	APOCYNACEAE		
<i>Cynanchum scoparium</i>	LEAFLESS SWALLOWWORT	APOCYNACEAE		
<i>Cyperus articulatus</i>	JOINTED FLATSEEDGE	CYPERACEAE		
<i>Cyperus croceus</i>	BALDWIN'S FLATSEEDGE	CYPERACEAE		
<i>Cyperus distinctus</i>	SWAMP FLATSEEDGE	CYPERACEAE		
<i>Cyperus erythrorhizos</i>	REDROOT FLATSEEDGE	CYPERACEAE		
<i>Cyperus filiculmis</i>	WIRY FLATSEEDGE	CYPERACEAE		
<i>Cyperus flavescens</i>	YELLOW FLATSEEDGE	CYPERACEAE		
<i>Cyperus haspan</i>	HASPAN FLATSEEDGE	CYPERACEAE		
<i>Cyperus lecontei</i>	LECONTE'S FLATSEEDGE	CYPERACEAE		
<i>Cyperus ligularis</i>	SWAMP FLATSEEDGE	CYPERACEAE		
<i>Cyperus odoratus</i>	FRAGRANT FLATSEEDGE	CYPERACEAE		
<i>Cyperus planifolius</i>	FLATLEAF FLATSEEDGE	CYPERACEAE		
<i>Cyperus polystachyos</i>	MANYSPIKE FLATSEEDGE	CYPERACEAE		
<i>Cyperus retrorsus</i>	PINEBARREN FLATSEEDGE	CYPERACEAE		
<i>Cyperus strigosus</i>	STRAWCOLORED FLATSEEDGE	CYPERACEAE		
<i>Cyperus surinamensis</i>	TROPICAL FLATSEEDGE	CYPERACEAE		

SCIENTIFIC NAME	COMMON NAMES	FAMILY	US	FL
<i>Cyperus tetragonus</i>	FOURANGLE FLATSEDGE	CYPERACEAE		
<i>Cyrilla racemiflora</i>	TITI	CYRILLACEAE		
<i>Dalbergia ecastaphyllum</i>	COINVINE	FABACEAE		
<i>Dalea carnea</i>	WHITETASSELS	FABACEAE		
<i>Dalea feayi</i>	FEAY'S PRAIRIECLOVER	FABACEAE		
<i>Dalea pinnata</i> var <i>adenopoda</i>	SUMMER FAREWELL	FABACEAE		
<i>Decodon verticillatus</i>	WILLOW-HERB; SWAMP LOOSESTRIFE	LYTHRACEAE		
<i>Dennstaedtia bipinnata</i>	BIPINNATE CUPLET FERN; CUPLET FERN	DENNSTAEDTIACEAE		E
<i>Descurainia pinnata</i>	WESTERN TANSYMUSTARD	BRASSICACEAE		
<i>Desmodium floridanum</i>	FLORIDA TICKTREFOL	FABACEAE		
<i>Dicerandra thinicola</i>	TITUSVILLE BALM	LAMIACEAE		E
<i>Dichantherium commotatum</i>	VARIABLE WITCHGRASS	POACEAE		
<i>Dichantherium dichotomum</i>	CYPRESS WITCHGRASS	POACEAE		
<i>Dichantherium ensifolium</i>	CYPRESS WITCHGRASS	POACEAE		
<i>Dichantherium ensifolium</i> var <i>unciphyllum</i>	CYPRESS WITCHGRASS	POACEAE		
<i>Dichantherium erectifolium</i>	ERECTLEAF WITCHGRASS	POACEAE		
<i>Dichantherium laxiflorum</i>	OPENFLOWER WITCHGRASS	POACEAE		
<i>Dichantherium ovale</i>	EGGLEAF WITCHGRASS	POACEAE		
<i>Dichantherium portoricense</i>	HEMLOCK WITCHGRASS	POACEAE		
<i>Dichantherium strigosum</i> var <i>glabrescens</i>	ROUGHHAIR WITCHGRASS	POACEAE		
<i>Dicliptera sexangularis</i>	SIXANGLE FOLDWING	ACANTHACEAE		
<i>Digitaria ciliaris</i>	SOUTHERN CRABGRASS	POACEAE		
<i>Digitaria filiformis</i>	SLENDER CRABGRASS; SHAGGY CRABGRASS	POACEAE		
<i>Digitaria serotina</i>	BLANKET CRABGRASS; DWARF CRABGRASS	POACEAE		
<i>Diodia teres</i>	POOR JOE; ROUGH BUTTONWEED	RUBIACEAE		
<i>Diodia virginiana</i>	VIRGINIA BUTTONWEED	RUBIACEAE		
<i>Diospyros virginiana</i>	COMMON PERSIMMON	EBENACEAE		
<i>Distichlis spicata</i>	SALTGRASS	POACEAE		
<i>Dodonaea viscosa</i>	VARNISHLEAF; FLORIDA HOPBUSH	SAPINDACEAE		
<i>Drosera brevifolia</i>	DWARF SUNDEW	DROSERACEAE		
<i>Drosera capillaris</i>	PINK SUNDEW	DROSERACEAE		
<i>Drymaria cordata</i>	DRYMARY; WEST INDIAN CHICKWEED	CARYOPHYLLACEAE		
<i>Dryopteris ludoviciana</i>	SOUTHERN WOOD FERN	DRYOPTERIDACEAE		
<i>Drypetes lateriflora</i>	GUIANA PLUM	EUPHORBIACEAE		T
<i>Dyschoriste oblongifolia</i>	OBLONGLEAF TWINFLOWER; SNAKEHERB	ACANTHACEAE		
<i>Echinochloa paludigena</i>	FLORIDA COCKSPUR	POACEAE		
<i>Echinochloa walteri</i>	COAST COCKSPUR	POACEAE		
<i>Echites umbellatus</i>	DEVIL'S POTATO; RUBBERVINE	APOCYNACEAE		
<i>Elipta prostrata</i>	FALSE DAISY	ASTERACEAE		
<i>Eleocharis albida</i>	WHITE SPIKERUSH	CYPERACEAE		
<i>Eleocharis baldwinii</i>	BALDWIN'S SPIKERUSH; ROADGRASS	CYPERACEAE		
<i>Eleocharis cellulose</i>	GULF COAST SPIKERUSH	CYPERACEAE		
<i>Eleocharis elongate</i>	SLIM SPIKERUSH	CYPERACEAE		
<i>Eleocharis flavescens</i>	YELLOW SPIERUSH; PALE SPIKERUSH	CYPERACEAE		
<i>Eleocharis geniculate</i>	CANADA SPIKERUSH	CYPERACEAE		
<i>Eleocharis interstincta</i>	KNOTTED SPIKERUSH	CYPERACEAE		
<i>Eleocharis montevidensis</i>	SAND SPIKERUSH	CYPERACEAE		
<i>Eleocharis parvula</i>	DWARF SPIKERUSH	CYPERACEAE		
<i>Eleocharis vivipara</i>	VIVIPAROUS SPIKERUSH	CYPERACEAE		
<i>Elephantopus elatus</i>	TALL ELEPHANTSFOT	ASTERACEAE		
<i>Encyelia tampensis</i>	FLORIDA BUTTERFLY ORCHID	ORCHIDACEAE		
<i>Epidendrum conopseum</i>	GREEN-FLY ORCHID	ORCHIDACEAE		
<i>Eragrostis elliottii</i>	ELLIOTT'S LOVEGRASS	POACEAE		

SCIENTIFIC NAME	COMMON NAMES	FAMILY	US	FL
<i>Eragrostis hirsute</i>	BIGTOP LOVEGRASS	POACEAE		
<i>Eragrostis Secundiflora</i> subsp. <i>Oxylipsis</i>	RED LOVEGRASS	POACEAE		
<i>Eragrostis spectabilis</i>	PURPLE LOVEGRASS	POACEAE		
<i>Eragrostis virginica</i>	COASTAL LOVEGRASS	POACEAE		
<i>Erechtites hieraciifolius</i>	AMERICAN BURNWEED; FIREWEED	ASTERACEAE		
<i>Erigeron quercifolius</i>	OAKLEAF FLEABANE	ASTERACEAE		
<i>Erigeron vernus</i>	EARLY WHITETOP FLEABANE	ASTERACEAE		
<i>Eriocaulon compressum</i>	FLATTENED PIPEWORT	ERIOCAULACEAE		
<i>Eriocaulon decangulare</i>	TENANGLE PIPEWORT	ERIOCAULACEAE		
<i>Eriochloa michauxii</i>	MICHAUX'S CUPGRASS	POACEAE		
<i>Ernodea littoralis</i>	BEACH CREEPER; COUGHBUSH	RUBIACEAE		
<i>Eryngium aromaticum</i>	FRAGRANT ERYNGO	APIACEAE		
<i>Eryngium baldwinii</i>	BALDWIN'S ERYNGO	APIACEAE		
<i>Eryngium yuccifolium</i>	BUTTON RATTLESNAKEMASTER; BUTTON ERYNGO	APIACEAE		
<i>Erythrina herbacea</i>	CORALBEAN; CHEROKEE BEAN	FABACEAE		
<i>Eugenia foetida</i>	SPANISH STOPPER; BOXLEAF STOPPER	MYRTACEAE		
<i>Eulophia alta</i>	WILD COCO	ORCHIDACEAE		
<i>Eupatorium compositifolium</i>	YANKEEWEEED	ASTERACEAE		
<i>Eupatorium leptophyllum</i>	FALSEFENNEL	ASTERACEAE		
<i>Eupatorium mikanioides</i>	SEMAPHORE THOROUGHWORT	ASTERACEAE		
<i>Eupatorium mohrii</i>	MOHR'S THOROUGHWORT	ASTERACEAE		
<i>Eupatorium rotundifolium</i>	ROUNDLEAF THOROUGHWORT; FALSE HOREHOUND	ASTERACEAE		
<i>Eupatorium serotinum</i>	LATEFLOWERING THOROUGHWORT	ASTERACEAE		
<i>Eupatorium x anomalum</i>	FLORIDA THOROUGHWORT	ASTERACEAE		
<i>Euphorbia polyphylla</i>	LESSER FLORIDA SPURGE	EUPHORBIACEAE		
<i>Eustachys glauca</i>	SALTMARSH FINGERGRASS	POACEAE		
<i>Eustachys neglecta</i>	FOURSPIKE FINGERGRASS	POACEAE		
<i>Eustachys petraea</i>	PINEWOODS FINGERGRASS	POACEAE		
<i>Eustoma exaltatum</i>	MARSHGENTIAN; CATCHFLY PRAIRIE-GENTIAN	GENTIANACEAE		
<i>Euthamia caroliniana</i>	SLENDER FLATTOP GOLDENROD	ASTERACEAE		
<i>Evovulus sericeus</i>	SILVER DWARF MORNING-GLORY	CONVOLVULACEAE		
<i>Exothea paniculate</i>	INKWOOD; BUTTERBOUGH	SAPINDACEAE		
<i>Ficus aurea</i>	STRANGLER FIG; GOLDEN FIG	MORACEAE		
<i>Fimbristylis autumnalis</i>	SLENDER FIMBRY	CYPERACEAE		
<i>Fimbristylis caroliniana</i>	CAROLINA FIMBRY	CYPERACEAE		
<i>Fimbristylis cymosa</i>	HURRICANEGRASS	CYPERACEAE		
<i>Fimbristylis dichotoma</i>	FORKED FIMBRY	CYPERACEAE		
<i>Fimbristylis puberula</i>	HAIRY FIMBRY	CYPERACEAE		
<i>Fimbristylis spadicea</i>	MARSH FIMBRY	CYPERACEAE		
<i>Flaveria linearis</i>	NARROWLEAF YELLOWTOPS	ASTERACEAE		
<i>Forestiera segregate</i>	FLORIDA SWAMPPRIVET	OLEACEAE		
<i>Fraxinus caroliniana</i>	CAROLINA ASH; WATER ASH; POP ASH	OLEACEAE		
<i>Fraxinus pennsylvanica</i>	GREEN ASH; PUMPKIN ASH	OLEACEAE		
<i>Froelichia floridana</i>	COTTONWEED; PLAINS SNAKECOTTON	AMARANTHACEAE		
<i>Fuirena breviseta</i>	SALTMARSH UMBRELLASEDGE	CYPERACEAE		
<i>Fuirena pumila</i>	DWARF UMBRELLASEDGE	CYPERACEAE		
<i>Fuirena scirpoidea</i>	SOUTHERN UMBRELLASEDGE	CYPERACEAE		
<i>Gaillardia pulchella</i>	FIREWHEEL	ASTERACEAE		
<i>Galactia elliottii</i>	ELLIOTT'S MILKPEA	FABACEAE		
<i>Galactia regularis</i>	EASTERN MILKPEA	FABACEAE		
<i>Galactia volubilis</i>	DOWNY MILKPEA	FABACEAE		
<i>Galium hispidulum</i>	COASTAL BEDSTRAW	RUBIACEAE		
<i>Galium tinctorium</i>	STIFF MARSH BEDSTRAW	RUBIACEAE		

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<i>Gamochaeta antillana</i>	CARIBBEAN PURPLE EVERLASTING	ASTERACEAE		
<i>Garberia heterophylla</i>	GARBERIA	ASTERACEAE		T
<i>Gaura angustifolia</i>	SOUTHERN BEEBLOSSOM	ONAGRACEAE		
<i>Gaylussacia dumosa</i>	DWARF HUCKLEBERRY	ERICACEAE		
<i>Gelsemium sempervirens</i>	YELLOW JESSAMINE; CAROLINA JESSAMINE	GELSEMIACEAE		
<i>Geranium carolinianum</i>	CAROLINA CRANESBILL	GERANIACEAE		
<i>Glandularia maritima</i>	COASTAL MOCK VERVAIN	VERBENACEAE		E
<i>Glandularia tampensis</i>	TAMPA MOCK VERVAIN	VERBENACEAE		E
<i>Gleditsia aquatic</i>	WATER LOCUST	FABACEAE		
<i>Gordonia lasianthus</i>	LOBLOLLY BAY	THEACEAE		
<i>Gouania lupuloides</i>	CHEWSTICK; WHITEROOT	RHAMNACEAE		
<i>Gratiola hispida</i>	ROUGH HEDGEHYSSOP	VERONICACEAE		
<i>Gratiola ramosa</i>	BRANCHES HEDGEHYSSOP	VERONICACEAE		
<i>Guapira discolor</i>	BEEFTREE; BLOLLY	NYCTAGINACEAE		
<i>Gymnopogon chapmanianus</i>	CHAPMAN'S SKELETONGRASS	POACEAE		
<i>Habenaria floribunda</i>	TOOTHPETAL FALSE REINORCHID; MIGNONETTE	ORCHIDACEAE		
<i>Habenaria nivea</i>	SNOWY ORCHID	ORCHIDACEAE		T
<i>Habenaria quinqueseta</i>	LONGHORN FALSE REINORCHID; MICHAUX'S ORCHID	ORCHIDACEAE		
<i>Habenaria repens</i>	WATERSPIDER FALSE REINORCHID	ORCHIDACEAE		
<i>Halodule wrightii</i>	SHOALWEED	CYMODOCACEAE		
<i>Halophila decipiens</i>	CARIBBEAN SEAGRASS	HYDROCHARITACEAE		
<i>Halophila engelmannii</i>	ENGELMANN'S SEAGRASS	HYDROCHARITACEAE		
<i>Halophila johnsonii</i>	JOHNSON'S SEAGRASS	HYDROCHARITACEAE		
<i>Hamelia patens</i>	FIREBUSH	RUBIACEAE		
<i>Harrisia fragrans</i>	CARIBBEAN APPLECACTUS; PRICKLY-APPLE	CACTACEAE	E	E
<i>Harrisia simpsonii</i>	SIMPSON'S APPLECACTUS	CACTACEAE		
<i>Helenium amarum</i>	SPANISH DAISY; BITTERWEED	ASTERACEAE		
<i>Helenium pinnatifidum</i>	SOUTHEASTERN SNEEZEWEED	ASTERACEAE		
<i>Helianthemum corymbosum</i>	PINEBARREN FROSTWEED	CISTACEAE		
<i>Helianthemum nashi</i>	FLORIDA SCRUB FROSTWEED	CISTACEAE		
<i>Helianthus agrestis</i>	SOUTHEASTERN SUNFLOWER	ASTERACEAE		
<i>Helianthus angustifolius</i>	NARROWLEAF SUNFLOWER; SWAMP SUNFLOWER	ASTERACEAE		
<i>Helianthus debilis</i>	EAST COAST DUNE SUNFLOWER	ASTERACEAE		
<i>Heliotropium angiospermum</i>	SCORPIONSTAIL	BORAGINACEAE		
<i>Heliotropium curassavicum</i>	SEASIDE HELIOTROPE; SALT HELIOTROPE	BORAGINACEAE		
<i>Heliotropium polyphyllum</i>	PINELAND HELIOTROPE	BORAGINACEAE		
<i>Herissantia crispa</i>	BLADDERMALLOW	MALVACEAE		
<i>Heterotheca subaxillaris</i>	CAMPHORWEED	ASTERACEAE		
<i>Hexalectris spicata</i>	SPIKED CRESTED CORALROOT	ORCHIDACEAE		E
<i>Hibiscus coccineus</i>	SCARLET ROSEMALLOW	MALVACEAE		
<i>Hibiscus furcellatus</i>	LINDENLEAF ROSEMALLOW	MALVACEAE		
<i>Hibiscus grandifloras</i>	SWAMP ROSEMALLOW	MALVACEAE		
<i>Hieracium gronovii</i>	QUEEN-DEVIL	ASTERACEAE		
<i>Hieracium megacephalon</i>	COASTALPLAIN HAWKWEED	ASTERACEAE		
<i>Houstonia procumbens</i>	INNOCENCE; ROUNDLEAF BLUET	RUBIACEAE		
<i>Hydrocotyle bonariensis</i>	LARGELEAF MARSHPENNYWORT	ARALIACEAE		
<i>Hydrocotyle ranunculoides</i>	FLOATING MARSHPENNYWORT	ARALIACEAE		
<i>Hydrocotyle umbellata</i>	MANYFLOWER MARSHPENNYWORT	ARALIACEAE		
<i>Hydrolea corymbosa</i>	SKYFLOWER	HYDROLEACEAE		
<i>Hymenocallis latifolia</i>	MANGROVE SPIDERLILY; PERFUMED SPIDERLILY	AMARYLLIDACEAE		
<i>Hymenocallis palmeri</i>	ALLIGATORLILY	AMARYLLIDACEAE		
<i>Hypericum brachyphyllum</i>	COASTALPLAIN ST. JOHN'S-WORT	CLUSIACEAE		
<i>Hypericum cistifolium</i>	ROUNDPOD ST. JOHN'S-WORT	CLUSIACEAE		

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<i>Hypericum fasciculatum</i>	SANDWEED; PEELBARK ST.JOHN'S-WORT	CLUSIACEAE		
<i>Hypericum gentianoides</i>	PINEWEEDS; ORANGEGRASS	CLUSIACEAE		
<i>Hypericum hypericoides</i>	ST.ANDREW'S-CROSS	CLUSIACEAE		
<i>Hypericum mutilum</i>	DWARF ST.JOHN'S-WORT	CLUSIACEAE		
<i>Hypericum tenuifolium</i>	ATLANTIC ST.JOHN'S-WORT	CLUSIACEAE		
<i>Hypericum tetrapetalum</i>	FOURPETAL ST.JOHN'S-WORT	CLUSIACEAE		
<i>Hypoxis juncea</i>	FRINGED YELLOW STARGRASS	HYPOXIDACEAE		
<i>Hyptis alata</i>	CLUSTERED BUSHMINT; MUSKY MINT	LAMIACEAE		
<i>Ilex ambigua</i>	CAROLINA HOLLY; SAND HOLLY	AQUIFOLIACEAE		
<i>Ilex cassine</i>	DAHOON	AQUIFOLIACEAE		
<i>Ilex glabra</i>	INKBERRY; GALLBERRY	AQUIFOLIACEAE		
<i>Ilex vomitoria</i>	YAUPON	AQUIFOLIACEAE		
<i>Indigofera caroliniana</i>	CAROLINA INDIGO	FABACEAE		
<i>Ipomoea alba</i>	TROPICAL WHITE MORNING-GLORY	CONVOLVULACEAE		
<i>Ipomoea cordatotriloba</i>	TIEVINE	CONVOLVULACEAE		
<i>Ipomoea hederifolia</i>	SCARLETCREEPER	CONVOLVULACEAE		
<i>Ipomoea imperati</i>	BEACH MORNING-GLORY	CONVOLVULACEAE		
<i>Ipomoea indica</i> var. <i>acuminata</i>	OCEANBLUE MORNING-GLORY	CONVOLVULACEAE		
<i>Ipomoea pandurata</i>	MAN-OF-THE-EARTH	CONVOLVULACEAE		
<i>Ipomoea pes-caprae</i> subsp. <i>brasiliensis</i>	RAILROAD VINE; BAYHOPS	CONVOLVULACEAE		
<i>Ipomoea sagittata</i>	SALTMARSH MORNING-GLORY	CONVOLVULACEAE		
<i>Ipomopsis rubra</i>	STANDINGCYPRESS; SPANISH LARKSPUR	POLEMONIACEAE		
<i>Iresine diffusa</i>	JUBA'S BUSH	AMARANTHACEAE		
<i>Iris hexagona</i>	DIXIE IRIS; PRAIRIE IRIS	IRIDACEAE		
<i>Isoetes flaccida</i>	FLORIDA QUILLWORT	ISOETACEAE		
<i>Itea virginica</i>	VIRGINIA WILLOW; VIRGINIA SWEETSPIRE	ITEACEAE		
<i>Iva frutescens</i>	BIGLEAF SUMPWEED	ASTERACEAE		
<i>Iva imbricata</i>	SEACOAST MARSHELDER	ASTERACEAE		
<i>Iva microcephala</i>	PIEDMONT MARSHELDER	ASTERACEAE		
<i>Juncus dichotomus</i>	FORKED RUSH	JUNCACEAE		
<i>Juncus effusus</i> subsp. <i>solutus</i>	SOFT RUSH	JUNCACEAE		
<i>Juncus elliotii</i>	BOG RUSH; ELLIOTT'S RUSH	JUNCACEAE		
<i>Juncus marginatus</i>	SHORE RUSH; GRASSLEAF RUSH	JUNCACEAE		
<i>Juncus megacephalus</i>	BIGHEAD RUSH	JUNCACEAE		
<i>Juncus polycephalus</i>	MANYHEAD RUSH	JUNCACEAE		
<i>Juncus roemerianus</i>	NEEDLE RUSH; NEEDLEGRASS OR BLACK RUSH	JUNCACEAE		
<i>Juncus scirpoides</i>	NEEDLEPOD RUSH	JUNCACEAE		
<i>Juniperus virginiana</i>	RED CEDAR	CUPRESSACEAE		
<i>Justicia angusta</i>	PINELAND WATERWILLOW	ACANTHACEAE		
<i>Kosteletzkya pentacarpos</i>	VIRGINIA SALTMARSH MALLOW	MALVACEAE		
<i>Krugiodendron ferreum</i>	BLACK IRONWOOD; LEADWOOD	RHAMNACEAE		
<i>Kyllinga odorata</i>	FRAGRANT SPIKESEDGE	CYPERACEAE		
<i>Lachnanthes caroliniana</i>	CAROLINA REDROOT	HAEMODORACEAE		
<i>Lachnocaulon anceps</i>	WHITEHEAD BOGBUTTON	ERIOCAULACEAE		
<i>Lachnocaulon beyrichianum</i>	SOUTHERN BOGBUTTON	ERIOCAULACEAE		
<i>Lactuca floridana</i>	WOODLAND LETTUCE	ASTERACEAE		
<i>Lactuca graminifolia</i>	GRASSLEAF LETTUCE	ASTERACEAE		
<i>Laguncularia racemosa</i>	WHITE MANGROVE	COMBRETACEAE		
<i>Lantana involucrata</i>	BUTTONSAGE	VERBENACEAE		
<i>Lasiacis divaricata</i>	SMALLCANE; FLORIDA TIBISEE	POACEAE		
Lechea cernua	NODDING PINWEED; SCRUB PINWEED	CISTACEAE		T
Lechea divaricata	DRYSAND PINWEED; SPREADING PINWEED	CISTACEAE		E
<i>Lechea minor</i>	THYMELEAF PINWEED	CISTACEAE		
<i>Lechea mucronata</i>	HAIRY PINWEED	CISTACEAE		

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<i>Lechea sessiliflora</i>	PINELAND PINWEED	CISTACEAE		
<i>Lechea torreyi</i>	PIEDMONT PINWEED	CISTACEAE		
<i>Leersia hexandra</i>	SOUTHERN CUTGRASS	POACEAE		
<i>Lemna obscura</i>	LITTLE DUCKWEED	ARACEAE		
<i>Lepidium virginicum</i>	VIRGINIA PEPPERWEED	BRASSICACEAE		
<i>Leptochloa fusca</i> subsp. <i>fascicularis</i>	BEARDED SPRANGLETOP	POACEAE		
<i>Leptochloa fusca</i> subsp. <i>uninervia</i>	MEXICAN SPRANGLETOP	POACEAE		
<i>Liatris chapmanii</i>	CHAPMAN'S GAYFEATHER	ASTERACEAE		
<i>Liatris garberi</i>	GARBER'S GAYFEATHER	ASTERACEAE		
<i>Liatris gracilis</i>	SLENDER GAYFEATHER	ASTERACEAE		
<i>Liatris spicata</i>	DENSE GAYFEATHER	ASTERACEAE		
<i>Liatris tenuifolia</i> var. <i>quadriflora</i>	SHORTLEAF GAYFEATHER	ASTERACEAE		
<i>Licania michauxii</i>	GOPHER APPLE	CHRYSOBALANACEAE		
<i>Lilium catesbaei</i>	CATESBY'S LILY; PINE LILY	LILIACEAE		T
<i>Limnobium spongia</i>	AMERICAN SPONGEPLANT; FROG'S-BIT	HYDROCHARITACEAE		
<i>Limonium carolinianum</i>	CAROLINA SEALAVENDER	PLUMBAGINACEAE		
<i>Linaria canadensis</i>	CANADIAN TOADFLAX	VERONICACEAE		
<i>Linaria floridana</i>	APALACHICOLA TOADFLAX	VERONICACEAE		
<i>Lindera benzoin</i>	NORTHERN SPICEBUSH	LAURACEAE		
<i>Lindernia dubia</i> var. <i>anagallidea</i>	YELLOWSEED FALSE PIMPERNEL	VERONICACEAE		
<i>Lindernia grandiflora</i>	SAVANNAH FALSE PIMPERNEL	VERONICACEAE		
<i>Linum floridanum</i>	FLORIDA YELLOW FLAX	LINACEAE		
<i>Lipocarpa micrantha</i>	SMALLFLOWER HALFCHAFF SEDGE	CYPERACEAE		
<i>Liquidambar styraciflua</i>	SWEETGUM	ALTINGIACEAE		
<i>Lobelia feayana</i>	BAY LOBELIA	CAMPANULACEAE		
<i>Lobelia glandulosa</i>	GLADE LOBELIA	CAMPANULACEAE		
<i>Lobelia homophylla</i>	PINELAND LOBELIA	CAMPANULACEAE		
<i>Lobelia paludosa</i>	WHITE LOBELIA	CAMPANULACEAE		
<i>Lobelia puberula</i>	DOWNY LOBELIA	CAMPANULACEAE		
<i>Ludwigia alata</i>	WINGED PRIMROSEWILLOW	ONAGRACEAE		
<i>Ludwigia curtissii</i>	CURTISS' PRIMROSEWILLOW	ONAGRACEAE		
<i>Ludwigia decurrens</i>	WINGLEAF PRIMROSEWILLOW	ONAGRACEAE		
<i>Ludwigia lanceolata</i>	LANCELEAF PRIMROSEWILLOW	ONAGRACEAE		
<i>Ludwigia linifolia</i>	SOUTHEASTERN PRIMROSEWILLOW	ONAGRACEAE		
<i>Ludwigia maritima</i>	SEASIDE PRIMROSEWILLOW	ONAGRACEAE		
<i>Ludwigia octovalvis</i>	MEXICAN PRIMROSEWILLOW	ONAGRACEAE		
<i>Ludwigia repens</i>	CREEPING PRIMROSEWILLOW	ONAGRACEAE		
<i>Ludwigia suffruticosa</i>	SHRUBBY PRIMROSEWILLOW	ONAGRACEAE		
<i>Lupinus diffusus</i>	SKYBLUE LUPINE	FABACEAE		
<i>Luziola fluitans</i>	SOUTHERN WATERGRASS	POACEAE		
<i>Lycium carolinianum</i>	CHRISTMASBERRY; CAROLINA DESERT-THORN	SOLANACEAE		
<i>Lycopodiella appressa</i>	SOUTHERN CLUB-MOSS	LYCOPODIACEAE		
<i>Lycopodiella cernua</i>	NODDING CLUB-MOSS; STAGHORN CLUB-MOSS	LYCOPODIACEAE		
<i>Lygodesmia aphylla</i>	ROSE-RUSH	ASTERACEAE		
<i>Lyonia ferruginea</i>	RUSTY STAGGERBUSH	ERICACEAE		
<i>Lyonia fruticosa</i>	COASTALPLAIN STAGGERBUSH	ERICACEAE		
<i>Lyonia lucida</i>	FETTERBUSH	ERICACEAE		
<i>Lythrum alatum</i> var. <i>lanceolatum</i>	WINGED LOOSESTRIFE	LYTHRACEAE		
<i>Magnolia virginiana</i>	SWEETBAY	MAGNOLIACEAE		
<i>Malvastrum corchorifolium</i>	FALSE MALLOW	MALVACEAE		
<i>Marshallia graminifolia</i>	GRASSLEAF BARBARA'S BUTTONS	ASTERACEAE		
<i>Matelea gonocarpos</i>	ANGULARFRUIT MILKVINE; ANGLE POD	APOCYNACEAE		T
<i>Mecardonia acuminata</i> subsp. <i>peninsularis</i>	AXILFLOWER	VERONICACEAE		
<i>Melanthera nivea</i>	SNOW SQUARESTEM	ASTERACEAE		
<i>Melothria pendula</i>	CREEPING CUCUMBER	CUCURBITACEAE		

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<i>Mentzelia floridana</i>	POORMAN'S PATCH; STICKLEAF	LOASACEAE		
<i>Micromeria brownei</i> var. <i>pilosiuscula</i>	BROWNE'S SAVORY	LAMIACEAE		
<i>Mikania cordifolia</i>	FLORIDA KEYS HEMPVINE	ASTERACEAE		
<i>Mikania scandens</i>	CLIMBING HEMPVINE	ASTERACEAE		
<i>Mimosa quadrivalvis</i> var. <i>floridana</i>	FLORIDA SENSITIVE BRIER	FABACEAE		
<i>Mimosa strigillosa</i>	POWDERPUFF	FABACEAE		
<i>Mitreola petiolata</i>	LAX HORNPOD	LOGANIACEAE		
<i>Mitreola sessilifolia</i>	SWAMP HORNPOD	LOGANIACEAE		
<i>Modiola caroliniana</i>	CAROLINA BRISTLEMALLOW	MALVACEAE		
<i>Monanthochloe littoralis</i>	SHOREGRASS; KEYGRASS	POACEAE		
<i>Monarda punctata</i>	SPOTTED BEEBALM	LAMIACEAE		
<i>Monotropa uniflora</i>	INDIANPIPE	ERICACEAE		
<i>Morinda royoc</i>	REDGAL	RUBIACEAE		
<i>Morus rubra</i>	RED MULBERRY	MORACEAE		
<i>Muhlenbergia capillaris</i>	HAIRAWN MUHLY	POACEAE		
<i>Muhlenbergia capillaris</i> var. <i>filipes</i>	GULF HAIRAWN MUHLY	POACEAE		
Myrcianthes fragrans	TWINBERRY; SIMPSON'S STOPPER	MYRTACEAE		T
<i>Myrica cerifera</i>	SOUTHERN BAYBERRY; WAX MYRTLE	MYRICACEAE		
<i>Najas guadalupensis</i>	SOUTHERN WATERNYMPH	HYDROCHARITACEAE		
<i>Najas marina</i>	SPINY WATERNYMPH	HYDROCHARITACEAE		
<i>Nasturtium floridanum</i>	FLORIDA WATERCRESS	BRASSICACEAE		
Nemastylis floridana	CELESTIAL LILY; FALLFLOWERING IXIA	IRIDACEAE		E
<i>Nephrolepis exaltata</i>	SWORD FERN; WILD BOSTON FERN	NEPHROLEPIDACEAE		
<i>Neptunia pubescens</i>	TROPICAL PUFF	FABACEAE		
Nolina atopocarpa	FLORIDA BEARGRASS	RUSCACEAE		T
<i>Nothoscordum bivalve</i>	CROWPOISON; FALSE GARLIC	ALLIACEAE		
<i>Nuphar advena</i>	SPATTERDOCK; YELLOW POND LILY	NYMPHAEACEAE		
<i>Nymphaea mexicana</i>	YELLOW WATERLILY	NYMPHAEACEAE		
<i>Nymphaea odorata</i>	AMERICAN WHITE WATERLILY	NYMPHAEACEAE		
<i>Nymphaea x thiona</i>		NYMPHAEACEAE		
<i>Nymphoides aquatica</i>	BIG FLOATINGHEART	MENYANTHACEAE		
<i>Oclemena reticulata</i>	WHITETOP ASTER; PINEBARREN ASTER	ASTERACEAE		
<i>Ocotea coriacea</i>	LANCEWOOD	LAURACEAE		
<i>Oenothera humifusa</i>	SEABEACH EVENINGPRIMROSE	ONAGRACEAE		
<i>Oenothera laciniata</i>	CUTLEAF EVENINGPRIMROSE	ONAGRACEAE		
<i>Oldenlandia uniflora</i>	CLUSTERED MILLE GRAINES	RUBIACEAE		
Ophioglossum palmatum	HAND FERN	OPHIOGLOSSACEAE		E
<i>Ophioglossum petiolatum</i>	STALKED ADDER'S TONGUE	OPHIOGLOSSACEAE		
<i>Oplismenus hirtellus</i>	WOODSGRASS; BASKETGRASS	POACEAE		
<i>Opuntia humifusa</i>	PRICKLYPEAR	CACTACEAE		
Opuntia stricta	ERECT OR SHELL-MOUND PRICKLYPEAR	CACTACEAE		T
<i>Orontium aquaticum</i>	GOLDENCLUB; NEVERWET	ARACEAE		
<i>Osmanthus americanus</i>	WILD OLIVE; AMERICAN DEVILWOOD	OLEACEAE		
<i>Osmanthus megacarpus</i>	SCRUB WILD OLIVE	OLEACEAE		
<i>Osmunda cinnamomea</i>	CINNAMON FERN	OSMUNDACEAE		
<i>Osmunda regalis</i> var. <i>spectabilis</i>	ROYAL FERN	OSMUNDACEAE		
<i>Oxalis corniculata</i>	COMMON YELLOW OR CREEPING WOODSORREL	OXALIDACEAE		
<i>Oxypolis filiformis</i>	WATER COWBANE	APIACEAE		
<i>Packera glabella</i>	BUTTERWEED	ASTERACEAE		
<i>Palafoxia feayi</i>	FEAY'S PALAFOX	ASTERACEAE		
<i>Palafoxia integrifolia</i>	COASTALPLAIN PALAFOX	ASTERACEAE		
<i>Panicum amarum</i>	BITTER PANICGRASS	POACEAE		
<i>Panicum anceps</i>	BEAKED PANICUM	POACEAE		
<i>Panicum dichotomiflorum</i>	FALL PANICGRASS	POACEAE		
<i>Panicum dichotomiflorum</i> var. <i>bartowense</i>	FALL PANICGRASS	POACEAE		
<i>Panicum hemitomon</i>	MAIDENCANE	POACEAE		

SCIENTIFIC NAME	COMMON NAMES	FAMILY	US	FL
<i>Panicum hians</i>	GAPING PANICUM	POACEAE		
<i>Panicum rigidulum</i>	REDTOP PANICUM	POACEAE		
<i>Panicum tenerum</i>	BLUEJOINT PANICUM	POACEAE		
<i>Panicum virgatum</i>	SWITCHGRASS	POACEAE		
<i>Parietaria floridana</i>	FLORIDA PELLITORY	URTICACEAE		
<i>Parietaria praetermissa</i>	CLUSTERED PELLITORY	URTICACEAE		
<i>Paronychia americana</i>	AMERICAN NAILWORT	CARYOPHYLLACEAE		
<i>Paronychia baldwinii</i>	BALDWIN'S NAILWORT	CARYOPHYLLACEAE		
<i>Parthenocissus quinquefolia</i>	VIRGINIA CREEPER; WOODBINE	VITACEAE		
<i>Paspalidium geminatum</i>	EGYPTIAN PASPALIDIUM; KISSIMMEEGRASS	POACEAE		
<i>Paspalum conjugatum</i>	SOUR PASPALUM; HILOGRASS	POACEAE		
<i>Paspalum dissectum</i>	MUDBANK CROWNGRASS	POACEAE		
<i>Paspalum distichum</i>	KNOTGRASS	POACEAE		
<i>Paspalum floridanum</i>	FLORIDA PASPALUM	POACEAE		
<i>Paspalum laeve</i>	FIELD PASPALUM	POACEAE		
<i>Paspalum plicatulum</i>	BROWNSEED PASPALUM	POACEAE		
<i>Paspalum praecox</i>	EARLY PASPALUM	POACEAE		
<i>Paspalum repens</i>	WATER PASPALUM	POACEAE		
<i>Paspalum setaceum</i>	THIN PASPALUM	POACEAE		
<i>Paspalum vaginatum</i>	SEASHORE PASPALUM	POACEAE		
<i>Passiflora incarnata</i>	PURPLE PASSIONFLOWER	PASSIFLORACEAE		
<i>Passiflora suberosa</i>	CORKYSTEM PASSIONFLOWER	PASSIFLORACEAE		
<i>Pavonia spinifex</i>	GINGERBUSH	MALVACEAE		
Pecluma dispersa	WIDESPREAD POLYPODY	POLYPODIACEAE		E
Pecluma plumula	PLUME POLYPODY	POLYPODIACEAE		E
Pecluma ptilodon var. bourgeauana	COMB POLYPODY; SWAMP PLUME POLYPODY	POLYPODIACEAE		E
<i>Pectis glaucescens</i>	SANDDUNE CINCHWEED	ASTERACEAE		
<i>Pectis prostrata</i>	SPREADING CINCHWEED	ASTERACEAE		
<i>Penstemon multiflorus</i>	MANYFLOWER BEARDTONGUE	VERONICACEAE		
<i>Pentodon pentandrus</i>	HALES'S PENTODON	RUBIACEAE		
Peperomia humilis	LOW PEPEROMIA	PIPERACEAE		E
Peperomia obtusifolia	FLORIDA PEPEROMIA; BABY RUBBERPLANT	PIPERACEAE		E
<i>Persea borbonia</i>	RED BAY	LAURACEAE		
<i>Persea borbonia var. humilis</i>	SILK BAY	LAURACEAE		
<i>Persea palustris</i>	SWAMP BAY	LAURACEAE		
<i>Petiveria alliacea</i>	GUINEA HEN WEED	PETIVERIACEAE		
<i>Phaseolus polystachios</i>	THICKET BEAN	FABACEAE		
<i>Phlebodium aureum</i>	GOLDEN POLYPODY	POLYPODIACEAE		
<i>Phoebanthus grandiflorus</i>	FLORIDA FALSE SUNFLOWER	ASTERACEAE		
<i>Phoradendron leucarpum</i>	OAK MISTLETOE	VISCACEAE		
<i>Photinia pyrifolia</i>	RED CHOKEBERRY	ROSACEAE		
<i>Phragmites australis</i>	COMMON REED	POACEAE		
<i>Phyla nodiflora</i>	TURKEY TANGLE FOGFRUIT; CAPEWEED	VERBENACEAE		
<i>Phyllanthus abnormis</i>	DRUMMOND'S LEAFFLOWER	EUPHORBIACEAE		
<i>Physalis arenicola</i>	CYPRESSHEAD GROUNDCHERRY	SOLANACEAE		
<i>Physalis walteri</i>	WALTER'S GROUNDCHERRY	SOLANACEAE		
<i>Physostegia purpurea</i>	EASTERN FALSE DRAGONHEAD	LAMIACEAE		
<i>Phytolacca americana</i>	AMERICAN POKEWEEED	PHYTOLACCACEAE		
<i>Piloblephis rigida</i>	WILD PENNYROYAL	LAMIACEAE		
Pinguicula caerulea	BLUEFLOWER BUTTERWORT	LENTIBULARIACEAE		T
Pinguicula lutea	YELLOW-FLOWERED BUTTERWORT	LENTIBULARIACEAE		T
<i>Pinguicula pumila</i>	SMALL BUTTERWORT	LENTIBULARIACEAE		
<i>Pinus clausa</i>	SAND PINE	PINACEAE		
<i>Pinus elliottii</i>	SLASH PINE	PINACEAE		
<i>Pinus palustris</i>	LONGLEAF PINE	PINACEAE		

SCIENTIFIC NAME	COMMON NAMES	FAMILY	US	FL
<i>Pinus serotina</i>	POND PINE	PINACEAE		
<i>Piptochaetium avenacioides</i>	FLORIDA NEEDLEGRASS	POACEAE		
<i>Piriqueta cistoides</i> subsp. <i>caroliniana</i>	PITTED STRIPESEED	TURNERACEAE		
<i>Pistia stratiotes</i>	WATER-LETTUCE	ARACEAE		
<i>Pithecellobium unguis-cati</i>	CATCLAW BLACKBEAD	FABACEAE		
<i>Pityopsis graminifolia</i>	NARROWLEAF SILKGRASS	ASTERACEAE		
<i>Plantago virginica</i>	VIRGINIA PLANTAIN; SOUTHERN PLANTAIN	PLANTAGINACEAE		
<i>Platanthera blephariglottis</i> var. <i>conspicua</i>	WHITE FRINGED ORCHID	ORCHIDACEAE		T
<i>Platanthera ciliaris</i>	YELLOW FRINGED ORCHID	ORCHIDACEAE		T
<i>Pleopeltis polypodioides</i> var. <i>michauxiana</i>	RESURRECTION FERN	POLYPODIACEAE		
<i>Pluchea baccharis</i>	ROSY CAMPHORWEED	ASTERACEAE		
<i>Pluchea foetida</i>	STINKING CAMPHORWEED	ASTERACEAE		
<i>Pluchea longifolia</i>	LONGLEAF CAMPHORWEED	ASTERACEAE		
<i>Pluchea odorata</i>	SWEETSCENT	ASTERACEAE		
<i>Plumbago zeylanica</i>	DOCTORBUSH	PLUMBAGINACEAE		
<i>Poinsettia cyathophora</i>	PAINTEDLEAF; FIRE-ON-THE-MOUNTAIN	EUPHORBIACEAE		
<i>Poinsettia heterophylla</i>	FIDDLER'S SPURGE; MEXICAN FIREPLANT	EUPHORBIACEAE		
<i>Polanisia tenuifolia</i>	SLENDERLEAF CLAMMYWEED	BRASSICACEAE		
<i>Polygala baldwinii</i>	BALDWIN'S MILKWORT	POLYGALACEAE		
<i>Polygala cruciata</i>	DRUMHEADS	POLYGALACEAE		
<i>Polygala cymosa</i>	TALL PINEBARREN MILKWORT	POLYGALACEAE		
<i>Polygala incarnata</i>	PROCESSION FLOWER	POLYGALACEAE		
<i>Polygala lewtonii</i>	LEWTON'S MILKWORT; LEWTON'S POLYGALA	POLYGALACEAE	E	E
<i>Polygala lutea</i>	ORANGE MILKWORT	POLYGALACEAE		
<i>Polygala nana</i>	CANDYROOT	POLYGALACEAE		
<i>Polygala polygama</i>	RACEMED MILKWORT	POLYGALACEAE		
<i>Polygala ramosa</i>	LOW PINEBARREN MILKWORT	POLYGALACEAE		
<i>Polygala rugelii</i>	YELLOW MILKWORT	POLYGALACEAE		
<i>Polygala setacea</i>	COASTALPLAIN MILKWORT	POLYGALACEAE		
<i>Polygala violacea</i>	SHOWY MILKWORT	POLYGALACEAE		
<i>Polygonella ciliata</i>	HAIRY JOINTWEED	POLYGONACEAE		
<i>Polygonella gracilis</i>	TALL JOINTWEED	POLYGONACEAE		
<i>Polygonella polygama</i>	OCTOBER FLOWER	POLYGONACEAE		
<i>Polygonum glabrum</i>	DENSEFLOWER KNOTWEED	POLYGONACEAE		
<i>Polygonum hydropiperoides</i>	MILD WATERPEPPER; SWAMP SMARTWEED	POLYGONACEAE		
<i>Polygonum punctatum</i>	DOTTED SMARTWEED	POLYGONACEAE		
<i>Polygonum scandens</i>	CLIMBING FALSE BUCKWHEAT	POLYGONACEAE		
<i>Polygonum setaceum</i>	BOG SMARTWEED	POLYGONACEAE		
<i>Polypremum procumbens</i>	RUSTWEED; JUNIPERLEAF	TETRACHONDRACEAE		
<i>Pontederia cordata</i>	PICKERELWEED	PONTERIACEAE		
<i>Ponthieva racemosa</i>	HAIRY SHADOW WITCH	ORCHIDACEAE		
<i>Portulaca pilosa</i>	PINK PURSLANE; KISS-ME-QUICK	PORTULACACEAE		
<i>Potamogeton illinoensis</i>	ILLINOIS PONDWEED	POTAMOGETONACEAE		
<i>Potamogeton pusillus</i>	SMALL PONDWEED	POTAMOGETONACEAE		
<i>Proserpinaca palustris</i>	MARSH MERMAIDWEED	HALORAGACEAE		
<i>Prunus caroliniana</i>	CAROLINA LAURELCHERRY	ROSACEAE		
<i>Prunus umbellata</i>	FLATWOODS PLUM; HOG PLUM	ROSACEAE		
<i>Pseudognaphalium obtusifolium</i>	SWEET EVERLASTING; RABBIT TOBACCO	ASTERACEAE		
<i>Psilotum nudum</i>	WHISK-FERN	PSILOTAACEAE		
<i>Psychotria nervosa</i>	WILD COFFEE	RUBIACEAE		
<i>Psychotria sulzneri</i>	SHORTLEAF WILD COFFEE	RUBIACEAE		
<i>Pteridium aquilinum</i> var. <i>caudatum</i>	LACY BRACKEN	DENNSTAEDTIACEAE		

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<i>Pteridium aquilinum</i> var. <i>pseudocaudatum</i>	TAILED BRACKEN	DENNSTAEDTIACEAE		
<i>Pterocaulon pycnostachyum</i>	BLACKROOT	ASTERACEAE		
<i>Pteroglossaspis ecristata</i>	GIANT ORCHID; NON-CRESTED EULOPHIA	ORCHIDACEAE		T
<i>Ptilimnium capillaceum</i>	MOCK BISHOPSWEEED; HERBWILLIAM	APIACEAE		
<i>Pyrrhopappus carolinianus</i>	CAROLINA DESERTCHICORY	ASTERACEAE		
<i>Quercus chapmanii</i>	CHAPMAN'S OAK	FAGACEAE		
<i>Quercus elliotii</i>	RUNNING OAK	FAGACEAE		
<i>Quercus geminata</i>	SAND LIVE OAK	FAGACEAE		
<i>Quercus incana</i>	BLUEJACK OAK	FAGACEAE		
<i>Quercus laevis</i>	TURKEY OAK	FAGACEAE		
<i>Quercus laurifolia</i>	LAUREL OAK; DIAMOND OAK	FAGACEAE		
<i>Quercus minima</i>	DWARF LIVE OAK	FAGACEAE		
<i>Quercus myrtifolia</i>	MYRTLE OAK	FAGACEAE		
<i>Quercus virginiana</i>	LIVE OAK	FAGACEAE		
<i>Randia aculeata</i>	WHITE INDIGOBERRY	RUBIACEAE		
<i>Rapanea punctata</i>	MYRSINE; COLICWOOD	MYRSINACEAE		
<i>Reimarochloa oligostachya</i>	FLORIDA REIMARGRASS	POACEAE		
<i>Rhabdadenia biflora</i>	RUBBERVINE; MANGROVEVINE	APOCYNACEAE		
<i>Rhapidophyllum hystrix</i>	NEEDLE PALM	ARECACEAE		
<i>Rhexia cubensis</i>	WEST INDIAN MEADOWBEAUTY	MELASTOMATACEAE		
<i>Rhexia mariana</i>	PALE OR MARYLAND MEADOWBEAUTY	MELASTOMATACEAE		
<i>Rhexia nashii</i>	MAID MARIAN	MELASTOMATACEAE		
<i>Rhexia nuttallii</i>	NUTTALL'S MEADOWBEAUTY	MELASTOMATACEAE		
<i>Rhexia petiolata</i>	FRINGED MEADOWBEAUTY	MELASTOMATACEAE		
<i>Rhizophora mangle</i>	RED MANGROVE	RHIZOPHORACEAE		
<i>Rhus copallinum</i>	WINGED SUMAC	ANACARDIACEAE		
<i>Rhynchosia cinerea</i>	BROWNSHAIR SNOOTBEAN	FABACEAE		
<i>Rhynchosia minima</i>	LEAST SNOOTBEAN	FABACEAE		
<i>Rhynchospora baldwinii</i>	BALDWIN'S BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora cephalantha</i>	BUNCHED BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora ciliaris</i>	FRINGED BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora colorata</i>	STARRUSH WHITETOP	CYPERACEAE		
<i>Rhynchospora corniculata</i>	SHORTBRISTLE HORNED BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora decurrens</i>	SWAMPFOREST BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora divergens</i>	SPREADING BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora fascicularis</i>	FASCICLED BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora filifolia</i>	THREADLEAF BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora globularis</i>	GLOBE BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora intermedia</i>	PINEBARREN BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora inundata</i>	NARROWFRUIT HORNED BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora latifolia</i>	GIANT WHITETOP; SANDSWAMP WHITETOP	CYPERACEAE		
<i>Rhynchospora megalocarpa</i>	SANDYFIELD BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora microcarpa</i>	SOUTHERN BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora miliacea</i>	MILLET BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora nitens</i>	SHORTBEAK BEAKSEDGE; BALDRUSH	CYPERACEAE		
<i>Rhynchospora odorata</i>	FRAGRANT BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora plumosa</i>	PLUMED BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora pusilla</i>	FAIRY BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora rariflora</i>	FEWFLOWER BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora tracyi</i>	TRACY'S BEAKSEDGE	CYPERACEAE		
<i>Rhynchospora wrightiana</i>	WRIGHT'S BEAKSEDGE	CYPERACEAE		
<i>Rivina humilis</i>	ROUGEPLANT	PETIVERIACEAE		
<i>Rorippa teres</i>	SOUTHERN MARSH YELLOWCRESS	BRASSICACEAE		
<i>Rotala ramosior</i>	LOWLAND ROTALA; TOOTH CUP	LYTHRACEAE		
<i>Rubus argutus</i>	SAWTOOTH BLACKBERRY	ROSACEAE		

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<i>Rubus trivialis</i>	SOUTHERN DEWBERRY	ROSACEAE		
<i>Rudbeckia hirta</i>	BLACKEYED SUSAN	ASTERACEAE		
<i>Ruellia caroliniensis</i>	CAROLINA WILD PETUNIA	ACANTHACEAE		
<i>Rumex hastatulus</i>	HEARTWING DOCK; HASTATELEAF DOCK	POLYGONACEAE		
<i>Rumex verticillatus</i>	SWAMP DOCK	POLYGONACEAE		
<i>Ruppia maritima</i>	WIGEONGRASS	RUPPIACEAE		
<i>Sabal etonia</i>	SCRUB PALMETTO	ARECACEAE		
<i>Sabal palmetto</i>	CABBAGE PALM	ARECACEAE		
<i>Sabatia brevifolia</i>	SHORTLEAF ROSEGENTIAN	GENTIANACEAE		
<i>Sabatia decandra</i>	BARTRAM'S ROSEGENTIAN	GENTIANACEAE		
<i>Sabatia grandiflora</i>	LARGEFLOWER ROSEGENTIAN	GENTIANACEAE		
<i>Sabatia stellaris</i>	ROSE-OF-PLYMOUTH	GENTIANACEAE		
<i>Saccharum giganteum</i>	SUGARCANE PLUMEGRASS	POACEAE		
<i>Sacciolepis striata</i>	AMERICAN CUPSCALE	POACEAE		
<i>Sacoila lanceolata</i>	LEAFLESS BEAKED LADIESTRESSES ORCHID	ORCHIDACEAE		T
<i>Sageretia minutiflora</i>	SMALLFLOWER MOCK BUCKTHORN	RHAMNACEAE		
<i>Sagittaria filiformis</i>	THREADLEAF ARROWHEAD	ALISMATACEAE		
<i>Sagittaria graminea</i>	GRASSY ARROWHEAD	ALISMATACEAE		
<i>Sagittaria isoetiformis</i>	QUILLWORT ARROWHEAD	ALISMATACEAE		
<i>Sagittaria lancifolia</i>	BULLTONGUE ARROWHEAD	ALISMATACEAE		
<i>Salicornia bigelovii</i>	ANNUAL GLASSWORT; DWARF GLASSWORT	AMARANTHACEAE		
<i>Salix caroliniana</i>	CAROLINA WILLOW; COASTALPLAIN WILLOW	SALICACEAE		
<i>Salvia coccinea</i>	TROPICAL SAGE; BLOOD SAGE	LAMIACEAE		
<i>Salvia lyrata</i>	LYRELEAF SAGE	LAMIACEAE		
<i>Salvia misella</i>	SOUTHERN RIVER SAGE; RIVER SAGE	LAMIACEAE		
<i>Sambucus nigra</i> subsp. <i>canadensis</i>	AMERICAN ELDER; ELDERBERRY	ADOXACEAE		
<i>Samolus ebracteatus</i>	WATER PIMPERNEL; LIMEWATER BROOKWEED	PRIMULACEAE		
<i>Samolus valerandi</i> subsp. <i>parviflorus</i>	PINELAND PIMPERNEL; SEASIDE BROOKWEED	PRIMULACEAE		
<i>Sapindus saponaria</i>	SOAPBERRY	SAPINDACEAE		
<i>Sarcocornia perennis</i>	PERENNIAL GLASSWORT; VIRGINIA GLASSWORT	AMARANTHACEAE		
<i>Sarcostemma clausum</i>	WHITE TWINEVINE	APOCYNACEAE		
<i>Sarracenia minor</i>	HOODED PITCHERPLANT	SARRACENIACEAE		T
<i>Saururus cernuus</i>	LIZARD'S TAIL	SAURURACEAE		
<i>Scaevola plumieri</i>	BEACHBERRY; INKBERRY; GULLFEED	GOODENIACEAE		T
<i>Schizachyrium sanguineum</i>	CRIMSON BLUESTEM	POACEAE		
<i>Schizachyrium scoparium</i>	LITTLE BLUESTEM	POACEAE		
<i>Schoenocaulon dubium</i>	FLORIDA FEATHERSHANK	MELANTHIACEAE		
<i>Schoenolirion albiflorum</i>	WHITE SUNNYBELL	HYACINTHACEAE		
<i>Schoenoplectus californicus</i>	GIANT BULRUSH; CALIFORNIA BULRUSH	CYPERACEAE		
<i>Schoenoplectus erectus</i> subsp. <i>raynalianii</i>	RAYNAL'S BULRUSH	CYPERACEAE		
<i>Schoenoplectus pungens</i>	THREESQUARE BULRUSH	CYPERACEAE		
<i>Schoenoplectus robustus</i>	SALTMARSH BULRUSH	CYPERACEAE		
<i>Schoenoplectus tabernaemontani</i>	SOFTSTEM BULRUSH	CYPERACEAE		
<i>Schoepfia chrysophylloides</i>	GRAYTWIG	OLACACEAE		
<i>Schwalbea americana</i>	CHAFFSEED	OROBANCHACEAE	E	E
<i>Scleria baldwinii</i>	BALDWIN'S NUTRUSH	CYPERACEAE		
<i>Scleria ciliata</i>	FRINGED NUTRUSH	CYPERACEAE		
<i>Scleria georgiana</i>	SLENDERFRUIT NUTRUSH	CYPERACEAE		
<i>Scleria reticularis</i>	NETTED NUTRUSH	CYPERACEAE		
<i>Scleria triglomerata</i>	TALL NUTGRASS; WHIP NUTRUSH	CYPERACEAE		
<i>Scoparia dulcis</i>	SWEETBROOM; LICORICEWEED	VERONICACEAE		
<i>Scutellaria integrifolia</i>	HELMET SKULLCAP	LAMIACEAE		

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<i>Selaginella arenicola</i>	SAND SPIKE-MOSS	SELAGINELLACEAE		
<i>Senna ligustrina</i>	PRIVET WILD SENSITIVE PLANT	FABACEAE		
<i>Serenoa repens</i>	SAW PALMETTO	ARECACEAE		
<i>Sericocarpus tortifolius</i>	WHITETOP ASTER; DIXIE ASTER	ASTERACEAE		
<i>Sesbania herbacea</i>	DANGLEPOD	FABACEAE		
<i>Sesbania vesicaria</i>	BLADDERPOD; BAGPOD	FABACEAE		
<i>Sesuvium maritimum</i>	SLENDER SEAPURSLANE	AIZOACEAE		
<i>Sesuvium portulacastrum</i>	SHORELINE SEAPURSLANE	AIZOACEAE		
<i>Setaria corrugata</i>	COASTAL BRISTLEGRASS; COASTAL FOXTAIL	POACEAE		
<i>Setaria macrosperma</i>	CORAL BRISTLEGRASS; CORAL FOXTAIL	POACEAE		
<i>Setaria magna</i>	GIANT BRISTLEGRASS	POACEAE		
<i>Setaria parviflora</i>	YELLOW BRISTLEGRASS; KNOTROOT FOXTAIL	POACEAE		
<i>Seymeria cassioides</i>	YAUPON BLACKSENNA	OROBANCHACEAE		
<i>Seymeria pectinata</i>	PIEDMONT BLACKSENNA	OROBANCHACEAE		
<i>Sida rhombifolia</i>	CUBAN JUTE; INDIAN HEMP	MALVACEAE		
<i>Sida ulmifolia</i>	COMMON WIREWEED; COMMON FANPETALS	MALVACEAE		
<i>Sideroxylon celastrinum</i>	SAFFRON PLUM	SAPOTACEAE		
<i>Sideroxylon foetidissimum</i>	FALSE MASTIC	SAPOTACEAE		
<i>Sideroxylon reclinatum</i>	FLORIDA BULLY	SAPOTACEAE		
<i>Sideroxylon tenax</i>	TOUGH BULLY	SAPOTACEAE		
<i>Simarouba glauca</i>	PARADISE TREE	SIMAROUBACEAE		
<i>Sisyrinchium angustifolium</i>	NARROWLEAF BLUE-EYED GRASS	IRIDACEAE		
<i>Sisyrinchium nashii</i>	NASH'S BLUE-EYED GRASS	IRIDACEAE		
<i>Sisyrinchium xerophyllum</i>	JEWEL BLUE-EYED GRASS	IRIDACEAE		
<i>Smallanthus uvedalia</i>	HAIRY LEAF CUP	ASTERACEAE		
<i>Smilax auriculata</i>	EARLEAF GREENBRIER	SMILACACEAE		
<i>Smilax bona-nox</i>	SAW GREENBRIER	SMILACACEAE		
<i>Smilax laurifolia</i>	LAUREL GREENBRIER; BAMBOO VINE	SMILACACEAE		
<i>Smilax pumila</i>	SARSAPARILLA VINE	SMILACACEAE		
<i>Smilax tamnoides</i>	BRISTLY GREENBRIER; HOGBRIER	SMILACACEAE		
<i>Smilax walteri</i>	CORAL GREENBRIER	SMILACACEAE		
<i>Solanum americanum</i>	AMERICAN BLACK NIGHTSHADE	SOLANACEAE		
<i>Solanum capsicoides</i>	SODA APPLE; COCKROACHBERRY	SOLANACEAE		
<i>Solanum chenopodioides</i>	BLACK NIGHTSHADE	SOLANACEAE		
<i>Solanum elaeagnifolium</i>	POTATOTREE	SOLANACEAE		
<i>Solidago arguta</i> var. <i>caroliniana</i>	CAROLINA GOLDENROD	ASTERACEAE		
<i>Solidago fistulosa</i>	PINEBARREN GOLDENROD	ASTERACEAE		
<i>Solidago latissimifolia</i>	ELLIOTT'S GOLDENROD	ASTERACEAE		
<i>Solidago leavenworthii</i>	LEAVENWORTH'S GOLDENROD	ASTERACEAE		
<i>Solidago odora</i> var. <i>chapmanii</i>	CHAPMAN'S GOLDENROD	ASTERACEAE		
<i>Solidago sempervirens</i>	SEASIDE GOLDENROD	ASTERACEAE		
<i>Solidago stricta</i>	WAND GOLDENROD	ASTERACEAE		
<i>Solidago tortifolia</i>	TWISTEDLEAF GOLDENROD	ASTERACEAE		
<i>Sophora tomentosa</i> var. <i>truncata</i>	YELLOW NECKLACEPOD	FABACEAE		
<i>Sorghastrum secundum</i>	LOPSIDED INDIANGRASS	POACEAE		
<i>Spartina alterniflora</i>	SALTMARSH CORDGRASS; SMOOTH CORDGRASS	POACEAE		
<i>Spartina bakeri</i>	SAND CORDGRASS	POACEAE		
<i>Spartina patens</i>	SALTMEADOW CORDGRASS	POACEAE		
<i>Spartina spartinae</i>	GULF CORDGRASS	POACEAE		
<i>Spergularia marina</i>	SALT SANDSPURRY	CARYOPHYLLACEAE		
<i>Spermocoe prostrata</i>	PROSTRATE FALSE BUTTONWEED	RUBIACEAE		
<i>Spermocoe remota</i>	WOODLAND FALSE BUTTONWEED	RUBIACEAE		
<i>Spermolepis divaricata</i>	ROUGHFRUIT SCALESEED	APIACEAE		
<i>Spermolepis echinata</i>	BRISTLY SCALESEED	APIACEAE		

SCIENTIFIC NAME	COMMON NAMES	FAMILY	US	FL
<i>Sphenopholis obtusata</i>	PRAIRIE WEDGESCALE	POACEAE		
<i>Spiranthes laciniata</i>	LACELIP LADIESTRESSES	ORCHIDACEAE		T
<i>Spiranthes odorata</i>	FRAGRANT OR MARSH LADIESTRESSES	ORCHIDACEAE		
<i>Spiranthes praecox</i>	GREENVEIN LADIESTRESSES	ORCHIDACEAE		
<i>Spiranthes sylvatica</i>	WOODLAND LADIESTRESSES	ORCHIDACEAE		
<i>Spiranthes vernalis</i>	SPRING LADIESTRESSES	ORCHIDACEAE		
<i>Sporobolus domingensis</i>	CORAL DROPSEED	POACEAE		
<i>Sporobolus junceus</i>	PINEYWOODS DROPSEED	POACEAE		
<i>Sporobolus virginicus</i>	SEASHORE DROPSEED	POACEAE		
<i>Stachys floridana</i>	FLORIDA HEDGENETTLE; FLORIDA BETONY	LAMIACEAE		
<i>Stachytarpheta jamaicensis</i>	BLUE PORTERWEED; JOEE	VERBENACEAE		
<i>Stenanthium densum</i>	CROWPOISON; OSCEOLA'S PLUME	MELANTHIACEAE		
<i>Stenotaphrum secundatum</i>	ST. AUGUSTINEGRASS	POACEAE		
<i>Stillingia aquatica</i>	WATER TOOTHLEAF; CORKWOOD	EUPHORBIACEAE		
<i>Stillingia sylvatica</i>	QUEENSDELIGHT	EUPHORBIACEAE		
<i>Stipulicida setacea</i>	PINELAND SCALYPINK	CARYOPHYLLACEAE		
<i>Stuckenia pectinata</i>	SAGO PONDWEED	POTAMOGETONACEAE		
<i>Suaeda linearis</i>	SEA BLITE; ANNUAL SEEPWEED	AMARANTHACEAE		
<i>Symphotrichum bahamense</i>	BAHAMAN ASTER	ASTERACEAE		
<i>Symphotrichum carolinianum</i>	CLIMBING ASTER	ASTERACEAE		
<i>Symphotrichum elliotii</i>	ELLIOTT'S ASTER	ASTERACEAE		
<i>Symphotrichum simmondsii</i>	SIMMONDS' ASTER	ASTERACEAE		
<i>Symphotrichum tenuifolium</i>	PERENNIAL SALTMARSH ASTER	ASTERACEAE		
<i>Syngonanthus flavidulus</i>	YELLOW HATPINS	ERIOCAULACEAE		
<i>Syringodium filiforme</i>	MANATEEGRASS	CYMODOCEACEAE		
<i>Taxodium ascendens</i>	POND-CYPRESS	CUPRESSACEAE		
<i>Taxodium distichum</i>	BALD-CYPRESS	CUPRESSACEAE		
<i>Tephrosia angustissima</i> var. <i>curtissii</i>	CURTISS' HOARYPEA	FABACEAE		E
<i>Tephrosia chrysophylla</i>	SCURF HOARYPEA	FABACEAE		
<i>Tephrosia florida</i>	FLORIDA HOARYPEA	FABACEAE		
<i>Tephrosia rugelii</i>	RUGEL'S HOARYPEA	FABACEAE		
<i>Teucrium canadense</i>	WOODSAGE; CANADIAN GERMANDER	LAMIACEAE		
<i>Thalia geniculata</i>	ALLIGATORFLAG; FIREFLAG	MARANTACEAE		
<i>Thelypteris hispidula</i> var. <i>versicolor</i>	HAIRY MAIDEN FERN	THELYPTERIDACEAE		
<i>Thelypteris interrupta</i>	HOTTENTOT FERN; WILLDENOW'S FERN	THELYPTERIDACEAE		
<i>Thelypteris kunthii</i>	MAIDEN FERN; SOUTHERN SHIELD FERN	THELYPTERIDACEAE		
<i>Thelypteris palustris</i> var. <i>pubescens</i>	MARSH FERN	THELYPTERIDACEAE		
<i>Tillandsia bartramii</i>	BARTRAM'S AIRPLANT	BROMELIACEAE		
<i>Tillandsia fasciculata</i>	CARDINAL AIRPLANT; COMMON WILD PINE;	BROMELIACEAE		E
<i>Tillandsia paucifolia</i>	POTBELLY AIRPLANT	BROMELIACEAE		
<i>Tillandsia recurvata</i>	BALLMOSS	BROMELIACEAE		
<i>Tillandsia setacea</i>	SOUTHERN NEEDLELEAF	BROMELIACEAE		
<i>Tillandsia usneoides</i>	SPANISH MOSS	BROMELIACEAE		
<i>Tillandsia utriculata</i>	GIANT AIRPLANT; GIANT WILD PINE	BROMELIACEAE		E
<i>Tournefortia volubilis</i>	TWINING SOLDIERBUSH	BORAGINACEAE		
<i>Toxicodendron radicans</i>	EASTERN POISON IVY	ANACARDIACEAE		
<i>Tradescantia ohiensis</i>	BLUEJACKET; OHIO SPIDERWORT	COMMELINACEAE		
<i>Triadenum virginicum</i>	VIRGINIA MARSH ST. JOHN'S-WORT	CLUSIACEAE		
<i>Trichostema dichotomum</i>	FORKED BLUECURLS	LAMIACEAE		
<i>Trichostema setaceum</i>	NARROWLEAF BLUECURLS	LAMIACEAE		
<i>Tridens flavus</i>	TALL REDTOP; PURPLETOP TRIDENS	POACEAE		
<i>Triglochin striata</i>	ARROWGRASS	JUNCAGINACEAE		
<i>Triplasis purpurea</i>	PURPLE SANDGRASS	POACEAE		
<i>Tripsacum dactyloides</i>	EASTERN GAMAGRASS; FAKAHATCHEEGRASS	POACEAE		
<i>Typha domingensis</i>	SOUTHERN CATTAIL	TYPHACEAE		

SCIENTIFIC NAME	COMMON NAMES	FAMILY	US	FL
<i>Typha latifolia</i>	BROADLEAF CATTAIL	TYPHACEAE		
<i>Ulmus americana</i>	AMERICAN ELM	ULMACEAE		
<i>Uniola paniculata</i>	SEAOATS	POACEAE		
<i>Urtica chamaedryoides</i>	HEARTLEAF NETTLE	URTICACEAE		
<i>Utricularia cornuta</i>	HORNED BLADDERWORT	LENTIBULARIACEAE		
<i>Utricularia foliosa</i>	LEAFY BLADDERWORT	LENTIBULARIACEAE		
<i>Utricularia gibba</i>	HUMPED BLADDERWORT	LENTIBULARIACEAE		
<i>Utricularia inflata</i>	FLOATING BLADDERWORT	LENTIBULARIACEAE		
<i>Utricularia olivacea</i>	PIEDMONT BLADDERWORT	LENTIBULARIACEAE		
<i>Utricularia purpurea</i>	EASTERN PURPLE BLADDERWORT	LENTIBULARIACEAE		
<i>Utricularia radiata</i>	LITTLE FLOATING BLADDERWORT	LENTIBULARIACEAE		
<i>Utricularia simulans</i>	FRINGED BLADDERWORT	LENTIBULARIACEAE		
<i>Utricularia subulata</i>	ZIGZAG BLADDERWORT	LENTIBULARIACEAE		
<i>Vaccinium arboreum</i>	SPARKLEBERRY; FARKLEBERRY	ERICACEAE		
<i>Vaccinium darrowii</i>	DARROW'S BLUEBERRY	ERICACEAE		
<i>Vaccinium myrsinites</i>	SHINY BLUEBERRY	ERICACEAE		
<i>Vaccinium stamineum</i>	DEERBERRY	ERICACEAE		
<i>Valeriana scandens</i>	FLORIDA VALERIAN	CAPRIFOLIACEAE		
<i>Vallisneria americana</i>	TAPEGRASS; AMERICAN EELGRASS	HYDROCHARITACEAE		
<i>Verbena scabra</i>	SANDPAPER VERVAIN; HARSH VERVAIN	VERBENACEAE		
<i>Verbesina virginica</i>	WHITE CROWNBEARD; FROSTWEED	ASTERACEAE		
<i>Vernonia angustifolia</i>	TALL IRONWEED	ASTERACEAE		
<i>Vernonia gigantea</i>	GIANT IRONWEED	ASTERACEAE		
<i>Veronica peregrina</i>	NECKWEED	VERONICACEAE		
<i>Viburnum obovatum</i>	WALTER'S VIBURNUM; SMALL-LEAF VIBURNUM	ADOXACEAE		
<i>Vicia acutifolia</i>	FOURLEAF VETCH	FABACEAE		
<i>Vigna luteola</i>	HAIRYPOD COWPEA	FABACEAE		
<i>Viola lanceolata</i>	BOG WHITE VIOLET	VIOLACEAE		
<i>Viola sororia</i>	COMMON BLUE VIOLET	VIOLACEAE		
<i>Vitis aestivalis</i>	SUMMER GRAPE	VITACEAE		
<i>Vitis cinerea</i> var. <i>floridana</i>	FLORIDA GRAPE	VITACEAE		
<i>Vitis rotundifolia</i>	MUSCADINE	VITACEAE		
<i>Vitis shuttleworthii</i>	CALLOOSE GRAPE	VITACEAE		
<i>Vittaria lineata</i>	SHOESTRING FERN	VITTARIACEAE		
Warea carteri	CARTER'S PINELANDCRESS; CARTER'S MUSTARD	BRASSICACEAE	E	E
<i>Woodwardia areolata</i>	NETTED CHAIN FERN	BLECHNACEAE		
<i>Woodwardia virginica</i>	VIRGINIA CHAIN FERN	BLECHNACEAE		
<i>Ximenia americana</i>	TALLOW WOOD; HOG PLUM	OLACACEAE		
<i>Xyris ambigua</i>	COASTALPLAIN YELLOWEYED GRASS	XYRIDACEAE		
<i>Xyris brevifolia</i>	SHORTLEAF YELLOWEYED GRASS	XYRIDACEAE		
<i>Xyris caroliniana</i>	CAROLINA YELLOWEYED GRASS	XYRIDACEAE		
<i>Xyris elliotii</i>	ELLIOTT'S YELLOWEYED GRASS	XYRIDACEAE		
<i>Xyris fimbriata</i>	FRINGED YELLOWEYED GRASS	XYRIDACEAE		
<i>Xyris floridana</i>	FLORIDA YELLOWEYED GRASS	XYRIDACEAE		
<i>Xyris jupicai</i>	RICHARD'S YELLOWEYED GRASS	XYRIDACEAE		
<i>Xyris platylepis</i>	TALL YELLOWEYED GRASS	XYRIDACEAE		
<i>Xyris smaliana</i>	SMALL'S YELLOWEYED GRASS	XYRIDACEAE		
<i>Yucca aloifolia</i>	SPANISH BAYONET; ALOE YUCCA	AGAVACEAE		
<i>Yucca filamentosa</i>	ADAM'S NEEDLE	AGAVACEAE		
<i>Zamia pumila</i>	FLORIDA ARROWROOT; COONTIE	ZAMIACEAE		
<i>Zanthoxylum clava-herculis</i>	HERCULES'-CLUB	RUTACEAE		
<i>Zanthoxylum fagara</i>	WILD LIME; LIME PRICKLYASH	RUTACEAE		
Zephyranthes simpsonii	REDMARGIN ZEPHYRLILY; SIMPSON'S ZEPHYRLILY	AMARYLLIDACEAE		T
<i>Zornia bracteata</i>	VIPERINA	FABACEAE		

Status column indicates if the species is listed as T = Threatened or E = Endangered by either the State or the Federal Government		
Atlas of Florida Vascular Plants, Institute for Systematic Botany. http://www.plantatlas.usf.edu/		

Florida Exotic Pest Plants Category I Invasives			
SCIENTIFIC NAME	COMMON NAMES	FAMILY	STATUS
<i>Abrus precatorius</i>	ROSARY PEA; BLACKEYED SUSAN	FABACEAE	N
<i>Acacia auriculiformis</i>	EARLEAF ACACIA	FABACEAE	
<i>Albizia julibrissin</i>	SILKTREE; MIMOSA	FABACEAE	
<i>Ardisia crenata</i>	SCRATCHTHROAT	MYRSINACEAE	
<i>Ardisia elliptica</i>	SHOEBUTTON	MYRSINACEAE	N
<i>Bauhinia variegata</i>	ORCHID TREE; MOUNTAIN EBONY	FABACEAE	
<i>Casuarina equisetifolia</i>	AUSTRALIAN-PINE; HORSETAIL CASUARINA	CASUARINACEAE	P,N
<i>Casuarina glauca</i>	GRAY SHEOAK; SUCKERING AUSTRALIAN-PINE	CASUARINACEAE	P,N
<i>Cinnamomum camphora</i>	CAMPHORTREE	LAURACEAE	
<i>Colocasia esculenta</i>	WILD TARO; DASHEEN; COCO YAM	ARACEAE	
<i>Dioscorea bulbifera</i>	AIR-POTATO	DIOSCOREACEAE	N
<i>Eichhornia crassipes</i>	COMMON WATER-HYACINTH	PONTEDERIACEAE	P,N
<i>Eugenia uniflora</i>	SURINAM CHERRY	MYRTACEAE	
<i>Hydrilla verticillata</i>	WATERTHYME; HYDRILLA	HYDROCHARITACEAE	P,U
<i>Imperata cylindrica</i>	COGONGRASS	POACEAE	N,U
<i>Lantana camara</i>	LANTANA; SHRUBVERBENA	VERBENACEAE	
<i>Ludwigia peruviana</i>	PERUVIAN PRIMROSEWILLOW	ONAGRACEAE	
<i>Lygodium japonicum</i>	JAPANESE CLIMBING FERN	SCHIZAEACEAE	N
<i>Lygodium microphyllum</i>	SMALL-LEAF CLIMBING FERN	SCHIZAEACEAE	N
<i>Macfadyena unguis-cati</i>	CATCLAWVINE	BIGNONIACEAE	
<i>Melaleuca quinquenervia</i>	PUNKTREE	MYRTACEAE	P,N,U
<i>Melinis repens</i>	ROSE NATALGRASS	POACEAE	
<i>Nephrolepis cordifolia</i>	TUBEROUS SWORD FERN	NEPHROLEPIDACEAE	
<i>Panicum repens</i>	TORPEDOGRASS	POACEAE	
<i>Pennisetum purpureum</i>	ELEPHANTGRASS; NAPIERGRASS	POACEAE	
<i>Psidium guajava</i>	GUAVA	MYRTACEAE	
<i>Pueraria montana var. lobata</i>	KUDZU	FABACEAE	N
<i>Rhodomyrtus tomentosa</i>	ROSE MYRTLE	MYRTACEAE	N
<i>Ruellia tweediana</i>	BRITTON'S WILD PETUNIA; MEXICAN BLUEBELL	ACANTHACEAE	
<i>Sapium sebiferum</i>	POPCORNTREE; CHINESE TALLOWTREE	EUPHORBIACEAE	N
<i>Scaevola taccada var. sericea</i>	BEACH NAUPAKA	GOODENIACEAE	
<i>Schefflera actinophylla</i>	AUSTRALIAN UMBRELLA TREE; OCTOPUS TREE	ARALIACEAE	
<i>Schinus terebinthifolius</i>	BRAZILIAN PEPPER	ANACARDIACEAE	P,N
<i>Senna pendula var. glabrata</i>	VALAMUERTO	FABACEAE	
<i>Solanum viarum</i>	TROPICAL SODA APPLE	SOLANACEAE	N,U
<i>Syngonium podophyllum</i>	AMERICAN EVERGREEN	ARACEAE	
<i>Thespesia populnea</i>	PORTIA TREE	MALVACEAE	
<i>Urochloa mutica</i>	PARAGRASS	POACEAE	

Category II Invasives			
SCIENTIFIC NAME	COMMON NAMES	FAMILY	STATUS
Agave sisalana	SISAL HEMP	AGAVACEAE	
Alternanthera philoxeroides	ALLIGATORWEED	AMARANTHACEAE	P
Antigonon leptopus	CORAL VINE; QUEEN'S JEWELS	POLYGONACEAE	
Broussonetia papyrifera	PAPER MULBERRY	MORACEAE	
Casuarina cunninghamiana	RIVER SHEOAK	CASUARINACEAE	P
Hemarthria altissima	LIMPOGRASS	POACEAE	
Kalanchoe pinnata	CATHEDRAL BELLS; LIFE PLANT	CRASSULACEAE	
Leucaena leucocephala	WHITE LEADTREE	FABACEAE	N
Melia azedarach	CHINABERRYTREE	MELIACEAE	
Panicum maximum	GUINEAGRASS	POACEAE	
Phoenix reclinata	SENEGAL DATE PALM	ARECACEAE	
Pteris vittata	CHINESE LADDER BRAKE	PTERIDACEAE	
Ricinus communis	CASTORBEAN	EUPHORBIACEAE	
Sansevieria hyacinthoides	BOWSTRING HEMP; MOTHER-IN-LAW'S TONGUE	RUSCACEAE	
Scleria lacustris	WRIGHT'S NUTRUSH	CYPERACEAE	
Sesbania punicea	RATTLEBOX	FABACEAE	
Solanum diphyllum	TWOLEAF NIGHTSHADE	SOLANACEAE	
Sphagneticola trilobata	CREEPING OXEYE	ASTERACEAE	
Syzygium jambos	MALABAR PLUM; ROSE APPLE	MYRTACEAE	
Terminalia catappa	WEST INDIAN ALMOND	COMBRETACEAE	
Tribulus cistoides	BURRNUT; JAMAICAN FEVERPLANT	ZYGOPHYLLACEAE	
Urena lobata	CAESARWEED	MALVACEAE	
Vitex trifolia	SIMPLELEAF CHASTETREE	LAMIACEAE	
Wisteria sinensis	CHINESE WISTERIA	FABACEAE	

P = Prohibited by the Florida Department of Environmental Protection

N = Noxious weed listed by the Florida Department of Agriculture and Consumer Services **U** = Noxious weed listed by the U.S. Department of Agriculture

Category I are documented invasive exotics that are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives

Category II are invasive exotics that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by category I species. These may become ranked category I if ecological damage is demonstrated.

Source: Florida Invasive Pest Plant Council List of Invasive Plant Species - Fall 2007

Section I. Developed and disturbed lands.

Urban. Urban consists of areas of intensive use with much of the land occupied by man-made structures. High impact is densely developed areas where examples of low impact would be represented by areas of low intensity residential, rural residential or recreational type subdivisions.

Agriculture. Agricultural lands are those lands which are cultivated to produce food crops and livestock. There are various sub-categories of agriculture. The subcategories within the Town are:

- **Improved Pastures.** Improved pastures typically have been cleared, tilled, reseeded with specific grass types, and periodically improved with brush control and fertilizer application.
- **Unimproved Pastures.** Unimproved pastures include cleared land with major stands of trees and brush where native grasses have been allowed to develop. Normally, this land will not be managed with brush control and/or fertilizer application.
- **Row Crops.** Corn, tomatoes, potatoes and beans are typical row crops found in Florida. Rows remain well defined even after crops have been harvested.
- **Field Crops.** Wheat, oats, hay and grasses are the primary types identified as field crops.
- **Citrus Groves.** Oranges, grapefruit, and tangerines are the typical crops grown in citrus groves. Citrus groves are a subcategory of tree crops which also includes fruit orchards.
- **Other Agriculture.** This category includes those agricultural lands whose intended usage cannot be determined.

Bare Soil/Clearcut. Barren Land has very little or no vegetation and limited potential to support vegetative communities. In general, it is an area of bare soil or rock. Barren land may also temporarily exist due to human activity such as clearing or resource extraction.

Section II. Wetlands and open water.

Open Water. Open water is area that is predominantly and persistently water covered. Open water includes streams, lakes and sloughs, as well as manmade water features. The Indian River lagoon estuary and the Intracoastal Water Way is open water.

Wetlands. Marsh, wet prairie and swamps are the types of wetlands found within the Town. Wetlands are those areas that are inundated or saturated by surface water or ground water at a frequency and a duration sufficient to

support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils and standing water. Shallow water bodies having emergent vegetation or observable submerged vegetation are also placed in the wetlands category.

- **Wet Prairie.** Wet prairies are composed grassy vegetation in hydric soils. There is a complex mosaic that makes up the longer hydroperiod marsh and the shorter hydroperiod wet prairie. Wet prairies are often difficult to delineate, and designation is often based on soil and indirect evidence of average high water levels. In general, wet prairies are distinguished from a marsh by having less water and shorter herbage. Additionally, wet prairies typically have a very diverse species community unlike marshes which are dominated by fewer than 10 species.
- **Marshes.** The plants in marshes and wet prairies show a wide range of adaptations for dealing with floods and anaerobic conditions, droughts and aerobic conditions. Most marsh types are dominated by fewer than 10 species, marshes frequently will be dominated by one species. Marshes can be isolated or adjacent to canals, rivers, lagoons, lakes or sloughs. Marshes are herbaceous and can be freshwater or saltwater.
- **Salt Marsh.** Salt marshes are situated between the land and the sea and experience the effects of both salt and fresh water. Salt marshes are found in flat, protected waters usually within the protection of a barrier island, estuary, or along low-energy coastlines. Salt marsh plants are salt-tolerant or halophytic species that have developed biological and physiological mechanisms to adjust to a range in environmental conditions and to tolerate the stresses of salinity changes and periodic inundation. Tidal effects are greatest on salt marsh areas below mean low water, while upland freshwater sources influence areas above mean high water.

Swamps. Forested wetlands are referred to as swamps. Forested communities support a tree canopy closure of 10% or more. Swamps are further identified by type, such as mangrove, hardwood, cypress or mixed wetland forest, which are the types found within the Town.

- **Hardwood Swamp.** Hardwood swamps must be 66% or more dominated by wetland hardwood species, either salt or freshwater.
- **Cypress Swamp.** Cypress swamps can be composed of pond cypress or bald cypress which is either pure or predominant.

- **Mixed Wetland Forest.** A mixed wetland forest supports a tree canopy closure of 10% or more with communities in which neither hardwoods or conifers achieve a 66% dominance of the crown canopy composition.
- **Mangrove Swamp.** Mangrove communities occur in depressions along the coast and near shore where precipitation and sheetflow collect and are tidally influenced. Red mangroves are more common along the coastal areas, while black and whites dominate further inland. Dense mangrove forests do not typically have understory plant associations, except for mangrove seedlings. The local distribution of mangroves is affected primarily by a variety of interacting factors that include microclimate, substrate type, tidal fluctuation, terrestrial nutrients, wave energy, and salt water. Mangroves are unique in that their morphological specialization such as aerial roots, vivipary, and salt excretion or excluding abilities.

Shrub Swamp. Shrub swamps are wetlands where the crown closure threshold does not meet the forested category or the associated species contains willow and low scrub with no dominate species.

Section III. Native Upland Vegetative Communities

Dry Prairie. This category includes upland prairie grasses which occur on non-hydric soils but may be occasionally inundated by water. These areas are generally treeless with a variety of vegetation types dominated by grasses, sedges, rushes and other herbs including wire grasses with some saw palmetto present. The dry prairie community is a pyrogenic landscape with a ground cover diverse in regionally endemic plant taxa.

Grassland. A grassland is an upland community where the predominant vegetative cover is very low-growing grasses and forbs, most commonly in monocultures of non-invasive, nonnative species.

Shrub and Brushland. This category includes saw palmettos, gallberry, wax myrtle, coastal scrub and other shrubs and brush. Generally, saw palmetto is the most prevalent plant cover intermixed with a wide variety of other woody scrub plant species as well as various types of short herbs and grasses. Coastal scrub vegetation would include pioneer herbs and shrubs composed of such typical plants as sea purslane, sea grapes and sea oats without any one of these types being dominant.

Scrub Communities. Florida scrub is a plant community easily recognized by the dominance of evergreen shrubs and frequent patches of bare, white sand. Florida scrub in its various phases has been called xeric scrub, sand scrub, big

scrub, sand pine scrub, oak scrub, evergreen oak scrub, dune oak scrub, evergreen scrub forest, slash pine scrub, palmetto scrub, rosemary scrub, and rosemary bald. Florida scrubs may be classified as coastal or interior. Scrubs are often named by the dominant plant species, as in rosemary scrub, sand pine scrub, palmetto scrub, or oak scrub. When sand pines (*Pinus clausa*) are present in scrub they do not form a continuous canopy but occur as scattered individuals or clumps of individuals. The scrub subcommunity identified within the Town include the following:

- **Sand Pine.** This pine community grows on deep, infertile deposits of marine sands and clays. There are two varieties of sand pines, both occurring in Florida. The Ocala variety naturally occurs in South Florida growing in densely-stocked, pure, even-aged stands. The Choctawhatchee variety of western panhandle Florida commonly occurs in unevenaged stands invading oak communities. A root disease complex gives many sand pine stands a disheveled appearance. Its dark crown coloration distinguishes it from other southern pines.
- **Xeric Oak.** This community is similar to and occupies the same sites as the Longleaf Pine - Xeric Oak community except that the pines, if present, are not the dominant species. In many cases longleaf pine may have been present in significant numbers prior to harvesting but were never regenerated. Species common to this class include sand live oak, bluejack oak, turkey oak and post oak.

Pinelands. These forests are quite common throughout much of Northern and Central Florida. Originally, longleaf pines were common on drier sites while slash pines, which are less fire resistant, were confined to moister sites; wildfire being the contributing factor in this distribution. However, fire control and artificial reforestation have extended the range of slash pine into former longleaf sites. The pine flatwoods class is dominated by either slash pine, longleaf pine or both and less frequently pond pine. The common flatwoods understory species include saw palmetto, wax myrtle, gallberry and a wide variety of herbs and brush.

Mixed Pine. This category is a mixture of sand pine and slash pine with a wide variety of hardwoods.

Hardwood Forests and Hammocks. This classification of upland forest lands has a crown canopy with at least a 66% dominance by hardwood tree species. This class, like the Upland Conifer class, is reserved for naturally generated stands. Common components of the temperate hammock may include, depending upon the location, a wide variety of oaks, red bay, sweetbay,

magnolia, sweetgum, sugarberry, hickories, cabbage palm, hollies and cedar. Various pines are minor associates.

CHAPTER SEVEN

RECREATION AND OPEN SPACE ELEMENT

PURPOSE

The Recreation and Open Space Element of the Malabar Comprehensive Plan addresses recreation and open space planning issues for the Town. Statements of a goal, objectives and policies for guiding the Town's implementation actions conclude the element. It is the intent of the Town that this plan element sets forth a comprehensive framework for guiding decisions on public policy and capital improvements for recreation facilities and programs in a manner consistent with the Town's goals and objectives.

The Town of Malabar is situated in the southeast section of Brevard County. The Recreation and Open Space Element of the Town's Comprehensive Plan reflects the town's location and desire to preserve and provide access to the open spaces and recreational opportunities afforded in this area of Florida.

Recreation and Open Space

The first component of the Element of the Town's focus on the conservation of and public access to environmentally sensitive lands and habitats. The Town has been an important partner to the Brevard County Environmentally Endangered Lands (EEL) program which has set aside approximately 912 acres of wetland and upland community habitats within the Town. In conjunction with Brevard County's EEL program and the Brevard Metropolitan Planning Organization (MPO), the Town has assisted in the development of a countywide trail system that links conservation lands, parks, and open spaces. The Brevard Greenways and Trails Master Plan is a proposed a multimodal system of urban connector trails that utilize existing right of way as well as greenway trails with their own right of way in less developed areas. Included in the Greenways and Trails Master Plan proposed is a 22-mile South Brevard Linear Trail linking Malabar's endangered lands with neighboring communities. The Malabar Scrub Sanctuary and Jordan Scrub Sanctuary – both EEL program lands located within the Malabar Town limits – are along this proposed multi-use corridor to be renamed after the late conservationist Al Tuttle. In Malabar, a bicycle path is already being planned along Marie Street, which connects the two sanctuaries.

The second component of the Element is access to the Indian River Lagoon (IRL). While the Town does not have Atlantic Ocean frontage, its eastern border is the IRL. The IRL offers many potential recreational and economic benefits to the communities along its banks. While the IRL extends along the entire eastern border of the Town, the Town does not own any land along the IRL and therefore has been unable to provide public access to the IRL.

EXISTING CONTIONS AND DATA

Level of Service Analysis

The Town has adopted a Level of Service of five (5) acres of park and recreation lands per 1,000 residents. As can be seen in the following table, the Town will continue to meet this level of service through 2030. The existing park space is based upon Town-owned parks and open space. It does not include parks and spaces leased by the Town.

TABLE 7-1: RECREATION AND OPEN SPACE LOS

Fiscal Year	Town Population	Existing Space	Required LOS (Space per Capita)	Space needed for Required LOS	Actual LOS (Space per Capita)	Surplus or Deficit Space
2005	2,842	147.34 acres	0.005	14.21 acres	0.0529	133.13 acres
2010	3,412	147.34 acres	0.005	17.06 acres	0.0441	130.28 acres
2015	3,425	147.34 acres	0.005	17.13 acres	0.0439	130.21 acres
2020	3,687	147.34 acres	0.005	18.44 acres	0.0408	128.91 acres
2025	3,925	147.34 acres	0.005	19.63 acres	0.0383	127.72 acres
2030	4,145	147.34 acres	0.005	20.73 acres	0.0363	126.62 acres

Source: Town of Malabar, Calvin, Giordano & Associates, Inc.

Sites and Facilities Ownership

Within the Town of Malabar are a variety of parks and open spaces. The Town owns five park facilities. Of the five Town-owned park facilities, three were purchased using Florida Communities Grants, namely Fern Creek Crossing, Golf Disc Park, and Richard E. Cameron Sr. & Volunteers Wilderness Preserve. The state owns four conservation areas which are managed by Brevard County through their EEL program. The table below outlines the name, location, ownership, facilities, and acreage of the sites in the Town.

TABLE 7-2: RECREATION AND OPEN SPACE FACILITIES

NAME/LOCATION	OWNERSHIP	FACILITIES	ACREAGE
Malabar Community Park 1850 Malabar Rd	Town of Malabar	Soccer Field Baseball Field Tennis Court Basketball Court Volleyball Court	Pavilions Fitness Trail Playground Bridle Trail Restrooms
Huggins Neighborhood Park Johnston Ave & Florence St	Town of Malabar	Playground, Gazebo	3.69
Fern Creek Crossing 1585 Malabar Rd	Town of Malabar	Benches, Passive Walkway	1.15
Richard E Cameron Sr & Volunteers Wilderness Preserve North Corey Road	Town of Malabar	Bicycle Trails Hiking Trails	Horseback Riding Trail Wildlife Observation
Golf Disc Park 1845 Malabar Rd	Town of Malabar	Golf Disc Pins	8.2
17-acre parcel (undeveloped) Weber Rd & Malabar Rd	Town of Malabar	None – Open space	17.83

Malabar Scrub Sanctuary Malabar Rd & Malabar Woods Blvd	State of Florida (Brevard County EEL Program Land)	Bicycle Trails Hiking Trails	Horseback Riding Trail Wildlife Observation	379.27
Malabar Scrub Sanctuary – Western Tract Malabar Rd & Briar Creek Blvd	State of Florida (Brevard County EEL Program Land)	None – EEL Program Managed Land		161.46
Jordan Scrub Sanctuary Malabar Rd & Marie St	State of Florida (Brevard County EEL Program Land)	Bicycle Trails Hiking Trails	Horseback Riding Trail Wildlife Observation	344.45
Jordan Scrub Sanctuary – Eastern Tract Township Rd & West Railroad St	State of Florida (Brevard County EEL Program Land)	None – EEL Program Managed Land		27.07
		TOTAL– Owned by Town of Malabar		147.34
		TOTAL - Owned by County / State		912.26
		TOTAL		1,059.6

Source: Town of Malabar, Calvin, Giordano & Associates, Inc.

RECREATION AND OPEN SPACE ELEMENT GOALS, OBJECTIVES, AND POLICIES

Goal 7-1:

Provide Adequate Recreation and Open Space. Insure provision of an adequate comprehensive system of public and private recreation and open space sites which meet the needs of existing and projected user groups.

7-1.1 Objective:

System of Parks and Recreation. The system of parks and recreation facilities shall be improved and maintained over time in order to meet the needs of existing and future population.

7-1.1 Policy:

Level of Service Standards for Parks and Recreation Facilities. In systematically planning for needed recreation land and facility improvements, the Town shall apply the level of service standards cited in Table 7-1. These standards shall be used as level of service criteria in reviewing proposals for development orders or permits.

7-1.1.2 Policy:

Monitor and Update Recreation Demand and Supply Analysis. The Town shall make available five (5) acres of recreation land per one thousand (1,000) population. However, the Town shall refine the land development regulations in order to assure that new development provides necessary recreation lands, facilities, and/or fees in lieu thereof in order to accommodate respective demands of such new development as of December 2010.

7-1.1.3 Policy:

Mandatory Land Dedication or Fees in Lieu Thereof. The Town shall enforce a mandatory land dedication or fees in lieu thereof for recreation land, recreation facilities, and/or multi-purpose trails required to satisfy the demands generated by the development.

7-1.1.4 Policy:

Future Recreational Capital Improvements. If in the future the Town identifies recreation improvements for which public funds are needed, as

opposed to developer financed improvements, the Town shall schedule and incorporate such projects costing \$25,000.00 or more in the Capital Improvements Element.

7-1.1.5 Policy:

Maintenance of Existing Recreation Land And Facilities. The Town shall maintain existing recreation and facilities using proper management and funding techniques.

7-1.2 Objective:

Protect Open Space Systems. The Town shall protect lands designated as open space in the Town's Future Land Use Map from incompatible land uses and such designated lands shall remain functionally intact.

7-1.2.1 Policy:

Implement Land Development Regulations. Within one year of the adoption of this element the Town shall adopt Land Development Code regulations that protect and preserve open space. Regulations shall include specific open space definitions and standards addressing protection of open space, natural vegetation, landscape, and signage. Regulations shall include stipulations governing the provision and use of open space for buffering, protection of natural corridors, including drainage ways, as well as other commonly accepted uses.

7-1.2.2 Policy:

(none in original document)

7-1.2.3 Policy:

Inclusion of Open Space. Development regulations shall include provisions for incentives and/or requirements for the designation and inclusion of open space in future development.

7-1.2.4 Policy:

Standards for Review and Maintenance. Within one (1) year after the adoption of a master drainage plan the Town shall adopt criteria which shall be used to review all proposals for development in existing and proposed areas designated as open space on the master drainage plan map or map series as well as on the Future Land Use map.

7-1.2.5 Policy:

Interagency Coordination. The Town shall coordinate with other governmental and/or non-governmental organizations that ensure the protection, conservation and enhancement of natural areas of open space.

7-1.3 Objective:

Access Facilities. The Town shall ensure that all public recreational facilities shall have operational automobile, bicycle and pedestrian access facilities as deemed appropriate by the Town Council.

7-1.3.1 Policy:

Right-of-Way Improvements. Where feasible, the Town shall improve rights-of-way as needed for access to public parks and facilities.

7-1.3.2 Policy:

Design of Access Facilities. Public parks and facilities shall be designed and constructed with accessways which are compatible with the character and quality of on-site natural resources.

7-1.3.3 Policy:

Bicycle/Pedestrian Accessways. Public parks and facilities shall be provided with bicycle and pedestrian accessways as deemed feasible by the Town Council.

7-1.3.4 Policy:

Parking Areas and Bicycle Accommodations. The Town shall provide parking spaces and bicycle racks at Town owned and/or operated recreation sites where needed and deemed feasible by the Town Council.

7-1.3.5 Policy:

The Town shall make the necessary provisions in location, design and development of recreation sites and facilities to ensure reasonable public access.

7-1.3.6 Policy:

Facilities for Handicapped and Elderly. The Town shall continue to maintain and retrofit existing recreation sites and facilities so that they are accessible to the elderly and the disabled, consistent with the Americans with Disabilities Act (ADA). New recreation sites and facilities shall also be designed consistent with the ADA.

7-1.4 Objective:

Access to Indian River Lagoon. The Town shall promote new access points and preserve existing access facilities to the Indian River Lagoon and its tributaries.

7-1.4.1 Policy:

Require Access Points Be Provided as Needed. The Town shall assure that appropriate access is provided to the Indian River Lagoon through the most economically feasible methods.

7-1.4.2 Policy:

Funding Assistance. The Town shall explore the possibility of obtaining grants, gifts, contributions, funding assistance and other financial resources for the purchase of land contiguous to the Indian River Lagoon for the purpose of public access to the lagoon.

7-1.4.3 Policy:

Public-private Partnerships. The Town shall pursue appropriate joint public and private ventures to obtain lands and/or financing necessary to provide access facilities to the Indian River Lagoon.

7-1.5 Objective:

Public and Private Coordination in Planning for Recreation Improvements. The Town shall coordinate planning for recreation improvements with each level of government, including the Brevard County School Board, the Audubon Society, and the private sector in order to promote recreational opportunities in a cost-effective manner.

7-1.5.1 Policy:

Joint School Park Concept. The Town shall coordinate with the Brevard County School Board in assuring that any future school sites which may be located within the Town incorporate appropriate recreational amenities (Note: No school sites are currently located within the Town; nor are any Town sites included in the Brevard County School Board plan for future school sites).

7-1.5.2 Policy:

Public Participation in Recreation Improvements. By the year 2010, any recreation needs which are not fulfilled by the private sector shall be met by the public sector.

7-1.5.3 Policy:

Coordinate with the Private Sector. The Town shall coordinate with private development sector as well as existing and future industry located within the Town in order to develop additional fair and equitable measures for accommodating future recreation land and facility needs.

7-1.6 Objective:

Promote Greenways. The Town shall encourage the continued development of a greenway system that supports interconnectivity among and between recreational areas as a means of improving access.

7-1.6.1 Policy:

Coordination with County. The Town shall coordinate with the Brevard County to further the development of the Brevard County Greenways system plan.

7-1.6.2 Policy:

Trailhead Access. The Town shall partner in the development of trailheads and other recreational access to the greenways and Brevard County Trailways.

7-1.6.3 Policy:

Greenways Network Plan. The Town shall continue to identify appropriate linear open spaces for potential greenway network programming, potential acquisitions, planning and development. A greenways network plan shall be created and coordinated with Brevard County and surrounding municipalities to promote, develop and maintain linear connections between existing and proposed parks and open spaces and community and civic facilities for pedestrian, bicycle and other non-motorized uses.

CHAPTER EIGHT

INTERGOVERNMENTAL COORDINATION ELEMENT

PURPOSE

The purpose of the Intergovernmental Coordination Element, as identified by Chapter 163, Florida Statutes and Chapter 9J-5.015, Florida Administrative Code, is to “identify and resolve incompatible goals, objectives, and policies, and development proposed in comprehensive plans and to determine and respond to the needs for coordination processes and procedures with adjacent local, regional, and state agencies.

The agencies that coordinate with Malabar include the City of Palm Bay, the Town of Grant-Valkaria, Brevard County, School Board of Brevard County, water management districts, regional planning agencies, state government, federal government, independent special districts and utility companies.

Each element of the Malabar Comprehensive Plan has specific needs for interagency coordination that need to be clearly identified and periodically evaluated in order to determine the effectiveness of current mechanisms used and how to improve overall intergovernmental coordination.

EXISTING DATA AND CONDITIONS

Malabar currently has either formal or informal coordination agreements, or interacts through standard operating procedures under statutory authority, with the following agencies or jurisdictions;

Adjacent Municipalities

- City of Palm Bay
- Town of Grant-Valkaria

Area Agencies / Districts

- Brevard County Housing Authority
- Brevard County School District
- Brevard Metropolitan Planning Organization
- Melbourne-Tillman Drainage District
- Space Coast League of Cities

Brevard County Government

- Brevard County Emergency Management
- Brevard County Environmental Health Services
- Brevard County Environmental Endangered Lands (EEL) Program
- Brevard County Fire Rescue

Brevard County Planning & Zoning
Brevard County Sheriff's Office
Brevard County Solid Waste Management
Brevard County Tax Collector

Regional and State Departments and Agencies

East Central Florida Regional Planning Council
Florida Department of Children and Families
Florida Department of Community Affairs
Florida Department of Environmental Protection
Florida Department of State, Division of Historic Resources
Florida Department of Transportation
Florida Division of Emergency Management
Florida Inland Navigation District
Marine Resource Council of East Florida
St. Johns River Water Management District

United States Departments and Agencies

Commerce, Census Bureau
Defense/US Army Corps of Engineers
Environmental Protection Agency
Interior
Postal Service
Transportation

Regulated Utilities

AT&T
Brighthouse
City Gas Company
Florida Power and Light
Palm Bay Utilities
Waste Management Inc.

EVALUATION OF EXISTING COORDINATION MECHANISMS

For each agency listed above, Table 8-A briefly describes the existing coordination mechanisms indicating the subject, nature of the relationship and the office with primary responsibility for coordination. The current process of coordination among the identified agencies and the Town has proven to be generally effective. Greater formality could be required in the future as the technical and administrative foundation of the Comprehensive Plan increases in complexity and becomes more demanding.

Malabar is a stable community, and the 2007 EAR determined the vast majority of the Objectives and Policies of the Intergovernmental Coordination Element have been fully

executed to provide for a highly functional organization and effective coordination between adjacent municipalities and governmental agencies.

The Town has been an active participant of many intergovernmental entities since its inception in 1962. Currently, the Town is a voting member of the Space Coast League of Cities and the Florida League of Cities in which several council members and the Town Administrator serve on policy committees. The Town participates in the East Central Florida Regional Planning Council to discuss development projects for regional and sub-regional infrastructure systems and in the preparation of area wide infrastructure master plans. Additionally, the Town Council participates in Metropolitan Planning Organization (MPO) / Technical Advisory Committee (TAC) meetings at the County and stays abreast on activities in and around Malabar, Palm Bay, and Grant-Valkaria.

Regarding public facilities, the Town has an interlocal agreement with the Palm Bay Utilities Department (PBUD) for sanitary sewer and potable water. The Town owns and maintains the transmission lines to PBUD. Solid waste collection (pick up) is currently provided to the Town under contract with Waste Management Incorporated. The Town coordinates with the Brevard County Solid Waste Management Department on solid waste issues, including landfill. The Town owns and maintains all of the drainage facilities within the Town with the exception of the Melbourne-Tillman Canal which is owned and maintained by the Melbourne-Tillman Drainage District. The Town of Malabar started collecting stormwater utility in 2001.

Over the short- and long-term planning timeframes, new intergovernmental coordination mechanisms shall specifically include the following:

- Coordination of a proportionate fair share mitigation and concurrency management for transportation facilities.
- Coordination with Department of Transportation on widening Malabar Road per the FDOT Five-Year Work Plan.
- Continued interlocal agreement with the Brevard County School District on school concurrency.
- Continued coordination with the County's MPO on the South Brevard Linear Trail system.

Additionally, the Town should consider any new intergovernmental coordination opportunities as a result of the incorporation of Grant-Valkaria.

Finally, it should be noted that the use of electronic communication technologies such as e-mail, the internet, and teleconferencing, having also allowed for faster and increased communication and better coordination between the Town of Malabar and related intergovernmental agencies.

JOINT PLANNING AREAS / ISSUES BY ELEMENT

The Town of Malabar has coordinated multi-jurisdictional planning issues with adjacent governmental entities. For example, traffic circulation concerns along Malabar Road have

been coordinated with Brevard County MPO and through the City of Palm Bay Planning Department. Similarly, issues surrounding adjacent land uses, preservation of natural areas, and adequate facilities have been addressed from an area wide perspective. The Town Council and its staff have coordinated with Brevard County and the City of Palm Bay planning departments frequently on an informal basis. No formal records document the precise nature or frequency of such intergovernmental coordination.

Each Comprehensive Plan Element was reviewed for interagency coordination needs. Some of the more relevant needs are described below.

Future Land Use

The Town is interested in maximizing the economic development potential of Malabar Road. A corridor plan should include cooperation with FDOT, Brevard County, and Palm Bay. Additionally, the Town may initiate an interlocal agreement with the Brevard County School District for school concurrency.

Transportation

The Town shall coordinate with FDOT on widening Malabar Road per the FDOT Five-Year Work Plan. Additionally, the Town is interested in developing a multi-use trail system. To that end, the appropriate committee shall continue coordinating with the Brevard MPO's Bicycle Pedestrian Trails Program Coordinator to further pedestrian, bike, and equestrian connectivity.

Housing

Coordinate with the East Central Florida Regional Planning Council and Brevard County to support regional affordable housing programs and incentives, including those outlined in the Brevard County Workforce and Affordable Housing Ordinance.

Public Facilities

Coordination with Palm Bay Utilities for sanitary sewer and potable water is effective and satisfactory. If the Town is required or desires to have additional residents and businesses connect to a sanitary sewer system, potable water system, or coordinated solid waste collection services, provision and agreements with the appropriate agency, municipality, or company for service are recommended. The town will continue to work with Brevard County on stormwater utility. Malabar has several service franchises with private companies in the area. The Town has received adequate service from all their franchise agreements and expects to continue to be served by these entities.

Conservation

The Town shall coordinate with the Brevard County Environmentally Endangered Lands Program.

Coastal Management

The Coastal Area (CA) of Malabar has specific intergovernmental coordination needs. The Town should work collaboratively with the Brevard County Natural Resource Management Office and the University of Florida Brevard County Extension Service on the development of the Brevard County Comprehensive Maritime Management Master Plan (CM3P). Additionally, the Town should coordinate with the State's Division of Historic Resources for marking the historic mailboat route. Finally, the Town should work with DCA to incorporate the recommendations of the Local Mitigation Strategy Plan.

Recreation and Open Space

As previously mentioned, the Town is interested in developing a multi-use trail system which should link existing recreation facilities in and around the Town's corporate limits. Coordination with Brevard County, Palm Bay, and Grant-Valkaria is needed.

Capital Improvements

Schedule of Capital Improvements shall include projects from FDOT, Brevard County, and City of Palm Bay that affect the Town's level of service standards. Coordination with the Brevard County Property Appraiser is effective and satisfactory.

The specific goals, objectives, and policies for furthering intergovernmental coordination in the development of area wide service systems are stipulated in the goals, objectives, and policies of the following Elements: Transportation, Public Facilities, Recreation and Open Space, Intergovernmental Coordination, and Capital Improvements Element.

COMPARISON WITH REGIONAL POLICY PLAN

The ECFRPC's Strategic Regional Policy Plan (1998) has been reviewed and considered during the process of updating this comprehensive plan. The Comprehensive Plan conforms to the Regional Policy Plan. As the Brevard County Intergovernmental Coordination Steering Committee never fully commenced operations, the ECFRPC has become a focal point for Malabar's intergovernmental coordination mechanisms. The following objectives and policies reflect the ever-increasing significance of the ECFRPC.

AREAS OF CRITICAL STATE CONCERN (ACSC)

There are no areas of critical state concern in the Town of Malabar.

The following abbreviations are used in Table 8-A:

AE – Advise and Encourage AP – Approval, Permit
 CA – City Agency FA – Formal Agreement
 FN – Formal Notice IN – Informal Notice
 OA – Outside Agencies PM – Periodic Meetings to Coordinate Programs
 TA – Technical Assistance

**TABLE 8-A
 COORDINATING AGENCIES**

Agency	Subject Coordination	Nature of Relations	Existing and Anticipated Coordination Mechanisms	Effectiveness of Existing Coordination Mechanisms	Malabar Office with Primary Responsibility For Coordination
ADJACENT MUNICIPALITIES:					
Grant-Valkaria Palm Bay Brevard County (unincorporated lands)	Land use, transportation	AE, TA, PM	Land use, development actions affecting Town roadways	Effective	Town Administrator, Public Works
AREA AGENCIES:					
Brevard County Housing Authority	Housing provision	AE	Informal coordination	Effective	Town Administrator
Brevard County School District	Facility planning / concurrency	AE, PM	Interlocal agreement	Effective	Town Administrator
Brevard Metropolitan Planning Organization	Long range transportation planning	AE, AP, PM, TA	Technical Advisory Committee, Greenways and Trails Master Plan	Effective	Town Administrator
Melbourne-Tillman Drainage District	Stormwater management	AE, TA, FN, AP, PM	Informal coordination	Effective	Town Administrator
Space Coast League of Cities	Local government advocacy	AE, PM, TA	Informal coordination	Effective	Town Administrator
BREVARD COUNTY GOVERNMENT:					
Brevard County Emergency Management	Emergency management, evacuation	TA	Countywide Emergency Service Mutual Assistance Agreement	Effective	Town Administrator, Fire Chief
Brevard County Environmental Health Services	Annual water quality tests, well water and septic system regulation, inspection, and repair.	AP	Permitting	Effective	Public Works
Brevard County Environmentally Endangered Lands (EEL) Program	Conservation provision	PM	Trails & Greenways Committee, Parks & Recreation Committee	Effective	Town Administrator
Brevard County Fire Rescue	Fire protection	TA	Informal coordination	Effective	Town Administrator
Brevard County Planning & Zoning	Planning for adjacent unincorporated lands	AE	Brevard County Land Development Code, Comprehensive Plan	Effective	Town Administrator
Brevard County Sheriff's Office	Public safety	AE, TA, FA	Informal coordination, Outside agency	Effective	Town Administrator
Brevard County Solid Waste Management	Solid waste disposal, landfill issues	TA, PM	Informal coordination	Effective	Town Administrator, Public Works
Brevard County Tax Collector	Ad valorem collection and non- ad valorem stormwater funds	OA	Interlocal agreement	Effective	Town Clerk/Treasurer

Agency	Subject Coordination	Nature of Relations	Existing and Anticipated Coordination Mechanisms	Effectiveness of Existing Coordination Mechanisms	Malabar Office with Primary Responsibility For Coordination
REGIONAL AND STATE DEPARTMENTS AND AGENCIES:					
East Central Florida Regional Planning Council	General Planning	TA, AE	Regional Planning Activities	Effective	Town Administrator
Florida Department of Children and Families	Various licenses, land use	AP	Permitting	Effective	Town Administrator
Florida Department Community Affairs	Long range planning	AP, TA	Oversight of Comprehensive Plan, regulation of Land Development Code	Effective	Town Administrator
Florida Department of Environmental Protection	Water quality, natural resource protection	AP	Permitting, Informal coordination	Effective	Town Administrator, Public Works
Florida Department of State, Division of Historic Resources	Historic lands and buildings	TA, AE	Informal coordination	Effective	Town Administrator
Florida Department of Transportation	Transportation planning	AE, AP, PM, TA	Informal coordination	Effective	Town Administrator
Florida Division of Emergency Management	Mutual Aid Agreement	OA, TA, FA	Mutual Aid Agreement	Effective	Town Administrator
Florida Fish and Wildlife Commission	Conservation	AE, TA	Informal coordination	Effective	Town Administrator, Public Works
Florida Inland Navigation District	Intracoastal land development and management, waterway improvement projects	AE, TA, PM	Informal coordination	Effective	Town Administrator
Marine Resource Council of East Florida	Conservation, shoreline restoration	AE, TA	Informal coordination	Effective	Town Administrator, Public Works
St Johns River Water Management District	Stormwater management, water use	TA, AE, AP	Well water permitting, wellhead protection, Surface Water Improvement and Management Plan	Effective	Town Administrator, Public Works
UNITED STATES DEPARTMENTS AND AGENCIES:					
Commerce, Census Bureau	Decennial census	TA	Census Statistics and Services	Effective	Town Clerk
Defense/US Army Corps of Engineers	Cut and Fill (Wetland mitigation)	TA, AP	Federal Mandates	Effective	Town Administrator
Environmental Protection Agency	Cut and Fill (Wetland mitigation)	TA, AP	Federal Mandates	Effective	Town Administrator
Interior	Grant applications	AP, TA	Federal Mandates	Effective	Town Administrator
Postal	Address development, mail delivery	OA	Provision of Addresses	Effective	Town Clerk
Transportation	Transportation planning	AE, AP, PM, TA	Transportation Project Funding	Effective	Town Administrator
REGULATED UTILITIES:					
AT&T	Telephone service	OA, AP	Informal coordination	Effective	Town Administrator
Brighthouse	Cable services, underground utilities	OA, AP	Informal coordination	Effective	Town Administrator
City Gas Company	Underground utilities	OA, AP	Informal coordination	Effective	Town Administrator
Florida Power & Light	Electricity, underground utilities	OA	Franchise Agreement	Effective	Public Works
Palm Bay Utilities	Water and sewer utility service	OA, FA	Interlocal agreement	Effective	Public Works
Waste Management Inc	Solid waste pickup services	OA, FA	Franchise agreement	Effective	Town Administrator

Source: Town of Malabar, 2008 Comprehensive Plan

INTERGOVERNMENTAL COORDINATION ELEMENT GOALS, OBJECTIVES, AND POLICIES

Goal 8-1:

Provide mechanisms for improved intergovernmental coordination. The Town shall undertake actions necessary to establish governmental relationships designed to improve the coordination of public and private entities involved in development activities, growth management, and resource conservation.

8-1.1 Objective:

Normal process for intergovernmental coordination. Systematically coordinate the development and implementation of the Town's Comprehensive Plan with the plans of Brevard County, the City of Palm Bay, the Town of Grant-Valkaria, Brevard County School Board, East Central Florida Regional Planning Council, and other units of local government.

8-1.1.1 Policy:

Responsible entity for intergovernmental coordination. The Town Council and Town Administrator shall be responsible for ensuring an effective intergovernmental coordination program for the Town.

8-1.1.2 Policy:

Coordination with adjacent jurisdictions. The Town shall review proposed comprehensive plans as well as future amendments from Brevard County, Palm Bay, and Grant-Valkaria for the Town's review for purposes of intergovernmental coordination and to promote consistency with the Town's adopted Plan.

8-1.1.3 Policy:

Coordination of growth management issues. The Town shall pursue resolution of growth management issues with impacts transcending the Town's political jurisdiction. Issues to be pursued include but are not limited to the following:

- Brevard County, City of Palm Bay, and Town of Grant-Valkaria land development activities adjacent to the Town's corporate limits.
- Potential annexation issues.

- Central water and wastewater systems feasibility studies as well as planned improvements impacting the Town and adjacent areas.
- Area-wide drainage and stormwater management master plan, proposed improvements impacting the Town and adjacent areas.
- Locally unwanted land uses such as land fill improvements and solid waste disposal.
- Transportation improvements impacting the Town and adjacent areas (especially designated arterials and major collector streets) with new mechanisms to include a proportionate fair share mitigation and concurrency management for transportation facilities.
- Level of service standards for infrastructure system impacting the Town and adjacent areas.
- Natural resource conservation, including the Indian River Lagoon, Turkey Creek, Goat Creek, and tributaries thereof.
- Coordination and implementation of the FDOT 5-year Transportation Plan and the MPO Plan on widening Malabar Road.
- Continued implementation of the St Johns River Water Management District (SJRWMD) Surface Water Improvement and Management (SWIM) plan for restoring the Indian River Lagoon.
- Coordination with Florida Department of Environmental Protection (FDEP) and Florida Inland Navigation District, Army Corps of Engineers on issues relating to the environment and the Indian River Lagoon.
- Coordination with the Brevard County School Board on school concurrency, population projections, and site planning for public school facilities.
- Coordination with the MPO on its Greenways and Trails Master Plan to include a multiuse trail in Malabar.

8-1.1.4 Policy:

Space Coast League of Cities. The Town shall continue to participate in the Space Coast League of Cities, utilizing this organization as a resource for

discussion and education concerning planning, growth management and other public issues of mutual concern to local governments within Brevard County.

8-1.2 Objective:

Conflict resolution. The Town shall participate in the East Central Florida Regional Planning Council, using this Council as an informal forum for resolving conflicts among Brevard County, municipalities within the County, the School Board, and other special purpose districts or entities which provide services but do not have regulatory authority over the use of land.

8-1.2.1 Policy:

Informal mediation process. The Town shall support and participate in the East Central Florida Regional Planning Council's informal mediation process for solving intergovernmental coordination problems among local governments and other units of local governments providing services but not having regulatory authority over the use of land.

8-1.2.2 Policy:

Mechanisms for Intergovernmental Coordination review. The Town shall use the informal conflict resolution process coordinated through the East Central Florida Regional Planning Council to resolve intergovernmental coordination problems.

8-1.3 Objective:

Infrastructure systems and level of service standards. The Town shall coordinate issues surrounding level of service standards for existing and proposed public facilities within the Town and adjacent areas with all State, regional, or local agencies or private entities having existing or proposed future responsibility for the operation and maintenance of such facilities.

8-1.3.1 Policy:

Coordinate regional/sub-regional infrastructure issues. The Town shall coordinate with appropriate agencies for purposes of initiating discussions concerning development of regional or sub-regional infrastructures systems for providing central water and wastewater, stormwater management, solid waste, and major transportation linkages to areas within the Town and adjacent areas outside the Town. Also, use the technical assistance provided by the St Johns River Water Management District in issues surrounding water management, potable water supply, and conservation of natural resources.

8-1.3.2 Policy:

(not included in original document)

8-1.3.3 Policy:

(not included in original document)

8-1.3.4 Policy:

Cooperation with the East Central Florida Regional Planning Council. The Town shall participate in the review of applicable regional standards, including level of service standards.

8-1.3.5 Policy:

Capital improvement program coordination. During preparation of the annual capital improvements program, the Town shall evaluate all applicable State, regional, and local programs proposed for funding in order to promote consistency with the Comprehensive Plan.

8-1.5 Objective:

Beginning with an effective date of 2008, the Town and the Brevard County School Board will establish a formal process for more effective coordination, sharing information on plans, projects, and developments which affect public school facilities or public-school sites.

8-1.5.1 Policy:

The Town agrees to be a party to the Interlocal Agreement for Public School Facility Planning and School Concurrency with the Brevard County School Board and shall work with the School Board to implement the terms of the agreement.

8-1.5.2 Policy:

The Town shall notify the School Board of all proposed residential development projects as a part of the review process for school concurrency.

8-1.5.3 Policy:

The Town shall work with the School Board to maintain the Interlocal Agreement for Public School Facility Planning and School Concurrency.

CHAPTER NINE

CAPITAL IMPROVEMENTS ELEMENT

PURPOSE

Florida Statutes Chapter 163.3177 requires that all comprehensive plans contain a Capital Improvements Element, and Chapter 9J-5 of the Florida Administrative Code states that the purpose of this Element is to evaluate the need for public improvements as identified in other elements of the Comprehensive Plan; to estimate the cost of the improvements for which the Town is responsible; to analyze the fiscal capability to implement the improvements; and to establish financial policies and schedules to assure the timely delivery of facilities and services based upon prevailing and projected needs. The element also serves as a mechanism to implement the Town's Concurrency Management System; thereby safeguarding the integrity of capital facilities servicing the preexisting-built environment while assuring the timely availability of adequate services for future development.

The Town of Malabar's Capital Improvements Element is not the Town's Capital Improvement Program (CIP). The Capital Improvement Element is a portion of the Town's overall Comprehensive Plan and is to be used as a planning tool by Malabar and is not to be used to create a capital budget. The Element addresses short- and long-term level of service needs that have been identified and will assure the orderly growth and development of the Town. The Element will be used to ensure that the identified levels of service for Malabar's residents will be met.

PLANNING TIMEFRAMES

The Town of Malabar Comprehensive Plan provides guidance on development and redevelopment over two planning horizons: a 5-year period (short term) and a 10-year period (long term). The Capital Improvement Element provides for facility improvements over the short term 5-year planning period. The planning timeframe for the Capital Improvement Element is FY09-FY13.

EXISTING DATA AND CONDITIONS

Inventory of Capital Improvement Needs

A listing of the public facilities and capital improvements that are necessary to correct deficiencies or maintain LOS as identified in the elements within this Comprehensive Plan are reflected discussed below.

Sanitary Sewer Facilities

Most of the Town relies on septic systems for wastewater treatment. Four private wastewater package treatment plants service three mobile home parks and the Harris

Corporation. The Town owns and maintains the sanitary sewer transmission lines to Palm Bay Utility Department (PBUD) for the portion of the Town where sewage collection is provided. PBUD operates the Troutman Waste Water Treatment Plant (WWTP), a 4.0 Million Gallon per Day (MGD) plant located on the east side of Troutman Boulevard and the Troutman Water Reclamation Facility (WRF), a 1.2 MGD plant on the west side of Troutman Boulevard. This is sufficient to serve the PBUD service area in excess of the 10 year planning period.

The level of service for sanitary sewer is as follows:

Sanitary Sewers:

- 300 gallons per day per dwelling unit;
- 150 gallons per day per mobile home unit;
- 1,089 gallons per day per acre for commercial/light industrial

TABLE 9-1: TABLE OF MALABAR SANITARY DEMAND

	2008	2008 Water Demand	2013	2013 Water Demand	2018	2018 Water Demand
Dwelling Units	1,351.00	405,300.00	1,506.00	451,800.00	1,660.00	498,000.00
Mobile Homes	182.00	27,300.00	182.00	27,300.00	182.00	27,300.00
Commercial/Light Industrial (Acres)	160.72	175,024.08	160.72	175,024.08	160.72	175,024.08
Total Malabar Sanitary Demand		607,624.08		654,124.08		700,324.08
PBUD Treatment Capacity		5,200,000.00		7,000,000.00		7,000,000.00

Source: Palm Bay Utilities Department, Calvin, Giordano & Associates, Inc.

Notes: Number of dwelling units estimated based upon five-year trends in dwelling growth per Shimberg Center data. The number of mobile homes is not expected to increase. The acreage of commercial and industrial lands decreased from 1986 to 2008. Further decreases are not expected.

Potable Water Facilities

The Town of Malabar’s potable water is primarily derived from on-site shallow wells, which withdraw water from the surficial aquifer. The Harris Government Systems development operates and maintains a private water treatment plant. The three mobile home parks within the Town also maintain private water treatment facilities.

The Town owns and maintains a water distribution system that purchases its water from the PBUD under a thirty-year contract. PBUD operates the Troutman Water Treatment Facility and the South Regional Water Treatment Facility. The Troutman Water Treatment Facility has both a Lime Softening (LS) Water Treatment Plant (WTP) and a Reverse Osmosis WTP.

The permitted withdrawal rates for this plant are 4.7 MGD declining 0.1 MGD per year until 2021, when the withdrawal rate will be 3.4 MGD for the Surficial Aquifer wells and 0.72 MGD for the Floridan Well. The RO WTP has three Floridan Aquifer wells permitted to withdraw 2.61 MGD. The current capacity of the RO WTP is 1.5 MGD with the ability to expand to 3 MGD. The South Regional Water Treatment Facility is an RO facility with five Floridan Aquifer wells with a permitted withdrawal of 5.09 MGD in 2007 expanding to 10.49 MGD in 2021.

There is sufficient capacity for the 10-year planning period.

The adopted potable water level of service is as follows:

Potable Water:

Residential – 75 gallons per capital per day;

Commercial/Industrial – 7,500 gallons per day per gross acre.

TABLE 9-2: TOWN OF MALABAR POTABLE WATER DEMAND

	2008	2008 Water Demand	2013	2013 Water Demand	2018	2018 Water Demand
Population	3,142.00	314,200.00	3,312.00	331,200.00	3,527.00	352,700.00
Commercial/Light Industrial (Acres)	160.72	1,205,400.00	160.72	1,205,400.00	160.72	1,205,400.00
Total Malabar Potable Water Demand		1,519,600.00		1,536,600.00		1,558,100.00
PBUD Treatment Capacity		11,290,000.00		10,790,000.00		10,290,000.00

Source: Palm Bay Utilities Department, Calvin, Giordano & Associates, Inc.

Solid Waste

Solid waste collection to the Town under contract with Waste Management Inc, Hazardous wastes are discussed in the conservation Element. The Town coordinates with Brevard County on solid waste issues, including landfill issues. Solid waste handling and disposal is performed by the Solid Waste Department of Brevard County. The County owns and operates the Central Disposal Facility, Sarno Transfer Station and Landfill, Mockingbird Mulching Facility and the Titusville Transfer Station. The Central Disposal Facility has permitted capacity for nearly 10 years. There is an additional 16 years of capacity in the southern expansion area.

The level of service for solid waste is as follows: 6.85 pounds per capita per day. The following table calculates the solid waste to be produced by the Town through 2018.

TABLE 9-3: TOWN OF MALABAR SOLID WASTE PRODUCTION 2008-2018

Year	Population	Solid Waste Generation (pounds)
2008	3142	21,522.70
2013	3312	22,687.20
2018	3527	24,159.95

Source: Brevard County and Calvin, Giordano & Associates, Inc.

Per Brevard County, the Central Disposal Facility that is the Class I receiving facility for the Town of Malabar has capacity until 2028 to meet the Town's needs.

Stormwater Drainage Facilities

The Town of Malabar joined the Brevard County Stormwater Program in 2000. Funding for the stormwater program is collected through taxes by the Town as an average of \$50,000 annually since 2000. Through this program, the County acts as the stormwater administrator for the town, ensuring that the procedures and policies enacted in the Town are consistent with that of the County. This partnership has proven to be a more efficient

and cost-effective approach to stormwater management. There are currently no stormwater capital improvement projects planned for the Town and no deficiencies in level of service have been indicated.

The drainage level of service is a design standard for required for development and redevelopment. It is not a townwide level of service.

Drainage Level of Service:

Off-Site: 25-year, 24-hour design storm

On-Site: 10-year, 24-hour design storm

Transportation

The major north-south traversing roadways for the Town are US-1, SR-507/Babcock Street, Corey Road, Weber Road, Marie Street, and I-95. The major east-west traversing roadways are SR-514/Malabar Road, Valkaria Road, Hall Road, and Atz Road.

The level of service analysis for existing conditions indicates that all the roadways within the Town of Malabar, except SR-9/I-95 and SR-507/Babcock Street, are operating at the adopted level of service. A feasibility study regarding widening of Malabar Road has recently been completed by FDOT. The MPO is planning engineering studies in 2025 regarding widening of Babcock Street. FDOT plans to widen I-95 to increase its capacity and address the level of service standards as shown in the Schedule of Capital Improvements.

Parks and Recreation

The Town has adopted a Level of Service of five (5) acres of parks and recreation lands per 1,000 residents. The Town has approximately 150 acres of parks space will continue to meet their level of service through the short term (5 year) and long term (10 year) planning periods.

The Town has adopted a Level of Service of five (5) acres per 1,000 residents. As can be seen in the following table, the Town will continue to meet this level of service through 2030. The existing park space is based upon Town-owned parks and open space. It does not include parks and spaces leased by the Town.

TABLE 9-4: TOWN OF MALABAR LEVEL OF SERVICE 2005-2030

Fiscal Year	Town Population	Existing Space	Required (Space Capita)	LOS per	Space needed for Required LOS	Actual (Space Capita)	LOS per	Surplus or Deficit Space
2005	2,842	147.34 acres	0.005		14.21 acres	0.0529		133.13 acres
2010	3,412	147.34 acres	0.005		17.06 acres	0.0441		130.28 acres
2015	3,426	147.34 acres	0.005		17.13 acres	0.0439		130.21 acres
2020	3,687	147.34 acres	0.005		18.44 acres	0.0408		128.91 acres
2025	3,925	147.34 acres	0.005		19.63 acres	0.0383		127.72 acres
2030	4,145	147.34 acres	0.005		20.73 acres	0.0363		126.62 acres

Source: Calvin, Giordano & Associates, Inc.

Public Education and Healthcare Systems

Brevard County Public Schools provided level of service projections for the FY09-FY13 planning period. Among schools that Malabar students attend, only Bayside High School is currently overcrowded. Bayside is expected to have a utilization rate of 100% in FY10 and its utilization rate is expected to continue through the five-year period.

The Brevard County School Board provides figures for current and projected student enrollment and capacity by school for each district. Malabar is within the School Board District 3. Within District 3 there are currently 2 elementary schools, 1 middle school and 2 high schools serving the Town of Malabar. Following are the current and projected capacity utilization rates for each according to the 2008-2009 Brevard County District Five Year Facilities Work Program.

TABLE 9-5: SCHOOL UTILIZATION

School	Type	Actual 2008-09 Utilization	Projected 2012-13 Utilization
Port Malabar Elementary	Elementary	85%	84%
John F. Turner, Sr. Elementary	Elementary	82%	91%
Stone Middle School	Middle	65%	64%
Palm Bay High School	High	62%	67%
Bayside High School	High	78%	82%

Source: Brevard County Public Schools

Brevard County has adopted a concurrency management system designed to address the need for correction of school facility deficiencies. Specifically, the following tiered Level of Service (LOS) standards for public schools, based upon permanent Florida Inventory of School Houses (FISH) capacity, address the correction of existing school facilities deficiencies.

TABLE 9-6: SCHOOL LOS PROJECTIONS

TIERED LEVEL OF SERVICE – SCHOOL YEAR 2008-09 TO 2012-13					
Facility Type	2008-09	2009-10	2010-11	2011-12	2012-13
Elementary Schools	126%	126%	125%	104%	100%
Middle Schools	117%	116%	88%	95%	97%
Junior / Senior High Schools	127%	123%	102%	100%	96%
High Schools	125%	100%	92%	93%	97%

Source: Brevard County Public Schools

The School District's 2008-09 Five Year Facilities Work Program goes on to project the 2017-18 average utilization rate for all schools will be 82.63%. Therefore, LOS will be met for the five year and ten-year planning timeframes.

Health care facilities near the Town include the following:

Holmes Regional Medical Center
1421 Malabar Road, Palm Bay, FL

Palm Bay Community Hospital
1425 Malabar Road, Palm Bay, FL

Time and Priority of Capital Improvement Needs

The Town of Malabar Comprehensive Plan has identified capital improvements by type, location and cost. Timing and priority of capital improvement needs will be determined by the following:

1. Emergency and post-disaster mitigation
2. Deficiency determination by a Concurrency Management System
3. Public involvement in Capital Improvement Program and budget
4. Existing land development and Town master plans
5. Plans of county state agencies including the water management district
6. Accommodation of new development and redevelopment
7. Financial feasibility

Financial Resources Relative to Capital Improvements

The Town reserves funds in its General Fund for transportation and park improvements. Stormwater funds received from the County for stormwater projects with the Town. The Utility Funds is an enterprise fund used to maintain potable and wastewater transmission in the Town.

Bonding Capacity

Currently, the Town has no bonds.

Projected Revenues and Expenditures

The following table projects revenues and expenditures for the Town through the year 2013. FY09 revenues and expenditures were adopted by the Town Council in the Town's annual budget. Projections for FY10-FY13 were calculated based upon a 4% yearly increase in expenses and revenues. The Town maintains a balanced budget with expenditures not surpassing revenues.

TABLE 9-7: REVENUES AND EXPENSE FY09-FY13

Revenues	FY09	FY10	FY11	FY12	FY13
Taxes	1,024,150	1,065,116	1,107,721	1,152,029	1,198,111
Licenses and Permits	95,630	99,455	103,433	107,571	111,874
Intergovernmental Revenue	238,059	247,581	257,485	267,784	278,495
Charges for Services	44,600	46,384	48,239	50,169	52,176
Fines and Forfeitures	120	125	130	135	140
Miscellaneous	169,801	176,593	183,657	191,003	198,643
Other Sources	44,769	46,560	48,422	50,359	52,373
Total General Fund	1,617,129	1,681,814	1,749,087	1,819,050	1,891,812
Stormwater Utility	140,030	145,631	151,456	157,515	163,815
Utility Fund	169,899	176,695	183,763	191,113	198,758
Total Revenues	1,927,058	2,004,140	2,084,306	2,167,678	2,254,385
Expenses	FY09	FY10	FY11	FY12	FY13
Legislative	16,117	16,780	17,818	18,535	19,281
Executive	142,712	148,582	157,772	164,121	170,724
Finance and Administrative	193,932	201,909	214,397	223,025	231,998
Legal	35,610	37,075	39,368	40,952	42,600
Comprehensive Planning	44,500	44,500	10,500	10,500	10,500
General Government	103,392	107,645	114,303	118,903	123,686
Fire Control	325,844	339,247	360,230	374,726	389,802
Protective Inspections	127,429	132,670	140,876	146,546	152,441
Public Works	24,771	25,790	27,385	28,487	29,633
Streets and Roads	561,688	584,791	620,962	645,951	671,939
Parks and Recreation	37,134	38,661	41,053	42,705	44,423
Special Events	4,000	4,165	4,422	4,600	4,785
Total Expenses	1,617,129	1,681,814	1,749,087	1,819,050	1,891,812
Stormwater Utility	140,030	145,631	151,456	157,515	163,815
Utility Fund	169,899	176,695	183,763	191,113	198,758
Total Expenses	1,927,058	2,004,140	2,084,306	2,167,678	2,254,385

Source: Town of Malabar, Calvin, Giordano & Associates, Inc.

MONITORING AND EVALUATION

The adoption of a Comprehensive Plan requires that procedures be established to evaluate and monitor the intended capital improvements addressed in the Plan. These procedures must be in place and clearly identified. In order to accomplish this, the Town will annually review the Capital Improvement Element and other relevant portions of the Plan to assure that the capital needs are being met.

The review will also determine if adequate revenues are available to meet the needs. The data regarding the listed improvements will be updated and revised as needed in order to meet current and future capital improvement needs as they relate to the City's adopted Levels of Service.

SCHEDULE OF CAPITAL IMPROVEMENTS

The Schedule of Capital Improvements is a subset of a local government's Capital Improvement Program and includes only capital improvements related to level of service standards scheduled for construction within the community during the next five years. State guidelines for Capital Improvement Elements indicate that FDOT and projects related to potable water supply should be included as well.

FISCAL IMPLICATIONS

Because the capital improvements projects affecting level of service standards are not provided by the Town of Malabar, there are no fiscal implications on the Town.

CAPITAL IMPROVEMENTS ELEMENT GOALS, OBJECTIVES, AND POLICIES

§9-1 Capital Improvement goals, objectives and implementing policies. This section stipulates goals, objectives, and implementing policies for the Capital Improvements Element pursuant to Section 163.3177(3)(a), F.S., and Section 9J-5.016(3), F.A.C.

Goal 1-1

Management of capital improvements. The Town shall undertake actions necessary to adequately provide needed public facilities within the Town's jurisdiction in a manner which protects investments and existing facilities, maximizes the use of existing facilities, and promotes orderly growth.

9-1.1 Objective:

Rationale for capital improvements (CIP). Capital improvements will be provided for purposes of correcting existing deficiencies, accommodating desired future growth, and replacing worn-out or obsolete facilities, as indicated in the five-year schedule of improvements contained within this Element.

9-1.1.1 Policy:

Capital Improvement Program (CIP). The Town shall prepare and adopt a Five-Year Capital Improvement Program (CIP) as part of the Town's annual budgeting process. Amend the Capital Improvement Element annually to reflect these changes. The Town shall include within the five-year schedule of capital improvements contained within this Element all capital improvements with an estimated cost of \$25,000 or more which are identified in any of the respective elements of the Town's Comprehensive Plan.

9-1.1.2 Policy:

Priorities in Allocating Capital Improvements. In allocating priorities for scheduling and funding capital improvement needs, the Town shall assign highest priority to capital improvement projects in the five-year schedule of improvements which are designed to correct existing deficiencies.

9-1.1.3 Policy:

Planning and Zoning Board to Draft and Rank Capital Improvement Priorities. The Planning and Zoning Board shall have the authority and

responsibility to evaluate and recommend a rank order of priority for capital improvements which is proposed for inclusion in the five-year schedule of capital improvements. The Town Council shall review and retain its authority to adopt the recommendations of the Planning and Zoning Board with or without modifications in the proposed five-year schedule of improvements.

9-1.1.4 Policy:

Financial feasibility. The Schedule of Capital Improvements shall be financially feasible. Sufficient revenues shall be available for the first three years or will be available from committed or planned funding sources for 4 and 5 years of a 5-year capital improvement schedule.

9-1.1.5 Policy:

Consistency with Comprehensive Plan. The Schedule of Capital Improvements shall be based upon the Future Land Use Element and consistent with all other Plan elements.

9-1.1.6 Policy:

Intergovernmental coordination. Coordinate planning for Town improvements with the plans of state agencies, St Johns River Water Management District (SJRWMD), Brevard County, and the City of Palm Bay when applicable.

9-1.2 Objective:

Limitation on public investments in the Coastal Area. The public expenditures that subsidize development in the Coastal Area shall be limited to improvements included in the Coastal Management Element.

9-1.2.1 Policy:

Public improvements in the Coastal Area. No public infrastructure exists within the Town's designated Coastal Area defined as the area located east of the U.S. 1 and Rocky Point Drive corridors. The Town shall not invest public funds in public facilities within this area unless the facility is for public access or resource restoration.

9-1.3 Objective:

Maintain a Concurrency Management System. Future development shall bear a proportionate cost for facility improvements necessitated by the development in order to maintain adopted LOS standards.

9-1.3.1 Policy:

Transportation impacts. As part of the proposed Master Drainage and Road Improvement Master Plan, the Town shall investigate a transportation impact fee program which would assess new development of a pro rate share of the costs required to finance transportation improvements necessitated by such development.

9-1.3.2 Policy:

Recreation impacts. The Town shall continue to implement its program for mandatory dedications or fee in lieu thereof as a condition of plan approval for the provision of recreation and open space.

9-1.3.3 Policy:

Stormwater management impacts. As part of the Master Drainage and Road Improvement Master Plan, the Town shall investigate additional programs for assessing new development of a proportionate cost of drainage facility improvements necessitated by the respective development.

9-1.4 Objective:

Fiscal resource development. The Town shall manage the fiscal resources to ensure a provision of needed capital improvements for previously issued development orders and for future development and redevelopment.

9-1.4.1 Policy:

Limitation on indebtedness. Providing capital improvements, the Town shall limit the maximum ratio of outstanding indebtedness to no greater than fifteen (15%) percent of the property tax base.

9-1.4.2 Policy:

Capital improvements program. The Town shall prepare and adopt a six-year capital improvement program and annual capital budget as part of its budgeting process.

9-1.4.3 Policy:

Master drainage plan. As part of the Master Drainage Plan the Town shall investigate the desirability of enacting a special district(s) as a mechanism for managing and funding needed drainage improvements through the year 2010 as shall be identified in the Master Drainage Plan.

9-1.4.4 Policy:

Grantsmanship. The Town shall pursue available grants or private funds in order to finance the provision of needed capital improvements.

9-1.5 Objectives:

Management of development orders and permits. Decisions regarding the issuance of development orders, building permits, certificates of occupancy, and other applicable permits shall be consistent with goals, objectives, and policies of the respective Comprehensive Plan elements, the Town's adopted Land Development Code, and requirements for adequate public facilities meeting stated levels of service criteria.

9-1.5.1 Policy:

Level of service standards. The Town shall use the following LOS standards in reviewing the impacts of new development and redevelopment upon public facilities:

Sanitary Sewers:

- 300 gallons per day per dwelling unit;
- 150 gallons per day per mobile home unit;
- 1089 gallons per day per acre for commercial/light industrial.

Solid Waste:

- 6.85 pounds per capita per day.

Drainage:

- Off-Site: 25-year, 24-hour design storm, per Ordinance #2-14-86
- On-Site: 10-year, 24-hour design storm, per Ordinance #2-14-86

In addition: The Town shall adopt the drainage ordinance to include the following standard where the same is more restrictive: retention or detention with filtration, as a minimum the first one-inch of run-offs or run-off from a one-hour, three-year storm event, whichever is greater.

Potable Water:

- Residential – 100 gallons per capita per day
- Commercial/Industrial – 7,500 gallons per day per gross acre

Transportation Linkages:

- U.S. 1: LOS Standard D (FDOT facility)
- Malabar Road (SR 514): LOS Standard D (FDOT facility)

Babcock Road (SR 507): LOS Standard E (FDOT facility)
 Collector Roadways: LOS Standard D
 Paved Local Roadways: LOS Standard D
 Unpaved Local Roadways: LOS Standard D

Parks:
 5 acres per 1,000 population

Schools:
 The Town has adopted the following tiered Level of Service (LOS) standards for public schools, based upon permanent Florida Inventory of School Houses (FISH) capacity, which shall address the correction of existing school facility deficiencies.

TABLE 9-8: PUBLIC SCHOOLS LEVEL OF SERVICE

TIERED LEVEL OF SERVICE – SCHOOL YEAR 2008-09 TO 2012-13					
Facility Type	2008-09	2009-10	2010-11	2011-12	2012-13
Elementary Schools	126%	126%	125%	104%	100%
Middle Schools	117%	116%	88%	95%	97%
Junior / Senior High Schools	127%	123%	102%	100%	96%
High Schools	125%	100%	92%	93%	97%

9-1.5.2 Policy:

Adequate facilities ordinance. The Town shall issue no development order for new development which would result in an increase in demand on deficient facilities prior to completion of improvements needed to bring the respective facility up to standards. The Town shall include an adequate facilities requirement as part of the updated Land Development Code. The adequate facilities ordinance shall mandate the future applications for development on the levels of services for the water and wastewater systems, solid waste system, drainage, recreation, and the traffic circulation system. Prior to issuing a building permit the Town shall render (1) a finding that the applicant has provided written assurance that the proposed development shall be services with each of the above cited facilities with a level of service at least equal to that level of service stipulated in Policy 4.1.1.1 and (2) consult with the Palm Bay Utilities Department and the Town’s Public Works Department to determine if adequate water supplies will be available to serve the development by the anticipated date of issuance of a certificate of occupancy or its functional equivalent. The developer’s application shall include written assurances that any required improvements shall be in place concurrent with the impacts of the

development (i.e., by the time a certificate of occupancy is granted by the Town).

9-1.5.3 Policy:

Evaluation criteria for plan amendments. Proposed Plan amendments and requests for new development or redevelopment shall be evaluated according to the following guidelines:

- a. Does the proposed action contribute to a condition of public hazard as described in the Public Facilities and/or Coastal Management Elements;
- b. Does the proposed action exacerbate any existing condition of public facility capacity deficits, as described in the Transportation Circulation, Public Facilities, and/or Recreation and Open Space Elements;
- c. Does the proposed action generate public facility demands that may be accommodated by capacity increases planned in the Five-Year Schedule of Improvements;
- d. Does the proposed action conform with the future land use designated on the Future Land Use Map within the Future Land Use Element;
- e. Does the proposed action comply with and accommodate public facility demands based on the adopted level of service standards contained herein;
- f. If the proposed action required that any public facilities be provided by the Town, there shall be a demonstration of financial feasibility;
- g. Does the proposed action impact facility plans of any State agencies or facility plans of the St Johns River Water Management District; and
- h. Does the proposed action demonstrate availability of adequate water supply and potable water facilities to support the development?

9-1.6 Objective:

The Town shall work with the School Board to ensure that capital improvements are provided, when needed, to maintain the adopted Level of Service standards for public schools, to meet the future public-school facility needs of the Town.

9-1.6.1 Policy:

By December 1 of each year, the Town shall adopt as part of its Capital Improvement Element the School Board of Brevard County's Five-Year Work Program. The Town hereby adopts by reference the School Board of Brevard County's Five-Year Work Program for the planning period 2008/2009 through 2012/2013, dated 9/28/08 as part of the School District budget, including planned facilities and funding sources to ensure a financially feasible capital improvements program and to ensure the level of service standards will be achieved by the end of the five-year period.

§9-2 Implementing capital improvements. This section stipulated a five year schedule of Capital Improvements together with criteria for monitoring and evaluation the Capital Improvements Element.

9-2.1 Policy:

Five-year schedule of improvements. Table 9-2 Schedule of Improvements: contained herein, established the estimated projected cost, and potential revenue sources for each of the Capital Improvement needs identified within the respective comprehensive plan elements. These programs are scheduled in order to ensure that the goals, objectives, and policies established in the capital improvements element shall be met.

TABLE 9-9: SCHEDULE OF CAPITAL IMPROVEMENTS

Facility Type	FY09	FY10	FY11	FY12	FY13	Total 5-Year Cost (FY09-13)
FDOT Projects						
I-95 (Brevard County Line to SR514/Malabar Road)	\$1,197,657	\$10,879,790	\$2,176,062	\$1,656,480	\$0	\$15,836,101
City of Palm Bay Potable Water Projects						
<i>No projects scheduled affective Level of Service</i>						
Town Recreation and Open Space Improvements						
<i>No projects scheduled affective Level of Service</i>						

Town Potable Water Projects
<i>No projects scheduled affective Level of Service</i>
Town Sanitary Sewer Projects
<i>No projects scheduled affective Level of Service</i>
Town Stormwater Drainage Projects
<i>No projects scheduled affective Level of Service</i>
Town Transportation Projects
<i>No projects scheduled affective Level of Service</i>

Source: FDOT FY09-13 Five Year Work Program, City of Palm Bay, Town of Malabar

§9-3 Monitoring and evaluating the capital improvements element. The Capital Improvements element shall be reviewed on an annual basis in order to insure that the required fiscal resources are available to provide adequate public facilities needed to support future land use consistent with adopted level of service standards. The annual review of the Capital Improvements Element shall be the responsibility of the Planning and Zoning Board. Findings and recommendations of the Planning and Zoning Board shall be considered by the Town Council at a public meeting. At such time the Town Council shall take action as it deems necessary in order to refine/update the Capital Improvements Element.

The monitoring and evaluation procedure shall incorporate the following considerations:

1. Data Update Refinements. Determine if any corrections, update, and/or modifications should be undertaken, such considerations shall include, but not necessarily be limited to the following:
 - Estimated costs
 - Revenue sources
 - Recently constructed capital improvements
 - Dedications
 - Scheduled dates of improvements projects
2. Consistency Review. Determine whether changes to the Capital Improvements Element are necessary in order to maintain consistency with other elements of the Comprehensive Plan.
3. Implications of Scheduled Master Plans. The five-year schedule of improvements shall be updated as necessary in order to reflect new projects identified in the proposed Master Plan for drainage and road improvements as well as in the possible Master Plans for area-wide potable water and wastewater system.

4. Priority of Scheduled Improvements. The Plan shall assess the accuracy of testing deficiencies and reassess schedule priorities for public improvements.
5. Capital Improvement Criteria. Review the criteria used to evaluate capital improvement projects in order to ensure that the projects are being ranked in their appropriate order of priority and incorporate any needed changes in order to upgrade and facilitate the evaluation process.
6. Level of Service Standards. The plan shall evaluate the Town's effectiveness in maintaining the adopted level of service standards and recommend and needed action to address problem areas.
7. County, State and Regional Improvement Programs. The Town shall review the effectiveness of program coordination in resolving multi-jurisdictional issues surrounding the plans and programs of state agencies and the St Johns River Water Management District that provide public facilities within the Town's jurisdiction. Consider the effectiveness of intergovernmental coordination surrounding the improvements to the State Road 514 corridor.
8. Private Sector Improvements, Dedications or Fees in Lieu Thereof. Evaluate the effectiveness of provisions requiring mandatory dedications or fees in lieu thereof as well as progress toward incorporating other programs for assessing new development a pro-rated share of the improvement costs generated by the respective developments.
9. Impact of Other Jurisdictions in Maintaining Level of Service Standards. Evaluate the success and failure of inter-governmental coordination in achieving an area-wide approach to achieving central water and waste water systems, area-wide, transportation improvements, as well as drainage improvements, which may be required to maintain level of service standards.
10. Outstanding Indebtedness. Evaluate the ratio of outstanding indebtedness to the property tax base.
11. Grantsmanship. Evaluate efforts made to secure available grants or private funds in order to finance the provision of capital improvements.
12. Fiscal Management. Evaluate the Town's progress in finding elective funding mechanisms for promoting road and drainage improvements or other capital improvement needs identified in the scheduled Master Plans.
13. Evaluation Criteria. Evaluate the usefulness of criteria used to evaluate plan amendments as well as requests for new development/redevelopment.

14. Update Schedule of Improvements. Review the success in implementing the five-year capital improvement program and refine the schedule to include any new projects required to support any development during the latter part of the five-year schedule.