

# Peace River Manasota Regional Water Supply Authority



## RV Griffin Reserve Land Use and Management Plan

November 2011

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# Project Vision Statement

The RV Griffin Reserve is a unique property situated in southwestern DeSoto County. As part of a natural drainage divide between the Peace River and Myakka River watersheds, the Reserve's natural habitats provide a haven for native Florida wildlife and plant life, many becoming increasingly rare in the region. Outdoor enthusiasts can observe fox squirrels, raccoons, white tail deer, wild turkeys, gopher tortoises, wading birds, and other Florida wildlife interacting in their natural environment. These outdoor enthusiasts can also observe the recovery of previously altered habitats and discover restoration methods used to return these systems to a higher level of health and natural condition. Located on the fringe of more urbanized development in Port Charlotte and the City of North Port, the RV Griffin Reserve is enjoyed by trail hikers, mountain bikers, and horseback riders alike, all who come to appreciate the alternative tranquility the Reserve offers.

## Preface

This Land Use and Management Plan (LUMP) guides the use and management of the RV Griffin Reserve (Reserve) through the ten-year period 2011 through 2020. The plan may be reviewed and revised at any time during that period should circumstances warrant.

## Authority's Mission

The general mission of the Peace River Manasota Regional Water Supply Authority (Authority) is "to provide the region with a sufficient, high quality, safe drinking water supply that is reliable, sustainable and protective of our natural resources now and into the future." Specific to the RV Griffin Reserve, the Authority's mission is to utilize the property to support regional drinking water supply development and protect those water resources while managing maintaining, preserving and enhancing the property's natural systems for the benefit of the public now and into the future.

## The Plan

This plan translates the District Governing Board's Policy 610-3 and Procedure 61-3b into six site-specific management goals: water resource protection, flood control, natural systems protection/restoration, resource-dependent recreation, renewable resource utilization and special uses. Through review and verification of available resource data, the Reserve's natural function and important attributes are fully described in this plan. Science-based preserve design and management principles were applied to divide the Reserve into delineated management zones. The zone map combines areas sharing similar natural traits, protection requirements, use potential and management needs into the following zone categories: preservation, resource management, recreation, special protection, transportation, and special use. The zone map is then used as a management tool to organize management activities and to locate compatible land uses within appropriate areas of the Reserve.

Zoning designations on the zone map are incorporated into a land use matrix that contains a broad range of potentially compatible resource-dependent recreation activities and renewable resource land uses. Uses deemed compatible with the management goals and natural character of the Reserve are selected and linked to the appropriate management zones. Together, the zone map and land use matrix form the blueprint by which all future land use decisions will be based. Local land use data and regional public use needs and sources information, are then evaluated to identify compatible resource-dependent recreation uses that may be accommodated on the Reserve.

Finally, the plan's strategic objectives are developed to guide the implementation of the District's six management goals for the Reserve. These strategic objectives are one to ten year initiatives that are obtainable, measurable, and are linked to the management goal(s) they are intended to achieve. Through identification of management partners, determination of possible challenges to successful implementation of the strategic objectives, together with consideration of the zone map and land use matrix, the plan allows for the collective development of strategies to overcome land management challenges associated with the Reserve.

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# Executive Summary

Project Name:	RV Griffin Reserve
Project size:	5,913.45 acres
Basin(s)/Watershed(s):	Peace River / Myakka River
Acquisition date(s):	1992
Primary purpose for acquisition (AORs):	Water Supply Development
Former land uses:	Cattle production, timbering, turpentine production, row crop production, and sod farming
Hydrologic features:	A natural drainage divide between the Peace River and Myakka River watersheds utilizing sheetflow through a series of marshes linked by shallow sloughs for relief of this poorly drained topography
Land cover summary:	Contains 78% upland communities and 22% wetland communities, with the dominant coverage being non-forested wetlands, improved pasture, pine flatwoods, mesic hammocks, and palmetto prairie
Restoration/mitigation	1055 acres of wetland restoration and upland enhancement, conducted as mitigation for impacts from the construction footprint of the Authority's 6 billion gallon public water supply reservoir completed in 2009
Compatible uses	Horseback riding, radio controlled airplane use, hiking, biking, nature study, and other uses such as cattle grazing and scientific research
Strategic objectives summary	Protection of natural water resources, development and protection of public water resources, hydrologic restoration, restoration of native communities, exotic plant and animal control, public access and public use monitoring
External Coordination	Southwest Florida Water Management District, DeSoto County Sheriff's Office, DeSoto County Fire Department, Harrison Cattle LLC, Florida Division of Forestry, Florida Fish and Wildlife Conservation Commission, Florida Department of Environmental Protection-Regulatory; and Army Corp of Engineers

# Introduction

The RV Griffin Reserve (Reserve) totaling 5,913 acres, was acquired by the Southwest Florida Water Management District (District) in 1992 from Atlantic Gulf Communities, in cooperation with the Peace River Manasota Regional Water Supply Authority (Authority). The primary purpose of the acquisition was to accommodate the expansion and protection of an existing public water supply system located on adjoining lands.

Since this tract was chiefly acquired for water supply purposes there are several entities, in addition to the District, that hold a stake in the Reserve, therefore, activities that occur within the Reserve's boundaries may be influenced by one or several of these parties. First and foremost is the Authority, who own and manage land parcels completely surrounded by the Reserve. This land contains the original Surface Water Reservoir No. 1 which pre-existed the District's acquisition of the Reserve. Additionally, the Authority now holds a perpetual exclusive easement on approximately 1,475.61 acres of District land located within the Reserve which now encompasses the greater part of Surface Water Reservoir No. 2 and its associated infrastructure that was completed in 2009. These public water supply facilities are owned and managed by the Authority and therefore are not part of this Land Use and Management Plan. The remaining land totaling 4,437.84 acres on the Reserve is held by the Authority as a perpetual non-exclusive easement between the Authority and the District. The non-exclusive land includes DEP conservation lands, public recreation areas, cattle lease lands, mitigation lands from reservoir construction, and gopher tortoise easement / recipient sites, all of which is managed by the Authority under the terms of this plan and the Management and Operations Agreement Between the District and the Authority for the RV Griffin Reserve dated June 9, 2010.

In today's environment, security for the water resources infrastructure will play a significant role in activities that may be compatible on the Reserve, and potentially limit where otherwise seemingly compatible activities may occur. The second party that has an interest in activities occurring on the Reserve is Harrison Cattle LLC. Harrison Cattle LLC holds a cattle lease on 2,305 acres over the southern half of the property which grants use specific for the grazing of cattle. Additionally, the Florida Fish and Wildlife Conservation Commission (FWC) have been granted conservation easements or land use agreements over two permitted Gopher Tortoise Relocation/recipient areas totaling 65.88 acres.

The final stakeholder in the property is the Florida Department of Environmental Protection (FDEP). The FDEP holds interest in three separate land areas within the Reserve totaling 1838.61 acres. The first area, often referred to as the "DeSoto Wetlands", includes 374 acres located at the northern most part of the property. This special preservation area resulted from a settlement agreement between the FDEP and Atlantic Gulf Communities Corporation (AGC) prior to the District's acquisition of the property. The agreement required AGC (a.k.a. General Development Corporation, or GDC) to construct a series of wetlands as mitigation for impacts that GDC had previously caused to off-site wetlands. The second land area of special interest to FDEP also predates the District's ownership of the associated land parcels. This second land area is the 93.44 acres of land containing the abandoned cattle dip site. At the time of the District's acquisition of the Reserve, the cattle dip site property remained inholding while necessary assessments were conducted as part of the FDEP Consent Agreement No. 92-2009 with AGC.

The final land area of interest, and the most recent, is the 1371.17 acres contained in a conservation easement as necessary to provide for the mitigation associated with the construction of Reservoir No. 2.

These preservation and conservation agreements are intended to provide an additional level of protection to these specific sites; to provide natural habitats for the Gopher Tortoise and to assure mitigation activities are protected in perpetuity. As the acting manager of these specific areas the Authority is currently required by permit to provide a high level of maintenance and monitoring for the gopher tortoise areas and on the portion of the Reserve associated with construction mitigation activities. This high level of management activity will remain as such, until FDEP determines mitigation success criteria have been met. At that point, the Authority will reduce the level of management activities and add these specific areas to the balance of the Reserve of which they have full management responsibilities. It is estimated that mitigation success criteria will be met during the year 2013.

## *History*

The lands that comprise the Reserve were acquired from Atlantic Gulf Communities Corporation (AGC) in December, 1992. AGC (a.k.a. General Development Corporation, or GDC) had previously conducted an intensive investigation of the property as a prelude to developing the entire site as a planned community. The proposed 7,901 acre community called the Villages of Desoto would have included an estimated 17,460 residential units (SWFWMD, RV Griffin Reserve LUMP, 1996), as well as commercial, industrial and community centers. General Development Utilities (GDU), a subsidiary of GDC, had already developed public water supply facilities on adjoining lands. Today, the Reserve lands include all but the southernmost portion of that proposed GDC development site.

Historic use of the property, prior to its acquisition by GDC, is consistent with that of surrounding lands. Settlement of the lower Peace River Valley proceeded during the peaceful interval between the end of the Third Seminole War (1858) and the beginning of the Civil War. A cattle industry flourished during this period and cattle raised in the area eventually served as an important source of beef and hides for the Confederacy (SWFWMD, RV Griffin Reserve LUMP, 1996). Cattle production, timbering and turpentine production were the mainstays of the local economy throughout the late 1800s and the early decades of the 1900s.

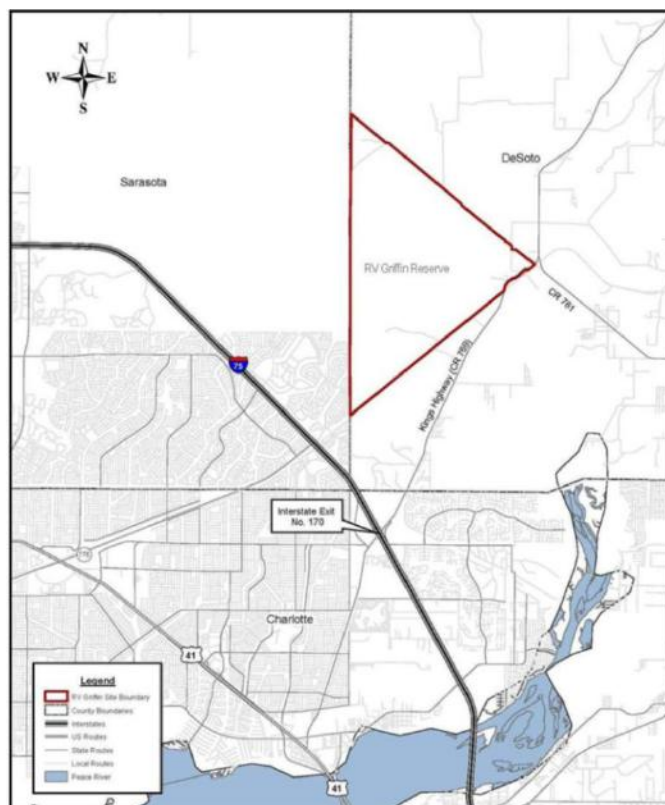
GDC acquired the lands comprising the property in 1974 from Wolfgang von Dunser. Analysis of historic aerial photography suggests that the property had been subjected to a minimum of physical alteration as of 1943; however, a very sparse and spotty overstory of pines in the flatwoods areas reflects the long history of logging in the region. It is presumed that the property was also being grazed by cattle during this period. By 1958, a small area of improved pasture had been created along the southern property line, bordering the Seaboard Coast Line Railroad right-of-way and located in close association with the cattle dip site. By 1968, the vast majority of alterations to which the property has been subjected were already complete, including the planting of several hundred acres of pine plantation (SWFWMD, RV Griffin Reserve LUMP, 1996). Extensive networks of shallow ditches, excavated to enhance drainage of the flat terrain were also present; with those that were not blocked as part of the recent restoration efforts remaining conspicuous in present day. Aerial photography from 1980 displays a completed

surface water reservoir on the inholding currently owned by the Authority, and the pines planted shortly prior to 1968 appear substantially more mature. The large piles of spoil near the southwest corner of the property, generated during excavation of the original reservoir, were also in place. Aerial photography from 2010 reflects activity that has occurred in more recent years (Figure 2 on page 10). A series of created wetlands, and a spoil pile generated by their excavation, are present at the northern end of the property within the special preservation area referred to as the DeSoto Wetlands by historic project managers. Removal and sale of the sand material from the large spoil pile created during construction of the original reservoir was completed pursuant to the November 2002 Agreement between the District and Southwest Sand and Fill, Inc., and remnants of the spoil pile can be observed in the southwest corner of the property on the most recent 2010 aerial. Additionally, this recent photography provides evidence of harvesting of the pine plantations and it clearly displays the existence of the Authority's newest water reservoir completed in 2009.

## *Location*

The Reserve encompasses a total of 5,913 acres in southwestern DeSoto County, and is located approximately 8 miles southwest of Arcadia, 3 miles west of Fort Ogden, and 2 miles north of the Charlotte County line (Figure 1). It is bounded by the Sarasota County line on the west, the abandoned Seaboard Coastline Railroad right-of-way on the south, and the abandoned Atlantic Coastline Railroad right-of-way on the north. The southern half of the western property line borders the incorporated limits of the City of North Port. The eastern tip of the property extends nearly to the floodplain of the Peace River and adjoins lands owned by the Authority.

**Figure 1. RV Griffin Reserve Location Map**



Situated at the inland edge of the Gulf Coastal Lowlands, the property exhibits the low topographic relief and poor drainage that are characteristic of this physiographic province.

Elevations range between a low of approximately 25 feet NGVD and a high approaching 40 feet NGVD. The flat terrain and poorly drained soils result in a landscape that lacks any well-defined natural drainage features. Generally, drainage occurs as sheetflow through the on-site flatwoods and pastures, and through a series of marshes linked by shallow sloughs, and eventually finds its way into either the Peace River or the Myakka River as the property straddles the natural drainage divide between the two watersheds. The northern half of the property drains primarily to the southwest and the Myakka watershed, while the southern half drains to the south and east before discharging to the floodplain of the Peace River. Along its eastern edge, the property abuts a series of terraces that border the Peace River Valley and mark the transition from the Gulf Coastal Lowlands to the DeSoto Plain (SWFWMD, RV Griffin Reserve LUMP, 1996).

## Resource Description / Condition

### Water Resources

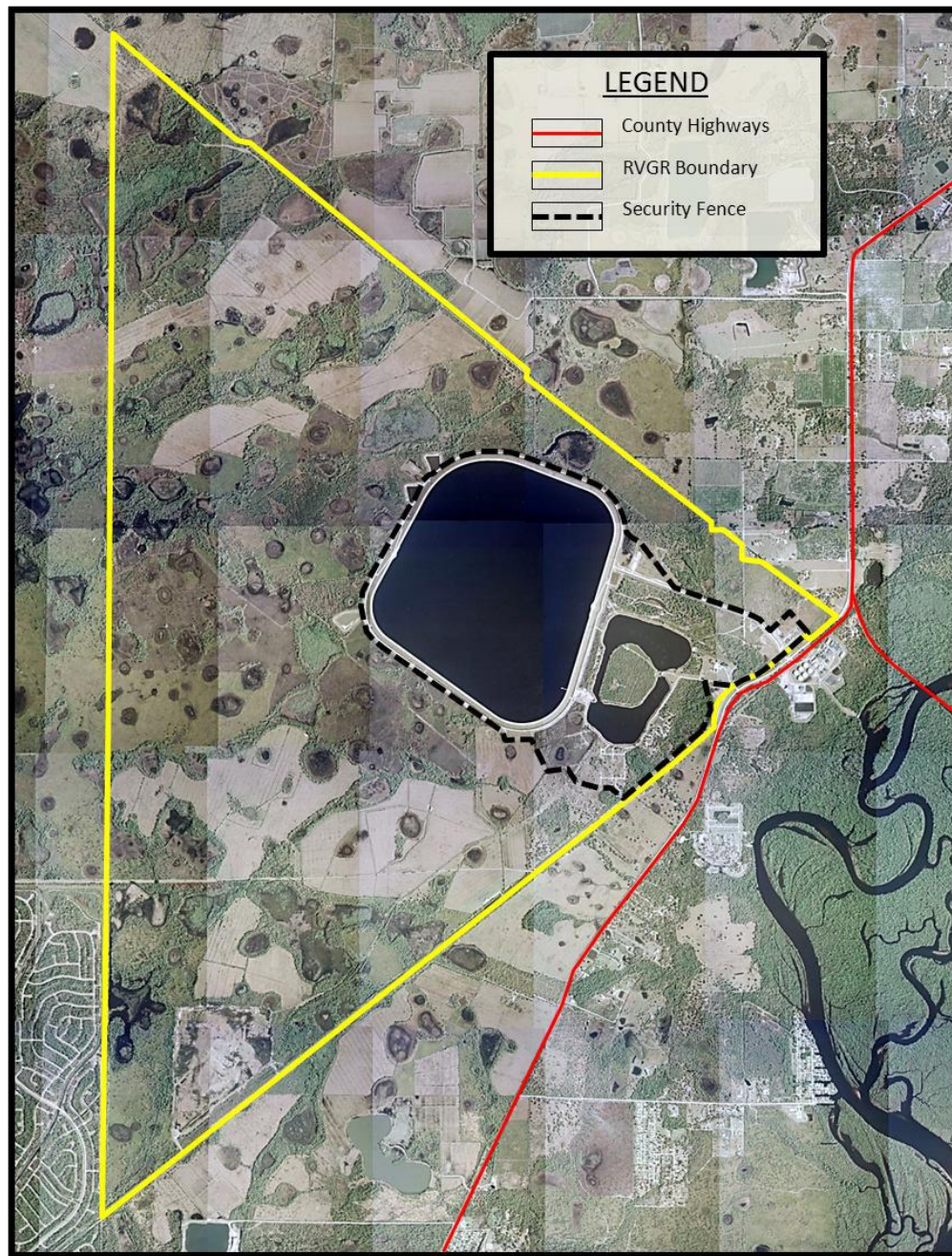
Water supply development and protection was the primary purpose for SWFWMD's acquisition of the RV Griffin property. As such, water resource functions are of extreme importance on the Reserve to include surface and ground water quality, water storage and supply, and storm-water attenuation. While all of these water resource benefits were achieved upon the acquisition of the property, the water supply function has been further enhanced in more recent years through the construction of Reservoir No. 2 and ASR Wellfield No. 2.

Land management practices on the Reserve strive to maintain and protect these valuable water resource functions and preservation of the property's significant water supply values shall take precedence over all other uses. Future management of public use and other natural values of the property will be conducted in a manner which recognizes that the public water supply function is of paramount importance. Water resource functions important on the Reserve are as follows:

### *Water Supply*

Prior to the District's purchase of the Reserve property in 1992, the Authority had acquired existing water supply facilities located on lands immediately adjoining the property. These facilities included Reservoir No. 1, a 90-acre (Earth Balance, FLUCCS Assessment Report, 2011) off-stream in ground reservoir located on a 307-acre inholding, and both a 12 MGD surface water treatment plant and six Aquifer Storage and Recovery (ASR) system wells situated on lands neighboring the eastern property line on the eastern side of County Road 769. These water facilities are supplied with raw untreated river water withdrawn from the nearby Peace River via an on-stream intake system. Pipelines allow the transfer of stored river water between the reservoir and the treatment plant. Additional on-site water storage is provided by the ASR system, which consists of the injection of treated water underground for storage in the wet season, and withdrawal of the previously stored water for public use in the dry season.

*Figure 2. RV Griffin Reserve - 2010 Aerial Map*



These existing facilities were originally owned and developed by GDU and were placed into service in 1980 before being acquired by the Authority in 1991. Immediately after acquisition, the Authority began preliminary design plans to expand the newly acquired facilities into a regionally significant water supply system able to meet the increasing demands projected by the Authority customers within the regional area. Subsequent expansion projects listed in Table 1 on the following page have since been undertaken by the Authority to keep pace with regional water supply demands and improve reliability.

**Table 1. Peace River Authority Water Supply Capacities**

<b>ITEM</b>	<b>1991 Peace River Facility Acquisition</b>	<b>2002 Peace River Option (PRO)</b>	<b>2005-2010 Peace River Regional Expansion Program (REP)</b>
Permitted River Intake Capacity	22 MGD	90 MGD	120 MGD
Water Treatment Capacity	12 MGD	24 MGD	48 MGD
Raw Water Storage Capacity	0.6 BG	0.6 BG	6.5 BG
ASR Wellfield Capacity	1.5 BG	6.3 BG	6.3 BG
Miles of Transmission Main	9	37	42

In 1993, three additional ASR production wells were constructed on the Authority's property on the east side of CR 769 in an area defined as Wellfield No. 1. In 1996, based on projected increased finished water demands of 32.7 MGD, the Authority's water use permit was renewed and increased by the District. By 1999, the expansion known as the Peace River Option (PRO) was initiated to increase the existing system's treatment and distribution capacity and for providing additional ASR storage capacity to meet reliability concerns. In 2001, the Authority completed construction of ASR Well Field No. 2 containing twelve production wells located on the 2,777 acres of Reserve land authorized through a License Agreement between the District and the Authority at that time; by 2002 the PRO water plant expansion to 24 MGD treatment capacity was completed. The most recent and most significant Authority expansion, known as the Peace River Regional Expansion Program (REP), was completed in 2009. The REP doubled the Authority's water plant treatment capacity to a total 48 MGD and constructed the new 658 acre (Earth Balance, FLUCCS Assessment Report, 2011) off-stream above ground water supply reservoir (Reservoir No. 2) on Reserve lands now distinguished apart from the balance of the Reserve through a Perpetual Exclusive Easement between the District and the Authority.

The District's acquisition of the lands comprising the Reserve has served well to provide the land base necessary for planned water supply expansion. Collectively, Reservoir No. 1 with current storage capacity of 521 million gallons, in addition to Reservoir No. 2, provide a total storage capacity of 6.52 billion gallons of surface water available for treatment and supply to Authority customers. The remainder of the property will buffer the reservoir and ASR system from surrounding land uses that could be incompatible with the water supply functions of the property. The land area is also estimated to encompass much of the zone of influence that would be created by withdrawals from the ASR system.

Today, these two off-stream reservoirs and the network of 21 ASR wells function in concert to meet public supply demands during frequent periods of low river flow. Such conditions are not unusual during the dry season, when flows in the Peace River decline and the public's demand for water increases in response to an influx of seasonal residents and residential irrigation. However, river flow often exceeds 1 billion gallons per day during the typical summer wet season, making the Peace River one of the most productive sources of fresh surface water in Southwest Florida. With current storage capacity, the system provides a reliable, year-round source of potable water to the Authority's customers within the region.

## ***Water Quality***

The general topography of the Reserve land serves as a natural drainage divide between the Peace River and Myakka River watersheds. Historically, agricultural land uses have predominated the land use and activities of the Reserve. Even today, such agricultural uses, particularly cattle grazing, are prevalent on lands surrounding the property, as well as a portion of the Reserve land itself.

Typical of most land used for cattle grazing and row crops in this geographic area, the Reserve's land also experienced these types of alterations all occurring prior to the District's acquisition of the property. Drainage enhancements designed to improve grazing conditions and crop production in uplands that were subject to seasonal flooding included the excavation of a network of drainage ditches, which has also accelerated the drainage of some on-site wetlands. While nutrient loading in drainage from such lands may often become elevated in response to contact with animal wastes or land application of fertilizer, the ability of natural areas, particularly wetlands, to provide for the natural treatment of contaminated or degraded water runoff is widely recognized. Although some of the on-site wetlands are isolated systems, many others are part of a loosely-linked network that receives drainage from off-site east of the property, flows through the Reserve and eventually discharging to other off-site, down-gradient wetlands west and south of the property. The Reserve's numerous wetlands and freshwater marshes filter surface water sediments and nutrients through the assimilation or metabolization of waterborne pollutants (SWFWMD, RV Griffin Reserve LUMP, 1996).

As described above, land alterations by previous property owners had served to drain wetlands located within the Reserve. Through the design and permitting process associated with the Authority's construction of a new 6 billion gallon reservoir on the Reserve land, it was determined that hydrologic restoration and enhancement of existing on-site drained wetlands was the most preferable and cost-effective form of mitigation for the wetland impacts associated with the reservoir construction. The restoration project consisted of enhancing the existing wetlands and restoring historic wetlands that had been previously converted to upland. This would be accomplished by re-hydrating the wetlands, which has resulted in restored water levels and restored wetland hydroperiods to more natural conditions typically found prior to land use alterations. Hydrologic restoration methods were determined by identifying those wetlands that, when hydrologically enhanced and restored, would provide the greatest long term benefits.

To improve the hydroperiod of the wetlands, 43 hardened control structures, and 37 ditch blocks, were strategically placed throughout the mitigation area. Also included in this work was the removal of 37 berm areas and ditch blocks located within the mitigation wetland sloughs. In addition, a total of 33,275 feet of roadway that restricted water sheetflow were removed from

within the mitigation area (FDEP, Time Zero Monitoring Report–RV Griffin Mitigation Project, 2008).

The mitigation project has improved the quantity, quality and diversity of wetland vegetation which also results in the over-all improvement of wetland function within the targeted areas. This has occurred principally by reversing the adverse effects of onsite agricultural ditches; by increasing retention times and re-establishing the overall retention capacity of the system. As such, the water quality enhancement capabilities of the property have also improved which could potentially result in other benefits as well, especially to wildlife species that are dependent upon wetland habitats. (FDEP, Time Zero Monitoring Report–RV Griffin Mitigation Project, 2008). Current land use and management strategies developed for the Reserve will continue to preserve, maintain and protect these systems and their water quality function.

### ***Natural Storm Water Attenuation***

Approximately 22% of the Reserve's land cover is composed of wetland habitats (Earth Balance FLUCCS Assessment Report 2011). These wetland systems provide natural storm-water attenuation, aquifer recharge, water quality improvement, enhanced habitat, and nutrient recycling.

## **Natural Systems Protection/Restoration**

The protection and restoration of natural systems, and the increase in species diversity of wildlife they support will be a priority strategy on the RV Griffin Reserve.

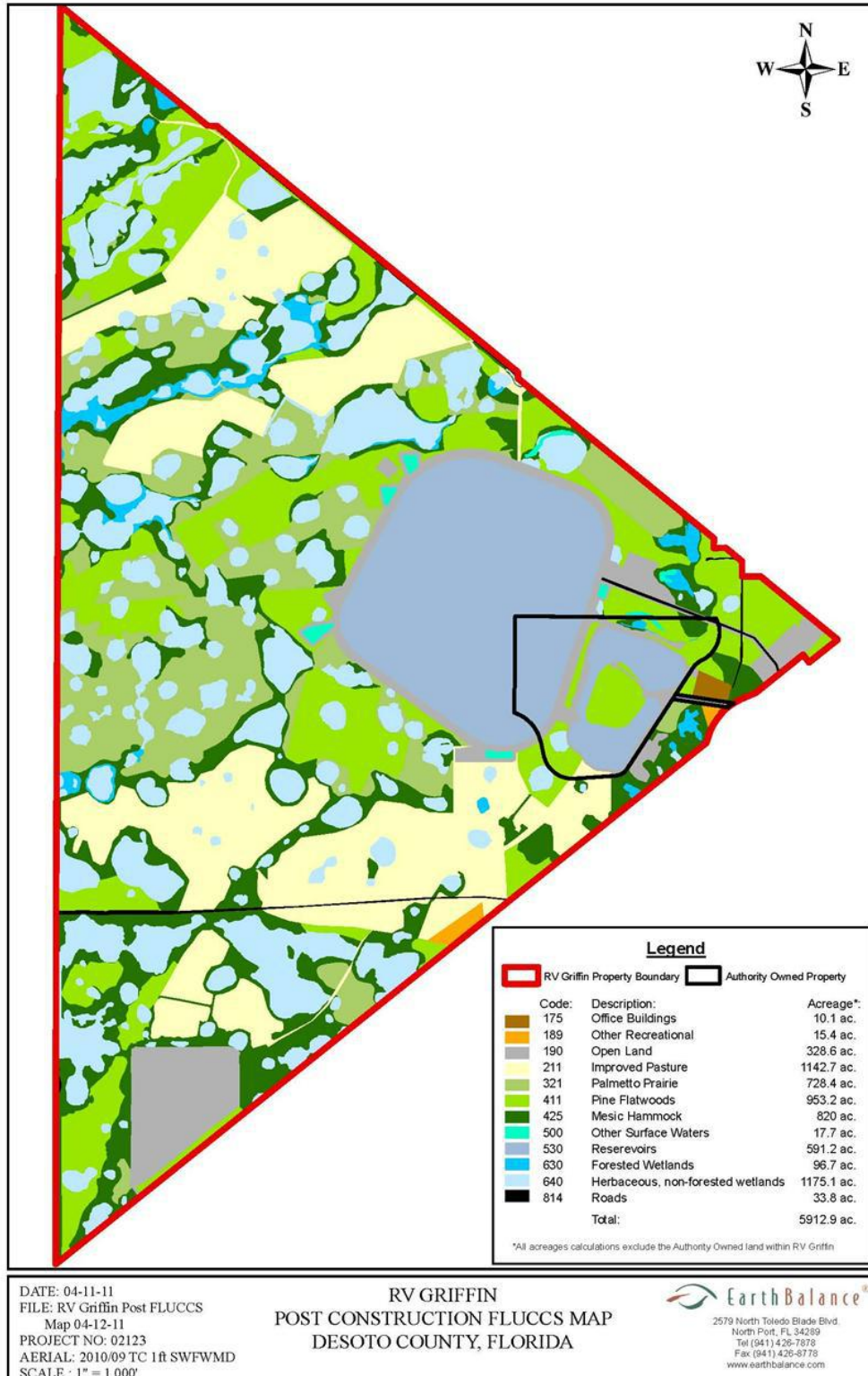
### ***Habitats***

Prior to the extensive landscape modification that accompanied human settlement of Florida, the characteristic landscape of this region consisted of sprawling expanses of pine flatwoods, intertwined with palmetto scrub and mesic hammock areas. These typical upland features were dotted with freshwater marshes and dissected by shallow sloughs. Existing natural land cover on the Reserve property is consistent with this fairly homogeneous historic landscape, as pine flatwoods continue to be the most extensive natural upland community today. Other natural systems such as forested wetlands, that are native to the region, have always been much more limited in distribution on the Reserve, as they are most prevalent on floodplains bordering major rivers and creeks, neither of which are present on the property.

By general definition, the Reserve is comprised of approximately 78.5% of Upland Communities whether still occurring in a natural or semi natural state, part of altered land communities, or developed land areas associated with the public water supply features of the property. The Wetland Communities of the Reserve, most typically being non-forested freshwater marshes and wet prairies, comprise approximately 21.5% of the total land cover. Of the total Reserve lands, approximately 17% is classified as developed land that is directly associated with the public water supply features of the property. Table 2 on page 15 provides an overview of the Reserve based on the Florida Land Use Classification Codes (FLUCCS). The table details the major land types by associated acres and percent of total land on the Reserve.

Figure 3 below shows the RV Griffin Reserve’s natural communities and geographically illustrates these communities using the Florida Land Use Classification Codes (FLUCCS).

**Figure 3. RV Griffin Reserve Natural Communities**



*Table 2. FLUCCS Communities of the RV Griffin Reserve*

<b>FLUCCS Description</b>	<b>State</b>	<b>Acres</b>	<b>Percent</b>
<b>UPLAND COMMUNITIES:</b>			
Improved Pasture	Altered	1,142.71	19.33%
Reservoirs, Open Lands, Roads, Office	Developed	996.78	16.85%
Pine Flatwoods	Natural	953.28	16.12%
Mesic Hammock	Natural	819.96	13.87%
Palmetto Prairie	Natural	728.31	12.32%
<b>Total Uplands:</b>		<b>4,641.04</b>	<b>78.49%</b>
<b>WETLAND COMMUNITIES:</b>			
Non-forested Wetlands	Natural	1,175.09	19.87%
Forested Wetlands	Natural	96.68	1.64%
<b>Total Wetlands:</b>		<b>1,271.77</b>	<b>21.51%</b>
<b>TOTAL RESERVE:</b>		<b>5,912.81</b>	<b>100%</b>

The following discussion provides an overview of the soil profiles existing within the Uplands and Wetlands of the Reserve. Additionally, a more detailed description of the dominant communities on the Reserve is provided for both the naturally occurring and altered land communities in order of decreasing acreage within each of the Uplands and Wetlands broad classifications. Specific community descriptions are not provided for the various developed land classifications that are primarily associated with the public water resources development component of the property.

### **UPLAND COMMUNITIES**

The soil profiles of the Reserve's upland property are that of Farnton fine sand, Eau Gallie fine sand, and Myakka fine sand. All three soils are described as flatwoods soils that are poorly drained and occur at sites with a high water table. This is consistent with the very mesic or wet nature of the property's flatwoods. The spatial distribution of Myakka fine sand, which is more permeable than the other on-site flatwoods soils, corresponds very closely with the distribution and configuration of the improved pastures. The higher permeability of the Myakka fine sands probably explains the rationale by which the pasture sites were chosen.

Quartzipsamments are the only other soils accounting for a substantial portion of the property. This term applies to dredged or excavated soils that have been deposited over natural soils (SWFWMD, RV Griffin Reserve LUMP, 1996). The spoil piles generated by the excavation of Reservoir 1, which were to a large extent later removed, together with the spoil pile still in existence in the northwestern corner, created during construction of the DeSoto Wetlands, account for the occurrence of these soils on the property.

**Improved Pasture** - Improved pasture accounts for the vast majority of the property's altered lands and represents the single largest upland community on the Reserve today. Historically the primary uses of these pastures were for cattle grazing and occasional row crop production. Currently accounting for a total area of approximately 1143 acres, or 19 percent of total Reserve lands, the pastures are exceeded in land area only by herbaceous, non-forested wetland communities.

Bahia grass dominates the vegetative coverage of the pastures. Other groundcover species include St Augustine grass, frog-fruit, flat-top goldenrod, flat sedges, and thistle (FDEP, Peace River REP Phase I- Mitigation Project Application, 2005). The pastures overlie sites that supported pine flatwoods prior to alteration. (SWFWMD, RV Griffin Reserve LUMP, 1996).

**Picture 1. Improved Pasture**



**Developed Lands** - There are several categories of land occurring on the property that have also been altered from their original state as these areas have been “developed” for various purposes directly associated with the expansion of the public water supply facilities on the original property purchase. In the recent FLUCCS assessment conducted on the Reserve, several land classifications were identified that were considered “developed lands” as they are being utilized for office buildings and reservoirs, and for the roads, open spaces, and other surface water features related to the management of the public water storage infrastructure found on the property. However, for purposes of the land management plan discussion, these smaller altered land use classifications have been lumped together as Developed Lands and collectively they represent 16.8% of the total property within the Reserve.

**Pine Flatwoods** –The largest single category of natural upland cover existing on the Reserve is Pine flatwoods which now account for approximately 953 acres or 16 percent of the total Reserve land.

South Florida slash pine is the dominant overstory species in the property's flatwoods. Longleaf pine has also been reported on the property and is often co-dominant with slash pine in Florida flatwoods. DeSoto County however is located at the extreme southern limits of the natural range of longleaf pine, and its occurrence in significant numbers is somewhat doubtful on the Reserve. The pine canopy in the property's pine flatwoods varies from relatively sparse to nearly absent, due presumably to historic timber harvesting activities. The sparsity of the pine overstory across much of the flatwoods creates the impression of a treeless prairie that resembles the dry prairies of south-central Florida (SWFWMD, RV Griffin Reserve LUMP, 1996).

**Picture 2. Pine Flatwoods**



Flatwoods generally lack an understory but can support a dense and diverse groundcover that includes numerous shrub and grass species. Such species at the Reserve include saw palmetto, gallberry, wax myrtle, pawpaw, winged sumac, wiregrass, dwarf blueberry, and fetterbush.

During the publication of the 1996 Land Use Management Plan, the Reserve property was reported to contain 525 acres of pine plantations, together with the improved pastures for a total of approximately 1900 acres of altered land. Also, prior to their conversion, these altered lands had been reported to support natural pine flatwood communities. While considerable acreage of pine plantations existed in previous reports, the majority of this acreage has since been timbered; removing the larger, more mature trees and leaving only smaller pines scattered throughout the original plantations. Over the years since the timber harvest, natural germination and growth of

pinus has occurred in most of these areas resulting in re-establishment as pine flatwood communities from which they originated. Additionally, a considerable amount of the harvested acreage was removed in the construction footprint of Reservoir 2. With no plans to further harvest or replant the oddly shaped remnants of pine plantations, such remnants have been recombined into the pine flatwoods community in which they were initially developed.

**Picture 3. Pine Plantation Remnant**



**Mesic Hammock** - The second largest natural upland plant community represented on the property is mesic hammock which is approximately 820 acres in size, or 14 percent of the total land area. The hammock stands provide valuable habitat diversity and are distinguished by a closed canopy of hardwood tree species which include laurel oak, live oak, pignut hickory, cabbage palm and occasional red bay. Groundcover varies from sparse to dense and includes such species as Virginia chain fern, saw palmetto, fetterbush and wax myrtle. A variety of epiphytic plants are also common to the hammocks, including bromeliads, and butterfly orchid. The latter species is listed as a commercially exploited species by the Florida Department of Agriculture.

The closed canopy and aesthetic appeal of the property's mesic hammocks make them especially attractive to recreational users as picnic areas or other high impact uses. These hammocks will not be targeted for intensive or concentrated forms of public use. Given the sensitivity of hammock groundcover species to physical disturbance, the preservation of mesic hammocks will be considered a management priority. Recreational use will therefore consist primarily of incidental use by those on foot or horse back.

**Picture 4. Mesic Hammock**

**Palmetto Prairies** –Most are predominately located in the western half of the middle sections of the Reserve, natural Palmetto Scrub communities account for approximately 728 acres or 12 percent of the total Reserve land.

Palmetto prairies are areas in which saw palmetto is the most dominant vegetation. Common associates of saw palmetto in this cover type are fetterbrush, tar flower, gallberry, wire grass and brown grasses. This cover type is mostly found on seldom flooded dry sand areas. These treeless areas are often very similar to the pine flatwoods but without the presence of pine tree canopies (FDOT, FLUCCS Handbook, 1999).

**Picture 5. Palmetto Prairies**

## **WETLAND COMMUNITIES**

The wetlands of the property are underlain by Floridana mucky fine sand, Felda fine sand, or Delray mucky sand. These three soils are all described as deep, very-poorly drained soils that are restricted to depressions and subject to inundation by standing water for at least 6 months per year.

**Herbaceous Wetlands** - Approximately 1,272 acres of the property support wetland communities. This accounts for approximately 21.5 percent of the total land area. The majority of the property's wetlands (1,175 acres) are herbaceous, non-forested systems consisting of freshwater marshes and wet prairies (Table 2).

The marshes conform with depressional marshes as described by the Florida Natural Areas Inventory (FNAI). Depressional marshes typically occur as circular depressions scattered through pine flatwoods (Florida Natural Areas Inventory, 1990) and have hydroperiods that can approach 9 to 10 months of inundation per year. Seasonal fluctuations in water level often result in the formation of distinct, concentric bands of vegetation radiating outward from a deep central zone to more shallow peripheral zones. Zones toward the exterior will normally support plant species that are adapted to shorter periods of inundation, relative to interior species (Kushlan, 1990).

Like marshes, wet prairies often display a concentric pattern of plant zonation related to spatial and temporal variation in hydroperiod. They are often closely associated with freshwater marshes, occurring as transitional areas sandwiched between marshes and adjoining upland communities. Wet prairies are distinguished from marshes by a progressively shorter hydroperiod, which results in a period of inundation or saturation that does not usually exceed 2 or 3 months in duration. If a given marsh/wet prairie system is subjected to an extended change in hydroperiod, or experiences an alteration in the seasonality of wet and dry cycles, changes in the distribution of vegetation can frequently result.

**Picture 6. Freshwater marshes and sloughs**



Marshes on the property are dominated by such plant species as arrowhead, pickerelweed, sawgrass, cattail, and water lilies. The wet prairies are dominated by wetland grasses and herbs, including three-awn grass, broom sedge, cordgrass, St. John's wort, spikerush, meadow-beauty, marsh pink, and big yellow milkwort. These wetlands provide foraging and/or nesting habitat for a diversity of wildlife, including many that have been extended protected status.

**Forested Wetlands** -There are several stands of forested wetland occurring on the property, totaling about 97 acres in land area, or just 1.6% of the Reserve property. Dominant species at these sites include bald cypress, sweet gum, red maple, loblolly bay, Carolina willow, and wax myrtle. The occurrence of forested wetlands provides valuable landscape diversity and management actions at these sites will be designed to maintain existing vegetation by avoiding physical disturbance.

### ***Wildlife Species***

The different habitat types found on the Reserve are important to numerous species of wildlife. To date approximately 72 wildlife species have been identified utilizing Reserve habitats (Earth Balance, Mitigation Report: Environmental Survey of Wildlife Utilization, 2004; FDEP, Annual Report, 2011).

The Pine Flatwoods communities provide valuable habitat for the gopher tortoise, gopher frog, red-tailed hawk, bobcat, gray fox, and white-tailed deer. Some of the rare wildlife species that are preferentially native to true dry prairies but that may find suitable habitat in the Reserve's Pine Flatwoods include: the Florida grasshopper sparrow, which has been designated an endangered species by both the USFWS and FWC; Audubon's crested caracara, which is designated as threatened by the USFWS and FWC; the Florida sandhill crane, designated as threatened by FWC; and the burrowing owl, which has been listed as a species of special concern by the FWC.

The freshwater marshes and wet prairies on the Reserve provide critical habitat for numerous wading bird species which have been observed on site. These species include: wood stork, Florida sandhill crane, white ibis, little blue heron, great blue heron, great egret, and yellow-crowned night heron.

**Picture 7. Florida Sandhill crane and nest**



Isolated wetlands are recognized as especially important habitat for amphibians, including the gopher frog, which is expected to occur on the property. The wood stork has been designated an endangered species by both the U.S. Fish and Wildlife Service (USFWS) and the Florida Fish and Wildlife Conservation Commission (FWC). Florida's subspecies of the sandhill crane has been designated a threatened species by FWC; the white ibis, little blue heron and gopher frog have all been listed as species of special concern (FWC, 2004). The round-tailed muskrat, designated a species of special concern by the Florida Committee on Rare and Endangered Plants and Animals (FCREPA), is another noteworthy species that has been documented on the property (SWFWMD, RV Griffin Reserve LUMP, 1996). Its feeding platforms and burrows are frequently observed along the margins of several marshes and wet prairies.

### ***Invasive Exotic Species***

Invasive exotic plant species have become established on the Reserve, primarily on the fallow pastures and agriculture fields. These include, West Indian marsh grass, torpedo grass, thalia lovegrass, cogon grass, tropical soda apple, dog fennel, greenbrier, shiny blueberry, poison ivy, muscadine grapevine, Lygodium, air potato, dwarf live oak, runner oak, Brazilian pepper, wax myrtle, and Peruvian primrose willow. The most problematic plant at this time is Brazilian pepper, which the Exotic Pest Plant Council has identified as a species that is widespread in Florida, and poses a significant threat to Florida's natural areas (Brazilian Pepper Task Force Recommendations: Brazilian Pepper Management Plan for Florida, 1997). It is well-established in some areas of the Reserve, most notably throughout the disturbed areas such as ditch banks.

In efforts to control the invasive exotic species, the Authority's contractor routinely inspects the Reserve property and on an as needed basis identifies such vegetation and applies herbicide on those areas that require treatment. For example in calendar 2010 the contractor logged 295 man hours of labor dedicated to the application of herbicide on invasive exotic vegetation. Through August 2011 contractor logged 152 man hours of labor to apply herbicide on the property. One example of the significant progress being made from the Authority's invasive exotic vegetation control program can be found in the area along the edges of the spoil area sand pile where Brazilian pepper has been significantly reduced.

### ***Restoration/Mitigation***

Approximately 1,055 acres of mitigation and enhancement (Table 3), primarily involving restoration of fresh water marsh systems (Mitigation Area A & Mitigation Area B), was required to offset the impacts associated with the construction of the Authority's Reservoir No. 2. The mitigation construction activities in these two slough areas have been successfully completed.

***Table 3. Types of Permitted Mitigation***

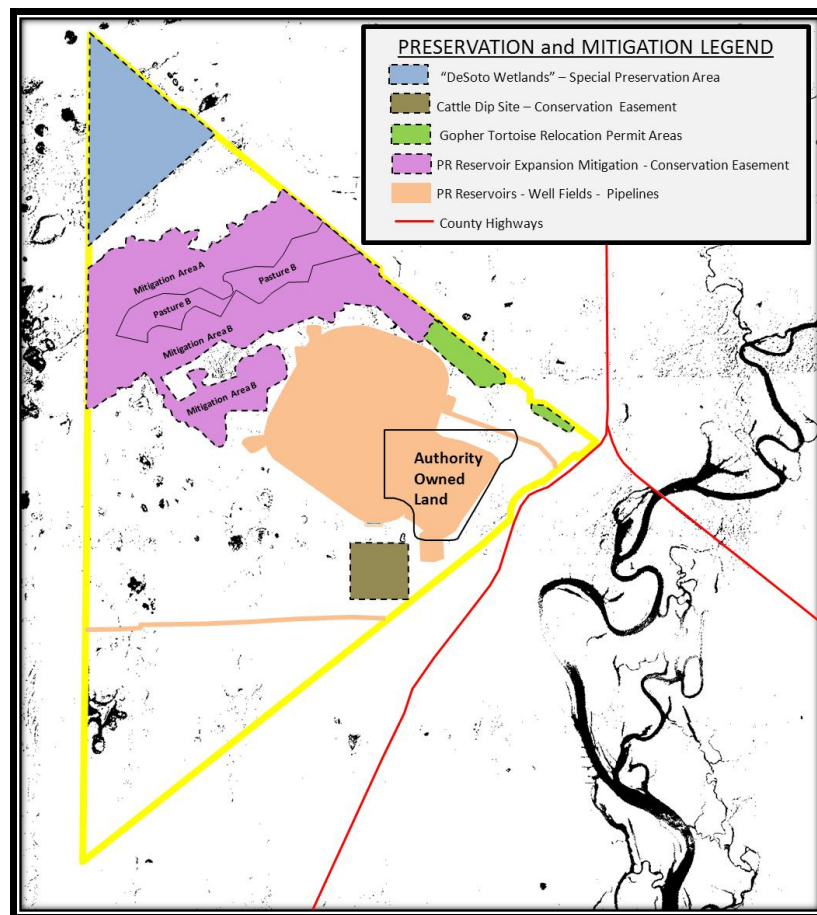
<b>Permitted Mitigation</b>	<b>Acres</b>
Herbaceous Enhancement	365.59
Herbaceous Restoration	30.60
Forested Enhancement	60.94
Upland Enhancement	597.58
<b>Total All Current Mitigation</b>	<b>1054.71</b>

The Authority continues to be responsible for maintaining, monitoring and reporting to the regulatory agencies the condition of the mitigation areas until permit success criteria is met. Complete success is expected to occur in 2013. Following complete success the Authority will continue to maintain the mitigation areas in perpetuity as required by the reservoir construction / mitigation permits. The Department of Environmental Protection entered into a perpetual conservation easement with the District to afford an additional level of protection to the mitigation sites (Figure 4).

As a condition of the Agreement for the Management and Operation of the R.V. Griffin Reserve between the District and the Authority, additional restoration beyond the current mitigation areas is to occur in Pasture B and will be completed by the Authority in the near future. A conceptual restoration plan has been prepared by Earth Balance, the Authority’s consultant, to describe the requirements necessary to restore approximately 200 acres of improved pasture (Pasture B) on the Reserve. As a result of this agreement, the Authority will assume responsibility for managing the acres contained within Pasture B, and returning it to native conditions.

Figure 4 below, shows the conservation and preservation areas that exist on the Reserve today. As well, labels have been placed on the current Mitigation Areas A and B, and the Pasture B Restoration area within the Peace River Regional Reservoir Expansion Conservation Easement.

**Figure 4. Conservation, Preservation, and Mitigation Map**



Historically, Pasture B consisted primarily of mesic pine flatwoods with lesser associations of palmetto prairie and oak hammock habitats much like the adjacent uplands currently existing on the Reserve. The pasture is situated between two slough systems composed of forested, herbaceous, and shrubby wetlands.

The overall goal of restoring Pasture B is to enhance wildlife habitat and minimize land management costs by returning the 200-acre area to native habitat resembling its historic condition. The restored area will link adjacent native habitats to the north and south thereby enhancing wildlife resources and habitat connectivity within this locally known wildlife corridor. To accomplish the goals and objectives stated above, pasture restoration will occur in phases over several years with activities to include site preparation, native groundcover seed collection and dispersal, palmetto seed dispersal, tree planting, and ongoing maintenance (Earth Balance, Pasture B Restoration Plan, 2011).

## Land Use Plan

Consistent with District Policy 610-3, the process of completing a conceptual land use plan should include three fundamental components: Land Use Zoning, Land Use Matrix and Review of Regional Recreational Supply and Demand. Below is a discussion of these three individual components and the conclusions derived when evaluating the Reserve. Included in this process is the required inclusion of back ground information gathered in the previous sections of this report. Examples include historical uses of the property, and recreational activities that pre-existed the Authority's management responsibilities. Also included in this process is to determine those activities that are compatible on the Reserve and determine where these activities will fit on the property within the need to have water supply and natural systems management activities. . Finally consideration should be given to the quantity and type of public use already occurring on the property. Aside from individuals connected with the Model Airplane Club, voluntary activity questionnaires were completed by 416 public users of the RV Griffin Reserve during 2009 and 2010. The results of the questionnaires summarize the recent recreational interest as follows:

*Table 4. Questionnaire Survey Results*

<b>Recreational Uses</b>	<b>Percentage</b>
Equestrian use	64%
Hiking	31%
Biking	5%
<b>Survey Total</b>	<b>100%</b>

## *Land Use Zone Map*

The Reserve was divided into zones to indicate the appropriate level of protection required to safeguard the various resources found on the property. Habitat quality, hydrological functions, established preserved lands, ecological indicators, sensitivity of natural communities and their inhabitants to disturbance, and user experience values were some of the attributes that were considered during the zoning process for the Reserve. The final zones assigned to the Reserve are based on assessments of the landscape's resource value and sensitivity, and the different level and types of land management use that are planned for the Reserve. The six land use zones assigned to the Reserve are defined as follows:

1. **Preservation Zones (P)** – The function of preservation zones is for the protection and conservation of land and water areas where natural attributes exist in essentially unaltered condition and for areas designated for restoration to their natural, vegetative, hydrologic, scenic, open, agricultural, or wooded condition; to retain such areas as suitable habitat for fish, plants, and wildlife. These zones represent areas that are most ecologically sensitive, which provide natural system core functions, therefore only low-impact activities or those activities that result in no loss of natural function may be considered in this zone.
2. **Special Protection Zones (SP)** – The function of special protection zones is to provide an additional level of protection to features of high importance or sensitivity. This designation offers the most protection and is not accessible for commercial activities or open to the general public since the primary management practices are currently those associated with mitigation activities.
3. **Resource Management Zones (RM)** – The function of the resource management zones is to provide sustainable resource utilization so as to minimize the impacts of activities on the water resource and natural systems functions of the property. Areas that have been physically altered to a minimal or moderate degree by human actions fall into this category. Maintenance of primary water resource and natural systems function, sustaining revenue generating resource utilization through the leasing of pasture areas for cattle grazing, and / or providing multiple recreational uses in compatible areas are of shared strategic importance in these zones.
4. **Recreation Zones (R)** – The function of recreation zones is to cluster moderate to high impact resource-dependent recreation uses, or high concentrations of users, in areas close to transportation corridors, while minimizing the impact on the water resource and natural systems function of the property. The natural attributes of such zones may exist in a moderately to highly altered condition. Accommodation of resource-dependent recreation available to the general public is the dominant management strategy of these zones.
5. **Special Use Zones (SU)** – The function of special use zones is to cluster compatible user-based and developed uses so as to minimize impacts to all other uses on the project. These include altered areas that are functionally and/or geographically segregated from the other zones. They contain significant public water supply infrastructure of which operational functions may be highly influenced by surrounding uses.

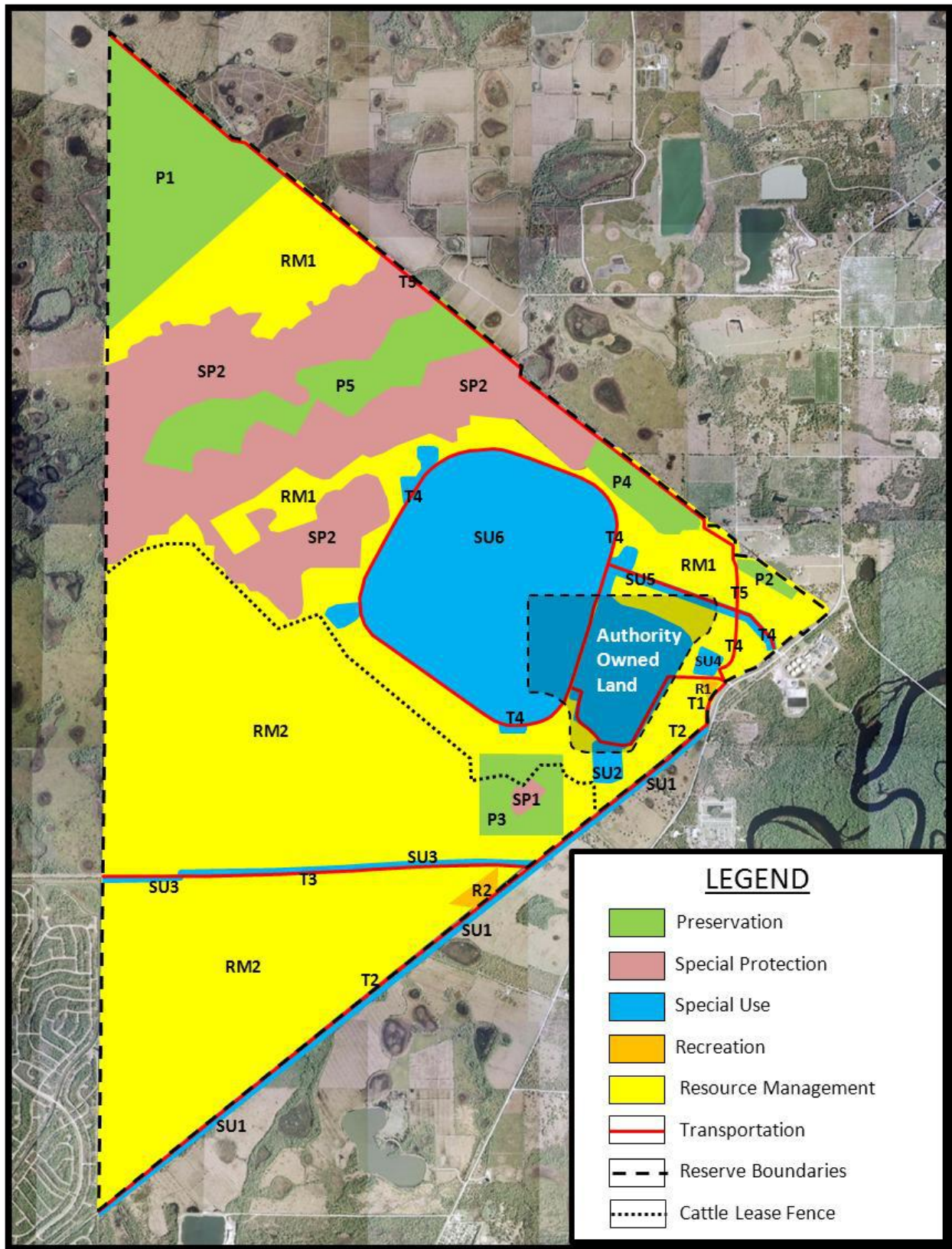
6. **Transportation Zones (T)** – The function of transportation zones are to provide adequate vehicular access to the project. These are linear zones on the periphery of the project or along semi-improved roads within the project. The primary management strategies of these zones are to provide public access to recreation zones and authorized personnel to resource management, special protection, conservation, and special use zones.

The final zones established at the Reserve were based on the general criteria listed below:

1. **Preservation** – Zones established on sites associated with underlying preservation or conservation easements or agreements with the Florida Department of Environmental Protection (FDEP) or with the Florida Fish and Wildlife Conservation Commission (FWC).
2. **Special Protection Areas** – Zones established on sites within conservation easements that have additional Florida Department of Environmental Protection (FDEP) requirements such as mitigation activities related to the Reservoir #2 construction permit or land use limitations associated with the abandoned cattle dip site.
3. **Resource Management** – Zones established to delineate the few remaining stands of harvested pine plantations and the substantial areas dominated by pasture lands, most of which are co utilized as a source of land management revenues from an underlying cattle grazing lease while also supporting recreational activities. Portions of these areas may in the future support further water supply development.
4. **Recreation** – Zones established to include areas that are compatible with plan-designated resource-dependent uses, exclusive to recreational activities only.
5. **Special Use** - Zones established in areas that contain public water supply infrastructure such as well fields, reservoirs, and appurtenances related to their operational requirements. Typically they require a buffer area and a security system from urban growth and development.
6. **Transportation** - Zones established at existing entrances, over both compacted shell and stabilized dirt roads for the purpose of managing the land and water supply resources.

The Reserve's land use and management zoning map Figure 5 on the following page, depicts the land use and management zones established for the Reserve. This map illustrates where special protection is required and where recreation and other special uses may be compatible.

Figure 5. RV Griffin Reserve Land Use Zone Map



## Land Use Matrix

The initial matrix used in this step of the process contained a wide range of resource-dependent recreation activities and renewable resource land uses that were considered on the Reserve. The zoning designations specifically established for the Reserve were incorporated into the initial matrix and the entire range of resource-dependent recreation activities and renewable resource land uses listed on the matrix were considered for each zone. Only those activities considered compatible with the zoning designations established for the Reserve were selected and are depicted on the Reserve's final matrix shown in Table 5 below.

**Table 5. Resource Dependent Recreation Matrix**

Land Use Categories	Resource-Dependant Recreation												
	Authorized Vehicles	Access-Equestrian- Hiking - Bicycling - Nature- Photo	Access- Airplane Club	Hiking	Bicycling	Equestrian	Nature Study/ Photography	Special Hunting	Model Airplane Flying	Cattle / Haying	Permanent Structures	Conservation Easement	Gopher Tortoise Permit
<b>Management Zones</b>													
Special Protection - 1 (SP1)	✓											✓	
Special Protection - 2 (SP2)	✓							✓				✓	
Transportation – 1 (T1)	✓	✓	✓										
Transportation – 2 (T2)	✓		✓	✓	✓	✓	✓						
Transportation – 3 (T3)	✓			✓	✓	✓	✓						
Transportation – 4 (T4)	✓												
Transportation – 5 (T5)	✓							✓					
Resource Management – 1 (RM1)	✓							✓			✓		
Resource Management – 2 (RM2)	✓			✓	✓	✓	✓	✓		✓	✓		
Recreation – 1 (R1)		✓											
Recreation – 2 (R2)			✓						✓		✓		
Special Use – 1 [36" RTM] (SU1)	✓			✓	✓	✓	✓				✓		
Special Use – 2 [Well Field #2] (SU2)	✓										✓		
Special Use – 3 [42" RTM] (SU3)	✓			✓	✓	✓	✓				✓		
Special Use – 4 [Office] (SU4)	✓										✓		
Special Use – 5 [66" Raw WM] (SU5)	✓										✓		
Special Use – 6 [Reservoir #2] (SU6)	✓										✓		
Preservation – 1 (P1)	✓												
Preservation – 2 (P2)	✓											✓	✓
Preservation – 3 (P3)	✓			✓	✓	✓	✓			✓		✓	
Preservation – 4 (P4)	✓												✓
Preservation – 5 (P5)	✓							✓				✓	

## ***Regional Recreational Supply and Demand***

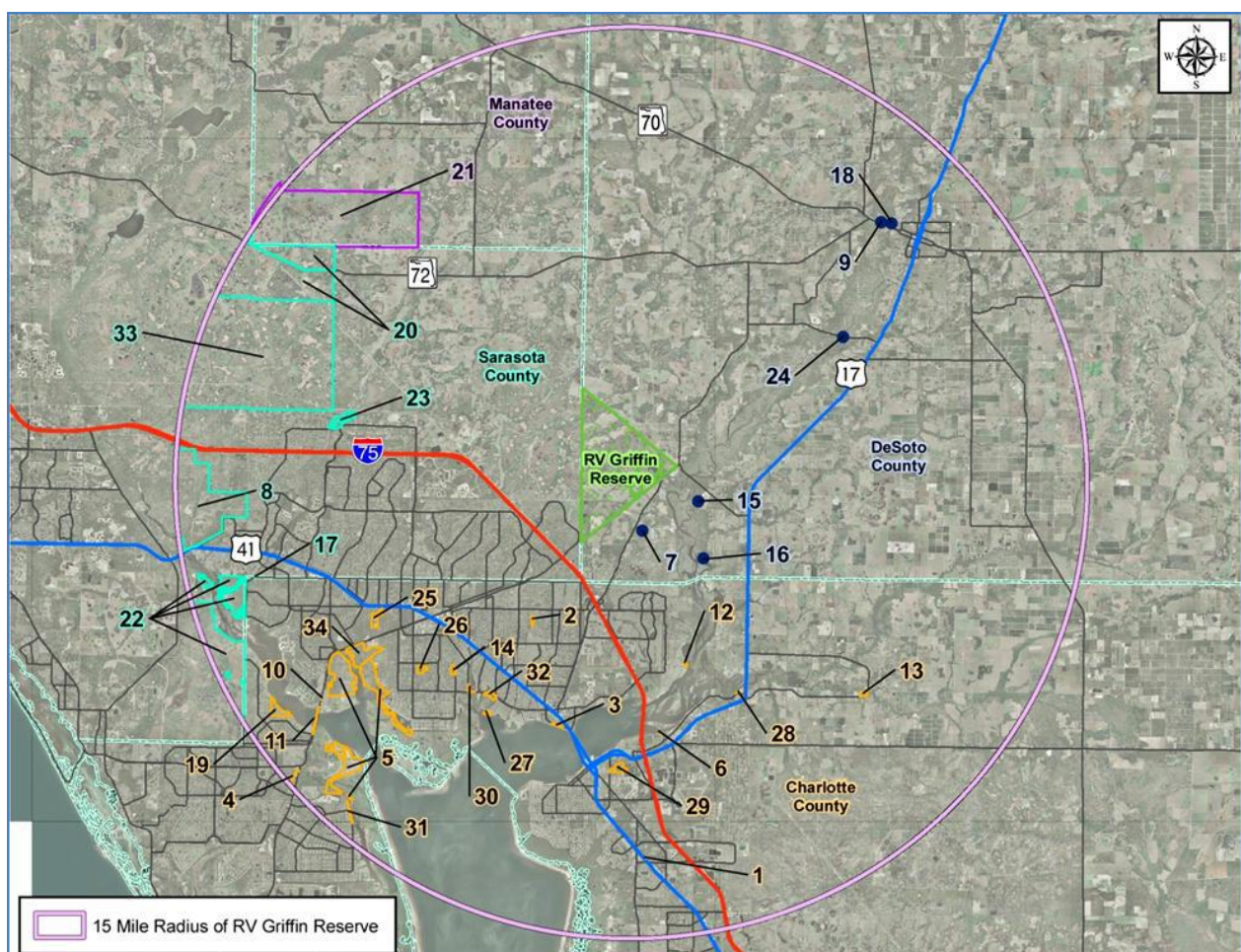
Before the land use zone map and matrix steps were finalized, a regional recreation assessment was conducted to identify nearby recreational opportunities offered by other recreation providers including state and local government. The assessment identified the existing regional and local resource-dependent recreation supply opportunities as shown in Table 6 that are available to the general public within a 15 mile radius of the Reserve.

***Table 6. Regional Recreational Supply and Demand***

Site Location No	Recreation Facility Name	Picnic	Playground	Camping	Swimming	Fishing	Canoe / Kayak	Nature/ Walking Trail	Equestrian Trail	Hiking	Biking	Birding	Boat Ramp
1	Allapatchee Shores Park	X				X	X						
2	Audubon-Pennington Nature Park							X				X	
3	Bayshore Live Oak Park	X				X	X	X				X	
4	Cape Haze Pioneer Trail Park	X						X			X		
5	Charlotte Harbor Preserve State Park					X	X	X		X		X	
6	Darst Park	X				X	X						X
7	Deep Creek Preserve & County Park	X		X		X	X	X	X	X			X
8	Deer Prairie Creek Preserve	X				X	X		X	X	X		
9	DeSoto Park	X											X
10	El Jobean Boat Ramp						X						X
11	El Jobean Fishing Pier					X							
12	Harbour Heights Park	X	X			X	X						X
13	Hathaway Park	X					X	X	X			X	X
14	Kiwanis Park	X	X					X				X	
15	Lettuce Lake Park												X
16	Liverpool Park					X							X
17	Marina Park, North Port	X											X
18	Morgan Park	X						X		X			
19	Myakka Park					X							
20	Myakka Prairie								X	X	X		
21	Myakka River State Park	X		X		X				X	X	X	
22	Myakka State Forest			X		X	X		X	X	X	X	
23	Myakkahatchee Creek Environmental Park	X	X				X	X					
24	Nocatee Boat Ramp												X
25	North Charlotte Regional Park							X					
26	Ollie's Pond Park							X				X	
27	Port Charlotte Beach Park	X	X		X	X	X						X
28	Riverside Park	X					X						X
29	South County Regional Park	X	X		X	X							
30	Spring Lake Park	X				X	X	X					X
31	St. Paul Linear Park							X					
32	Sunrise Park	X				X	X	X				X	
33	T. Mabry Carlton, Jr. Memorial Reserve	X				X	X	X	X	X	X		

Although the Reserve boundary lies completely within DeSoto County, the host county of DeSoto is sparsely populated as is typical of rural, inland counties within the state. As such, in order to target more significant population densities, a 15 mile radius was used in the recreational supply assessment. This radius as shown in Figure 6 allows inclusion of nearby populations located in the adjacent coastal counties that may utilize the property as well as identify other recreation areas within a reasonable distance of those population centers. Within this 700 square-mile study area, many of the resource-based recreational opportunities available on the Reserve such as hiking, biking, horseback riding, and nature appreciation are currently being provided by other public entities. Many of the sites listed also have an extensive system of amenities including fishing, paddle boating, and permanent restroom facilities that are not available on the Reserve property.

**Figure 6. Location Map of Resource-Based Recreation within 15 miles**



**Recreational Demand** – This assessment was conducted to identify the unmet demand for resource-dependent recreation activities near the Reserve that may be considered for addition to the Reserve if compatible with resource management objectives. The recreational demand assessment focused on those demands resulting from the current populations and the projected populations of DeSoto County as the host-county, Charlotte and Sarasota Counties were also considered due to their relative proximity in driving distance to the entrance of the Reserve along County Road 769.

The US Census Bureau reports the 2010 population of DeSoto County at 34,862, Charlotte County at 159,978, and Sarasota County at 379,448, for combined population of 574,288 within this three-county area, which represents only 3% of the state's population. In reviewing the Comprehensive Plans of these three counties, which were revised during periods of high growth expectations, the annual growth required to achieve their projected 2020 populations ranged from 2.5% to 5.5%. Based on the latest Bureau of Economic and Business Research (BEBR) population projections, the 2020 medium BEBR county population projections are 37,600 for DeSoto County, 176,300 for Charlotte County, and 424,700 for Sarasota County.

The Recreation and Open Spaces Element of these Comprehensive Plans provided an analysis of the current inventories of parks and recreational facilities weighted against their existing and projected populations. Each of these counties' Recreation and Open Space Element identified a surplus of parks as defined within the classification of Regional Parks and Environmental Parks based on State Guidelines. Each county therefore met their recommended level of service for their current populations as well as their Comprehensive Plan projected populations in 2020. Based on the latest BEBR projections, these counties should anticipate growth rates more in the order of 1.0% annually, therefore the current surplus inventories of parks and recreational land should offer these counties the ability to continue meeting the level of service requirements well beyond 2020.

The District and the Florida Office of Greenways and Trails' (OGT) are developing a continuous trail referred to as the "River to River" trail, connecting the Myakka River to the Peace River, and have requested the Authority to consider the feasibility of such a proposed connection through the Reserve land. The point at which the proposed trail intersects the Reserve property is referred to as the Longino Alignment and is located along the northwestern boundary at one of the Reserves preservation parcels commonly known as the DeSoto Wetlands.

In addition to this preservation land use zone, special protection land use zones on the Reserve may be impacted by the new trail. Mitigation activity is ongoing and is expected to be complete in late 2013 in the special protection zone which currently restricts the allowable uses of such land areas until release is accomplished. Upon approval of the regulatory agencies associated with these preservation and special protection land use zones, the Authority, in cooperation with the District, is willing to discuss development of the River to River Trail through the Reserve property.

Figure 7 on the following page illustrates the existing trail network on the Reserve that accommodates hiking, nature studies, biking, and equestrian use. It also provides a visual reference point for the Longino Alignment at the Reserve boundary and displays the various land use zones that exist between the current trails and the proposed point of intersection for the Longino Alignment.

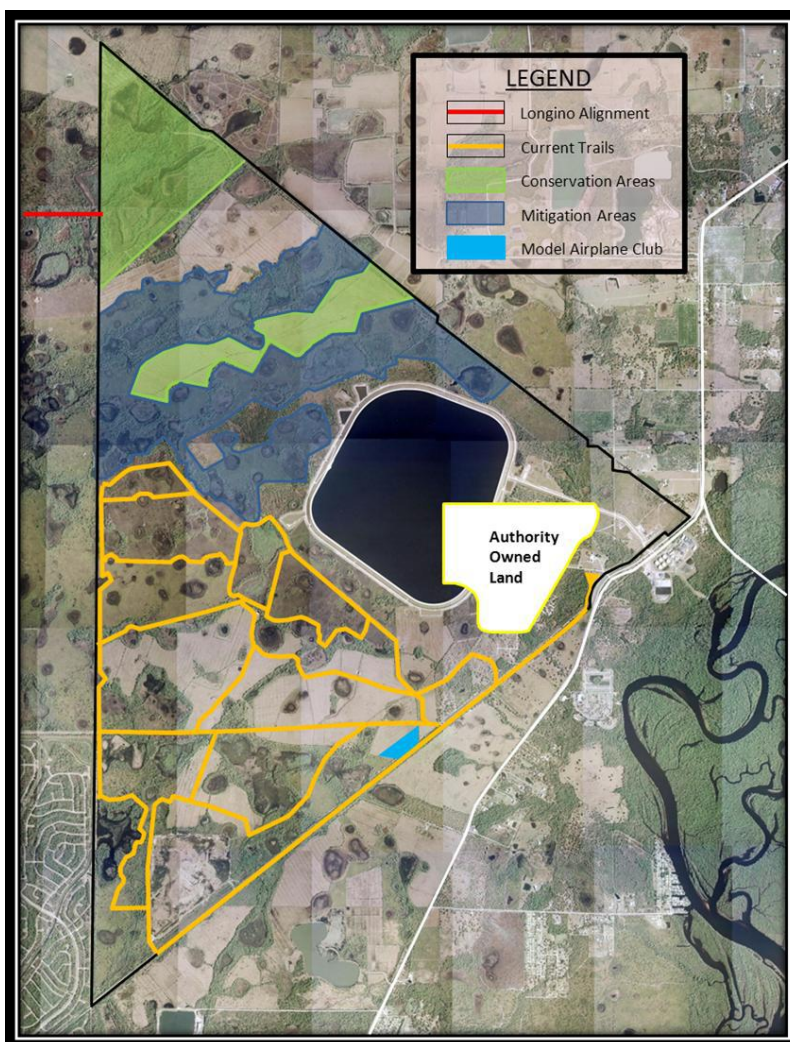
**Limitations on Reserve** - The land use zones established at the Reserve are to protect and preserve existing natural systems, documented sensitive habitats, and the wildlife that utilize these habitats. These zones also provide a buffer to existing water supply structures and ensure compliance with the Authority's reservoir mitigation permit that requires ecological improvement across large areas of the property. These permit conditions have limited the amount of acreage available for recreational activities such as trail networks and additionally has limited

the amount of revenues that can be generated from lands available for cattle grazing. Only those opportunities that require minimal amenities are considered for future addition to the Reserve.

The regions potable drinking water source contained in the 658 acre above ground reservoir, commonly known as Reservoir No. 2, is situated for the most part on the Reserve property; however it is solely managed by the Authority and is not part of this Land Use and Management Plan. The Authority has a perpetual exclusive easement containing all of the Reservoir No. 2 footprint, associated infrastructure, and access roads, not located on Authority owned land. For the safety of the regions potable drinking water and the public, recreational opportunities are limited on the RV Griffin Reserve to those areas contained in the nonexclusive easement areas.

**Conclusion** - Based on an analysis of the current and projected public recreational needs and opportunities already available on public lands within the planning region, and due to the inherent public water supply values of the Reserve which places limitations on recreational site opportunities, the Reserve will feature passive, resource-dependent recreational uses. The location of the existing trails and the Model Airplane Club are depicted in Figure 7.

*Figure 7. Recreation Trails, Mitigation & Conservation Areas*



Picture 8. Entrance Area to Horse Head Trail (R1)



## Management Goals and Objectives

There are six broadly-defined goals listed below that describe the land and water resource condition and the resource-dependent recreation experiences to be achieved on the Reserve over time.

1. **Water Resource Protection** - Groundwater and surface water resources are protected, restored and/or maintained in good condition.
2. **Natural Flood Control** - Surface water attenuation within all Reserve wetland and upland systems function normally and naturally.
3. **Natural Systems Protection/Restoration** - Natural systems are protected, restored, and/or maintained, and systems function normally and naturally.
4. **Resource-dependent Recreation** - Visitors safely enjoy appropriate low impact recreational opportunities and amenities.
5. **Renewable Resource Utilization** - Renewable resources are utilized where appropriate and when compatible with resource protection goals and objectives.
6. **Special Uses** - User-based land uses are accommodated in areas designated as suitable for those purposes, if they exist.

The achievement of goals established for the Reserve will be under eight ongoing land use and management programs and the specific strategies that fall under these programs. These programs include Resource Protection and Security, Public Use, Land Maintenance, Fire Management, Exotic Species Control, Natural Systems Restoration, Resource Utilization and Resource Monitoring (Appendix 2). All of these programs generally have four phases that include a Start-up Phase, Planning Phase, Operations & Maintenance Phase, and Program Review. As a result, a complete description of all the objectives/strategies implemented under these programs will not be summarized in this plan. Objectives that are considered frequent and routine, or already completed for the Reserve will be listed in an annual work plan. Only primary objectives yet to be achieved and broadly described below are listed in this plan with the anticipated achievement period indicated. The objectives are broken down as Short-term (1-3 Years) 2011 to 2013, Mid-term (4-7 Years) 2011 to 2018 and Long-term (8-10 Years) 2011 to 2021.

## ***Resource Protection & Security***

**Short-term** -- Continue to assess potential wetland erosion areas and rectify problem areas as needed.

Continue the evaluation of Reserve property to locate and identify any remaining, free flowing wells, cattle dip sites, or other potential water resource contamination features, and repair, isolate or remove the source of contamination, as needed.

Complete the construction of the 8 foot chain-link fencing necessary to provide added security to the special use zones containing public water supply reservoirs, well fields and other related appurtenances located within the Reserve boundary.

Complete an inventory of interior fencing and develop a plan for the removal of such fencing that no longer serves cattle management or nuisance animal intrusion purposes.

Continue to identify security issues on the Reserve and implement a tiered strategy that includes encouragement of voluntary compliance utilizing signage; installation of physical impediments and deterrents; and enforcement of rules and regulations through utilization of the available staff, law enforcement, contract personnel, and off duty law enforcement officers.

**Mid-term** -- Continue to evaluate gates, fences, and signage to assure appropriate infrastructure is in place, especially along the western boundary where the interface with urban areas is greatest and replace, repair or remove damaged or inappropriate materials as needed. .

Continue to evaluate and improve the level of service being provided through security contract and adjust as necessary.

**Long-term** – Continue to replace /install fencing, gates and signage as deemed necessary.

Where appropriate remove interior fencing that no longer serves cattle management or nuisance animal intrusion purposes.

## ***Public Use***

**Short-term** – Maintain established public access: roads, walk through gates, and parking areas.

Continue to evaluate the secondary impacts caused by the public to determine when those impacts are excessive and the alternatives to reduce or mitigate those impacts.

Assess roads, fire lines, and appropriately zoned areas to ensure that these areas continue to be well maintained and meeting the needs of the management plan.

Continue to publish public use map through update of recreation guide to formally advertise the Reserve is open for public recreation.

Continue to maintain recreational access points and amenities in accordance with the Management Plan. Continue to provide public use maps for distribution to the public at all access points.

In cooperation with the District initiate volunteer recruitment.

**Mid-term** -- Maintain established public access: roads, walk through gates, and parking areas..

Continue to maintain existing multi-use trail system and assure it is appropriately and clearly marked using public feedback from users and volunteers.

Continue to publish public use map through update of recreation guide to formally advertise the Reserve is open for public recreation.

In cooperation with the District host structured volunteer events bi-annually and provide independent volunteer opportunities.

In cooperation with the District, coordinate with local schools to host environmental education opportunities.

Continue monitoring program for recreational use areas and trails. Continue monitoring the proper usage of designated trails, number of users, effectiveness and success of public access points to accommodate users.

Continue to evaluate the secondary impacts that result from public use of the Property to determine when those impacts are excessive and evaluate the alternatives to reduce or mitigate those impacts.

**Long-term** -- Continue to monitor recreational access points, trails, and amenities to assure they are in accordance with District policy.

Continue to evaluate recreational opportunities to see if demand is being met; develop additional access points and amenities if deemed necessary within the zones previously defined compatible.

Coordinate with the District and the Department of Environmental Protection's Office of Greenways and Trails and evaluate possible trail connections to the Reserve from other nearby parks and preservation lands.

Using results of mid-term monitoring program determine level of secondary impacts that result from public use of the Reserve and evaluate the alternatives to reduce or mitigate those impacts.

In cooperation with the District initiate volunteer recruitment for tours, maintenance and support.

## *Land Maintenance*

**Short-term** -- Install and replace culverts, ditch blocks and weirs at key areas to repair/maintain hydraulic connectivity, maintain established natural hydro-periods and stabilize using rip-rap, and other native vegetation as needed.

Inventory and map all roads and vehicular trails present onsite.

Continue to monitor and maintain primary routes needed for year-round access.–

Continue to monitor and maintain annual (perimeter) fire lines hard lines and individual burn unit fire lines utilizing natural breaks and existing disturbances where feasible.

**Mid-term** – From the short term inventory and map, road and trail networks will be evaluated and a road and trail network improvement plan will be developed as needed.

Fire lines will be evaluated and an improvement plan will be developed as needed.

Complete inventory and remove as appropriate all interior fencing from the property, except fencing related to the operation and maintenance of the public water supply features or related to the management of cattle. This will allow unimpeded movement of wildlife, to prevent injury to wildlife, to reduce development of weedy hedgerows and to minimize establishment of nuisance and exotic vegetation.

**Long-term** --Implementation of major road and fire line improvements as needed.

## *Fire Management*

**Short-term** – Continue established burn units, burn plans and prescribed burning efforts found on property.

All habitats exhibiting a heavy fuel-load will be targeted for fuel reduction through winter hazard-reduction burning or mechanical fuel reduction under extreme cases.

In cooperation with the District press releases and outreach will be initiated to educate neighbors of the critical role fire plays in Florida's ecosystems and how it will be utilized in the management of the Reserve.

**Mid-term** -- All burn units in natural pyric communities will have undergone at least one burn cycle. Continue established burn units, burn plans and prescribed burning efforts found on property.

At least 60% of the prescribed burning taking place within natural pyric communities will be conducted during the growing-season on an interval consistent with historic regimes.

All priority wild land urban interface burn units in natural communities will have undergone a fuel reduction burn on an as needed basis.

Fire lines will be evaluated and an improvement plan will be developed as needed.

**Long-term** --Staff to conduct an assessment of the on-going prescribed burn program in an effort to identify areas that have not been burned frequently enough or were missed during the burning rotational cycle that could be improved upon i.e. areas being issued, burned in inappropriate season or regime, not enough variability, etc.

Transition the Reserve to a predominately ecological maintenance burning regime

## ***Exotic Species Control***

**Short-term** -- Invasive exotic plant species infestations will continue to be identified, mapped, and prioritized for treatment, with initial control efforts focusing on the most noxious species with the greatest potential of spreading.

Feral hog infestations will continue to be monitored with active trapping efforts being utilized year round as necessary to sustain populations at a maintenance level.

**Mid-term** -- All FLEPPC category I and II invasive-exotic floral species identified as posing a threat to natural systems on the Reserve will continue to be contained and considered under operations and maintenance.

Staff will stay abreast to potential new exotic animal introductions and take action as needed.

**Long-term** – Staff will coordinate with District Aquatics personnel to conduct an assessment of the exotics program on the Reserve.

## ***Natural Systems Restoration***

**Short-term** --Assess potential erosion areas, based on soils and gradients, and if deemed necessary, develop erosion control plan, and repair existing problem areas as needed.

Finalize the Pasture B Restoration Conceptual Plan and begin implementation of the initial phases of restoration activities.

**Mid-term** --Complete the final phases of the Pasture B Restoration Plan.

In cooperation with the District, develop a site restoration plan that will concentrate on the remaining altered natural systems not being restored or enhanced as part of the Authority's Reservoir #2 construction.

Mechanical vegetation enhancements and/or restoration will be pursued as needed in habitats that prescribed fire was unable to achieve desired results.

**Long-term** -- Areas identified within the site restoration plan as being priority sites will undergo the steps necessary to carry out this restoration effort; non priority disturbed sites will be managed until funds are available for restoration activities.

Identify and evaluate the Reserve to determine if there is a need and opportunity to actively place wildlife species on the Reserve that were historically present or would thrive in one of the altered communities.

## ***Resource Utilization***

**Short-term** -- In cooperation with the District, receive assignment of all rights and responsibilities of the Cattle Grazing/Haying Lease Agreement.

Utilize the cattle lease revenues for reimbursement for actual and budgeted expenses incurred or to be incurred in the management, operation, and security of the Reserve property in accordance to the Management and Operations Agreement Between the District and the Authority.

**Mid-term** -- In conjunction with the site restoration plan, a resource utilization plan will be developed identifying renewable resources compatible on the Reserve that could be employed to offset management costs.

In cooperation with the District, an evaluation will take place of the feasibility of allowing limited hunting opportunities on this property.

**Long-term** -- Resource utilization plan will be carried out as prescribed in the identified areas; lessees or other appropriate revenue generation sources will be sought.

In cooperation with the District, implement a hunting plan through the FWC if deemed suitable on this property

## ***Resource Monitoring***

**Short-term** -- In cooperation with the District, permanent photo-monitoring stations will be placed on representative habitats following District guidelines for photo-plots.

In cooperation with the District, contract with the Florida Natural Areas Inventory (FNAI), to conduct a comprehensive natural communities mapping effort.

Mitigation areas associated with reservoir construction will likely meet success criteria resulting in monitoring requirements of these areas to be released by The Department of Environmental Protection. Upon the assumption of the management of these areas by the Authority, annual monitoring requirements will be conducted to assure management activities are not negatively affecting mitigation areas.

**Mid-term** -- In cooperation with the District, a monitoring effort will take place focusing on potential impacts to water resources, flora, and fauna associated with increased public use, prescribed fire regimes, and exotics species presence and control.

**Long-term** -- In cooperation with the District, an assessment will be undertaken employing the latest technology to identify deficiencies in the Reserve's monitoring program.

## **Key External Factors**

There are several key factors external to the Authority's management efforts for the property and beyond Authority's control that could significantly affect the achievement of long-term goals described in this plan.

## Challenges to Achieving Goals

Below is a summary of external factors that may affect or influence future management of the Reserve.

- Natural disasters such as hurricanes, floods, climate change, and disease that potentially cause unrecoverable resource losses in the Reserve and affect the long-term balance and viability of populations and functionality.
- Exponential proliferation of existing exotic flora and fauna or introduction of new invasive species.
- Development adjacent to or in proximity to the Reserve may degrade resources and ecosystem processes within the Reserve.
- Legal impediments to fire management, such as increasing air quality standards, and exotic plant and animal treatments, such as herbicide restrictions and public resistance.
- Competing priorities and funding shortages that divert funds away from land management.
- Security issues relating to water supply security could alter public access and allowable activities.
- Road and utilities expansions and widening have the potential to impact managed property.
- Inadequate management practices of adjacent landowners engaged in timber harvesting, mining, cattle grazing, water withdrawal or water pollution may adversely affect the Reserve resources.
- Public recreation requests that are not compatible with resources on site.
- Multiple jurisdictional issues that affect protection of the Reserve's resources and enforcement of unauthorized activities.
- Increased demand and market values for natural resources that are present in the Reserve, such as saw palmetto berry, pine heartwood and timber.
- Lack of partners that share stated management priorities and goals for the Reserve.

## Local Government, Stakeholders and Coordination Entities

Coordination between the Authority, the District, local governments, neighboring residents and the public will demonstrate the benefits that can be achieved by securing a public water supply

for the future growth of the area, while maintaining the remaining natural ecosystems for compatible multiple uses consistent with District Policies and Procedures.

## Future Uses

Consistent with the District's original acquisition intent to secure land necessary to accommodate the expansion and protection of the adjacent public water supply facilities, the Authority's main objective associated with the Reserve land is to evaluate potential water resource development attributes of the property in efforts of meeting the future public water supply demands of the regional area.

The Authority's 2009 Source Water Feasibility Study outlines the potential utilization of the Reserve land for brackish ground water development. The Authority Board awarded a contract to CH2M Hill on December 16, 2010 for the Preliminary Investigation of Brackish Groundwater Development. The first three tasks of this project are scheduled to be completed in the current year (2011) with the remaining tasks to be completed in Fiscal 2012.

Additionally, during the analysis of the site placement of Reservoir #2, due diligence was conducted regarding the potential requirement of an additional future water supply reservoir to be constructed within the boundaries of the Reserve land. Engineering consideration of the raw water piping infrastructure and the determination to construct a raw water pipeline TEE near Reservoir #2 was implemented to readily accommodate such an additional reservoir.

Upon determination of potential future brackish ground water development opportunities and consideration of future raw water storage requirements at this site are possible, the management goals, objectives, and zoning maps would need to be reevaluated and modified accordingly.

# Appendix 1

## Land Use Matrix – Resource –Dependant Recreation Activities and General Land Uses

The matrix below illustrates the master listing of the Resource-Dependant Recreation activities, types of Renewable Resource Utilization, and other Special Uses that were given consideration of acceptable uses within the various Land Use Management Zones of the RV Griffin Reserve.

USE CATAGORIES		Management Zones					
		Preservation Zone	Special Protection Zone	Resource Management	Recreation Zone	Special Use Zone	Transportation Zones
<b>Resource-Dependant Recreation</b>	Mobility - impaired						
	Access - Walkthrough						
	Access – 5 vehicles						
	Access - >5 vehicles						
	Access Equestrian						
	Bicycling – Unimproved dirt trail						
	Bicycling - Mountain						
	Birdwatching						
	Camping - Backpacking						
	Camping - Group						
	Camping Equestrian						
	Equestrian						
	Fishing - Shoreline						
	Fishing - Dock						
	Fishing - Fly						
	Hiking						
	Geocaching						
	Hunting – FWC-WMA						
	Hunting - Special						
	Interpretive Areas or Trails						
	Model Airplane Flyers						
	Nature viewing						
Nature Photography							
Paved Trail Uses							
Swimming							
Scuba Diving							
Trail Running							
<b>Renewable Resource Utilization</b>	Timber						
	Cattle						
	Other						
<b>Special Uses</b>	Permanent Structure						
	User-Based Recreation						

## Appendix 2

### Land Use and Management Programs

1. **Resource Protection and Security** – Secure property with gates and fencing; install informational & boundary signage; conduct patrol and enforcement as necessary; protect cultural and natural resources.
2. **Public Use** – Develop entrance and access points, install recreational signage, amenities and infrastructure; issue recreation permits; establish volunteer groups and environmental education; develop land use agreements, coordinate public outreach & education; coordination with other stakeholders and entities to ensure adequate protection of resources and maximum public benefit; and implementation of recreational monitoring program.
3. **Land Maintenance** – Maintain and install fire lines, structures, and capital improvements; remove unneeded infrastructure and roads as required.
4. **Fire Management** – Conduct prescribed burning for varied silviculture purposes, wildfire suppression and control, and fuel reduction activities.
5. **Exotic Species Control** – Inventory, monitor and develop strategies for removal or control of exotic plants and animals.
6. **Natural Systems Restoration** – Identify, assess and successfully restore altered uplands and wetlands via capital or management projects to optimize natural ecosystem services; restore native wildlife populations.
7. **Resource Utilization** – Identify, assess and implement existing and potential resource utilization opportunities, including timber, cattle, game species and native seed production.
8. **Resource Monitoring** – Establish baseline conditions and monitor the effects of various land management practices and land uses on the natural resources via natural communities mapping and assessments; species surveys, restoration and mitigation program monitoring directed research projects; scientific review and data analysis, photo-monitoring, and monitoring of conservation easements.

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