Chapter 1
Future Land Use
Data and Analysis

Unified Sumter County/Center Hill/Webster
Comprehensive Plan

Insert following pages

Sumter County, Development Potential (2035)					
New FLU	**Acreage**	**Min. Density**	**Potential (Units)**	**AHS**	**Potential (Pop)**
AGR	172,174	0.10	17,217	2.04	35,124
RR	13,028	1	13,028	2.04	26,578
UR	446	4	1,783	2.04	3,637
MU*	15,823	N/A	45,616	N/A	82,125
TOTAL			**77,645**		**147,464**
New FLU	**Acreage**	**Max. Density**	**Potential (Units)**	**AHS**	**Potential (Pop)**
AGR	172,174	0.10	17,217	2.04	35,124
RR	13,028	2	26,057	2.04	53,155
UR	446	6	2,675	2.04	5,456
MU*	15,823	N/A	45,616	N/A	82,125
TOTAL			**91,565**		**175,860**
New FLU	**Acreage**	**Avg. Density**	**Potential (Units)**	**AHS**	**Potential (Pop)**
AGR	172,174	0.10	17,217	2.04	35,124
RR	13,028	2	19,542	2.04	39,867
UR	446	5	2,229	2.04	4,547
MU*	15,823	N/A	45,616	N/A	82,125
TOTAL			**84,605**		**161,662**
* Based on development orders/entitlements;					
The Villages at Buildout = 45,548 units, 81,986 pop.;					
Zito Property at Buildout = 68 units, 139 pop.					
AHS = Average Household Size, 2010 U.S. Census for Sumter County, FL					
Population for Sumter County, FL (Unincorporated, Excluding Prisoners):					
	2010	**2012**	**2017**	**2022**	**2035**
	72,947	78,485	89,604	104,289	155,693
Florida Office of Economic and Demographic Research Med. Projections:					
	2010	**2012**	**2017**	**2022**	**2035**
	72,947	78,343	88,602	95,399	105,962

City of Center Hill, Development Potential (2035)					
New FLU	**Acreage**	**Min. Density**	**Potential (Units)**	**AHS**	**Potential (Pop)**
AGR	3,432	0.10	343	3.13	1,074
RR	590	1	590	3.13	1,847
UR	25	4	102	3.13	318
TOTAL			**1,035**		**3,240**
New FLU	**Acreage**	**Max. Density**	**Potential (Units)**	**AHS**	**Potential (Pop)**
AGR	3,432	0.10	343	3.13	1,074
RR	590	2	1,180	3.13	3,694
UR	25	6	153	3.13	477
TOTAL			**1,676**		**5,246**
New FLU	**Acreage**	**Avg. Density**	**Potential (Units)**	**AHS**	**Potential (Pop)**
AGR	3,432	0.10	343	3.13	1,074
RR	590	2	885	3.13	2,771
UR	25	5	127	3.13	398
TOTAL			**1,355**		**4,243**
AHS = Average Household Size, 2010 U.S. Census for City Center Hill, FL					
Population for City of Center Hill, FL:					
	2010	**2012**	**2017**	**2022**	**2035**
	988	994	1,195	1,474	2,397
Florida Office of Economic and Demographic Research Med. Projections:					
	2010	**2012**	**2017**	**2022**	**2035**
	988	1,001	1,190	1,389	1,987

City of Webster, Development Potential (2035)					
New FLU	**Acreage**	**Min. Density**	**Potential (Units)**	**AHS**	**Potential (Pop)**
AGR	331	0.10	33	2.81	93
RR	14	1	14	2.81	38
UR	223	4	893	2.81	2,509
TOTAL			**939**		**2,640**
New FLU	**Acreage**	**Max. Density**	**Potential (Units)**	**AHS**	**Potential (Pop)**
AGR	331	0.10	33	2.81	93
RR	14	2	27	2.81	76
UR	223	6	1,339	2.81	3,763
TOTAL			**1,399**		**3,932**
New FLU	**Acreage**	**Avg. Density**	**Potential (Units)**	**AHS**	**Potential (Pop)**
AGR	331	0.10	33	2.81	93
RR	14	2	20	2.81	57
UR	223	5	1,116	2.81	3,136
TOTAL			**1,169**		**3,286**
AHS = Average Household Size, 2010 U.S. Census for City of Webster, FL					
Population for City of Webster, FL:					
	2010	**2012**	**2017**	**2022**	**2035**
	785	794	954	1,176	1,914
Florida Office of Economic and Demographic Research Med. Projections:					
	2010	**2012**	**2017**	**2022**	**2035**
	785	796	945	1,104	1,508

City of Wildwood Residential Needs Analysis for 2008 Comprehensive Plan Rewrite

August 26, 2008

Prepared for

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President
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EXECUTIVE SUMMARY

- Since the adoption of the most recent Comprehensive Plan in year 2001, it has become apparent that a structural change in the growth trajectory of the City of Wildwood is occurring. Fishkind and Associates, Inc. has created a population growth forecast for the City of Wildwood through 2035 which appropriately reflects this structural change.

City of Wildwood Forecast.

	2010	2015	2020	2025	2030	2035
Wildwood Population	8,709	16,431	27,147	41,595	50,350	60,186
Wildwood PPH	2.5	2.5	2.5	2.5	2.5	2.5
Wildwood Households	3,484	6,572	10,859	16,638	20,140	24,074
Seasonal/Vacancy %	21%	19%	17%	15%	12%	10%
Wildwood Housing Units	4,410	8,114	13,083	19,574	22,886	26,750

Source: Fishkind and Associates, Inc.

- Fishkind's revised housing unit projections for the City of Wildwood show demand for a total of 26,750 housing units in 2035. There are currently an estimated 2,208 housing units within the City of Wildwood. As adopted, the Wildwood FLUM contains vacant capacity for an additional 11,111 housing units. Thus, the total capacity of the FLUM, as approved, is 13,319 units and the current allocation ratio for the City of Wildwood FLUM is 0.50.

- The recommended allocation ratio for the City of Wildwood through a 2035 time horizon is 2.42. The recommended allocation ratio is based on the application of a recommended 1.5 allocation ratio on existing units and 2.5 allocation ratio on future units. Thus, the 2.42 recommended allocation ratio represents the weighted average allocation ratio required to achieve proper flexibility within both existing and future units.

- The revised FLUM included in the 2008 Comprehensive Plan rewrite shows a total capacity for 40,505 units. This includes 2,208 existing units and capacity for 38,297 units within the vacant FLUM acreage.

- With demand for 26,750 units by 2035, the allocation ratio of the revised Wildwood FLUM would increase from 0.50 to 1.51 with the approval of the 2006, 2007 and DRI amendments and any additional land use changes requested through the adoption of the updated Comprehensive Plan.

- With a recommended allocation ratio for the City of Wildwood through a 2035 time horizon is 2.42; therefore, with a demonstrated allocation ratio of 1.51 the need for the revised City of Wildwood Comprehensive Plan FLUM is justified.

Table ES-1.
City of Wildwood Revised Comp Plan FLUM Allocation Ratio.

Revised Comp Plan FLUM Capacity	40,505
Existing	2,208
Vacant Capacity of Revised Comp Plan FLUM	38,297
2035 Housing Unit Demand	26,750
Revised Comp Plan Allocation Ratio	1.51

Source: Fishkind and Associates, Inc.

1.0 Introduction

1.1 Purpose

The City of Wildwood submitted a number of comprehensive plan future land use amendment changes in 2007 and are currently in the process of producing a revised Comprehensive Plan and Future Land Use Map (FLUM) for the City.

For the purposes of this analysis, Fishkind & Associates, Inc. has been asked to assist the City in demonstrating the need for the comp plan amendments and revised FLUM.

1.2 Overview of Needs Analysis

In the context of amending the adopted Comprehensive Land Use Plan for The City of Wildwood, the City must demonstrate the need to amend the plan. Typically, this takes the form of a comparison of:

- The supply of existing land currently planned for various uses
- The demand for land based on projected population and other land use demand

The City must demonstrate that there is an insufficient supply of land in the Comprehensive Plan to accommodate the future demand for land required to accommodate the projected future level of population. Fishkind's approach has been to conduct a controlling county level forecast and then determine what percent of county level growth can be accommodated in the City. This results in a municipal level population forecast which is developed within the context of the larger county level growth.

2.0 Structural Shift in Growth Trajectory of Sumter County

There has been a dramatic structural shift in the growth components and physical destination of residents moving to and within the State of Florida. A number of Florida's major urban metropolitan areas have nearly reached buildout resulting in a series of cascading development pressures. These pressures are being played out in similar fashion throughout the State. First, as raw developable land availability in major metro areas is depleted, there is increasing demand for urban infill and redevelopment type projects focusing on multifamily and high rise development. This has been evident in counties across the state such as Miami-Dade, Broward, Palm Beach, Orange, Pinellas, Lee and Duval Counties.

Second, as the primary core counties have depleted raw developable land, population growth has expanded to secondary and tertiary counties immediately surrounding the core urban locations. Thus, south of Duval County growth has dramatically increased in St. Johns County. In southeast Florida growth has moved northward up the coast to St. Lucie County. Like the Counties mentioned above, Sumter County is on the cusp of tremendous population growth as a result of the build out of Orange County. Sumter County is uniquely located at the crossroads of growth expanding along I-75 and the Florida Turnpike. As infrastructure becomes more stressed and affordable land gets scarcer in these areas, growth pressures will continue to reach Sumter County at increasingly higher rates.

The population growth trajectory in Sumter County is changing dramatically resulting in long term population growth forecasts that are sharply higher than what would be expected based solely on historical growth patterns. As mentioned above, this structural change is not unique to Sumter County. This same pattern of a shifting growth trajectory due to a structural change has played out in a number of counties over the last 30 to 40 years. Looking at the accuracy of 25 year population forecasts, there are some considerable conclusions that can be made with regard to the ability of population forecasts to capture the impact of a structural change. Table 2.1 compares the 1975 BEBR long-term projections to year 2000 with year 2000 Census actual counts.

What this data reveals is the high level of forecast accuracy for DeSoto, Pasco, Polk and Highlands Counties where a structural change has not occurred or occurred before the projections were made compared with the very large degree of error in Flagler, Lake, Marion, St. Lucie, and St. Johns where a structural change occurred subsequent to the formulation of the population forecasts.

Table 2.1.
Comparison of Long-Term Population Projections.

		1975 BEBR projections for 2000	Year 2000 Actual	Variance
Counties with Structural Shift	Flagler	21,700	49,832	-129.60%
	St. Johns	71,000	123,135	-73.40%
	Lake	143,300	210,527	-46.90%
	Marion	191,000	258,916	-35.60%
	St. Lucie	149,800	192,695	-28.60%
Counties without Structural Shift	Highlands	81,400	87,366	-7.30%
	Polk	471,300	483,924	-2.70%
	Pasco	343,600	344,768	-0.30%
	DeSoto	36.700	32,209	12.2%
Counties with Shift Total		576,800	835,105	-44.80%
Counties without Shift Total		933,000	948,267	-1.6%

Source: Projections of Florida Population Bulletin 33, June 1975, U. FL and US Census 2000

Fishkind believes the dramatic variance in forecast accuracy from county to county has to do with the emergence of structural change during the forecast period. This means forecast accuracy depends on the degree to which the trends toward shifting growth trajectories were present at the time the forecast was prepared and the degree to which they changed or remained the same over the forecast period. Changing growth patterns were already underway in 1975 in Pasco and continued. They were not present in DeSoto, Polk or Highlands and growth continued in that fashion as well.

In Flagler, St. Lucie, St. Johns, Lake and Marion the shifting growth patterns were not present in 1975 but did change and take hold during the forecast period. The large degree of error between the forecasted 2000 population and the actual 2000 population suggests that the BEBR forecast methodology is limited in its ability to adequately or accurately capture the trend shift changes in the forecast of long range population growth. Where trends did not shift, forecast accuracy averaged 98% over the 25 year period. Where structural change took place and trends did shift, the average forecast error was 45 percent.

3.0 Sumter County Housing Unit Projections

3.1 BEBR Medium Forecast

As described above, population growth trajectories are changing in much of Florida. This explains, in large part, the dramatic growth in Flagler, St. Johns, Pasco and St. Lucie counties, and in this case, foreshadows changes in population growth just beginning in Sumter County. Fishkind believes that the methodologies employed with the 2008 BEBR Medium population projections do not fully reflect the structural changes that are now beginning to occur in Sumter County, resulting in understated population growth beyond 2020. Subsequently, Fishkind concludes that a linear based forecasting methodology is incapable of accurately predicting population growth in Sumter County beyond 2020.

In response to this condition associated with the 2008 BEBR Medium population projections for Sumter County, Fishkind has conducted an independent population forecast for the County that takes into consideration the structural shifts associated with:

a) **Population Boom** - In the United States, nearly 70-million people will be approaching retirement age over the next fifteen years. Many of those retirees will be seeking warmer climates to enjoy their golden years. This fact, coupled with the net in-migration projected by the BEBR state forecast, validates the projected future population growth for the State.

b) **Relative Build Out of The Urban Coastal Counties and Metropolitan Areas of Florida** – Relative build out occurs when a county has reached saturation due to significant deficits or financial ability to catch up with infrastructure, schools, workforce housing, and hurricane vulnerability. Furthermore, build-out is also occurring in Orange County due to a limited supply of vacant developable lands.

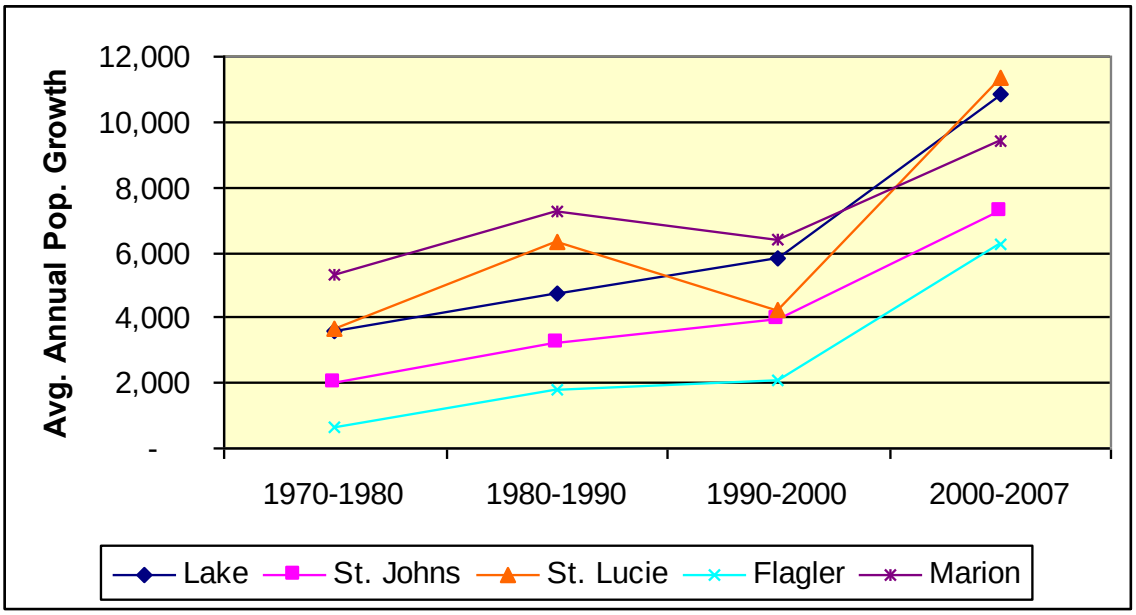
c) **Place-making Planning Paradigm Shift** – This paradigm shift refers to the ability of the County's major land holders to concentrate efforts that will affect structural change and accommodate population growth from the coastal and metropolitan areas through means such as developing desirable place-making master planned communities and supplementing the main infrastructure of the County. Fundamentally, Wildwood is suitably located at the confluence of two major highway systems, I-75 and the Florida Turnpike.

3.2 Fishkind's Non-Linear, Shift Share Forecast Model

In determining an appropriate method for projecting the population of Sumter County that takes into account the structural changes and growth trends mentioned above, the historical population trends of major urban areas have been analyzed as they relate to the State's overall growth. The challenge is how to forecast long term population growth in the face of structural change? The history of other Florida counties that have experienced structural change is instructive. Figure 3.1 shows the average annual growth in population for the set of Florida counties that underwent structural changes outside their previous historic growth trajectories. These are the counties that were identified in Table 2.1 with major structural changes that gave rise to substantial forecast error by BEBR.

Looking at the trajectories for population growth once structural change occurs shows that the results are highly non-linear. Therefore, in a situation where structural change has commenced, or is imminent, a non linear projection methodology is appropriate.

Figure 3.1 Average Annual Population Growth for Counties Experiencing Structural Change



Source: University of Florida, Bureau of Economic and Business Research.

Utilizing a non-linear regression projection methodology, Fishkind forecasted the population for Sumter County through 2035. The projection is based on the trend set forth by the County's historical percentage share of the State's total population. Fishkind has chosen a 50-year historical time horizon in order to appropriately account for the cyclical nature of growth within Florida. As such, Fishkind's historical analysis looked at the relationship between Sumter County growth and State growth from 1955 to 2005. The future percentages of State population that were allocated to Sumter County were then predicted by extrapolating on the historical trend. The predicted percentages were then applied to the 2008 BEBR medium forecasts for the State as a whole.

This methodology is founded on the notion that the population forecast for the State as a whole will not be affected by local area structural change; it is the distribution of State growth among the counties that will be altered. Table 3.1 displays Sumter County's historical share of the State's population from 1955 in 5-year increments.

Table 3.1.
Sumter County Historical Percentage of State Population.

Year	Sumter Population	Florida Population	Sumter %
1955	11,600	3,861,433	0.3004%
1960	11,869	4,951,560	0.2397%
1965	13,354	5,870,502	0.2275%
1970	14,839	6,789,443	0.2186%
1975	20,301	8,618,514	0.2356%
1980	24,272	9,746,324	0.2490%
1985	27,623	11,322,340	0.2440%
1990	31,577	12,937,926	0.2441%
1995	36,017	14,335,992	0.2512%
2000	53,345	15,982,378	0.3338%
2005	74,052	17,918,227	0.4133%

Source: Us Census, Florida Office of Economic & Demographic Research, Fishkind & Associates.

From Table 3.1 we see over the last fifty years Sumter County's population has slowly increased its share of the State's total population. The Sumter County percentage is expected to continue its growth in population share as the primary coastal and metropolitan areas become increasingly built out and are unable to accommodate future growth at which point the population will shift inland and to secondary metro counties.

Fishkind has extrapolated on the trend set forth by the historical data shown in Table 3.1 using a non-linear regression projection methodology. By fitting a non-linear trend line through Sumter County's historical share of the State's population, Fishkind produced a projection that is reflective of the population growth trajectories shown in Figure 3.1. The Fishkind forecast has been extended through the year 2035, as shown in table 3.2.

The regression equation was used to project Sumter County's future percentage of State population through the year 2035. To arrive at County level population counts, the predicted local percentage shares were applied to BEBR's medium forecast for the State of Florida.

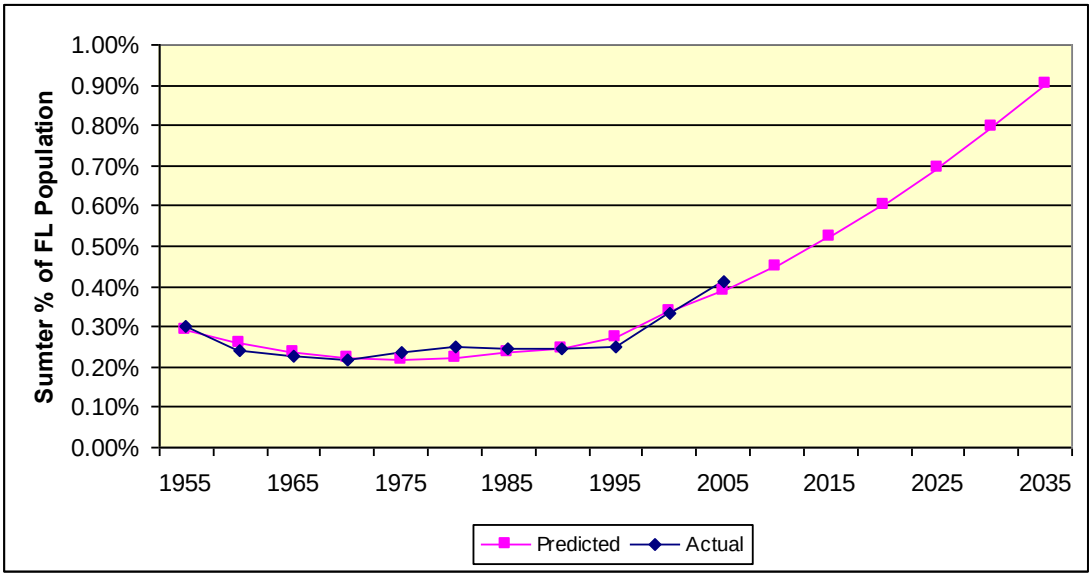
Table 3.2. Fishkind Sumter County Population Projections

Year	Florida Population[1]	Sumter %	Sumter Population
2010	19,308,100	0.45%	87,092
2015	20,955,900	0.52%	109,537
2020	22,477,900	0.60%	135,736
2025	23,955,100	0.69%	166,381
2030	25,340,700	0.79%	201,398
2035	26,616,600	0.90%	240,746

Source: Bureau of Economic & Business Research at UF, Fishkind & Associates
(1) 2008 BEBR Medium Forecast.

Figure 3.2, on the following page, graphically displays the trend line determined by the non-linear regression equation in relation to the actual historical values. The goal of any regression analysis is to minimize the vertical distance between the 'actual' data points and the 'predicted' data points. A rate of change is then derived from this relationship and used as a predictor going forward. The non-linear regression projection method used in this analysis describes the relationship between Sumter County's percentage of State population (vertical axis) and time (horizontal axis). When plotted on a graph, this method forms the parabolic line depicted by the 'Predicted' series in Figure 3.2.

Figure 3.2.
Sumter County Actual & Predicted Percentage of State Population

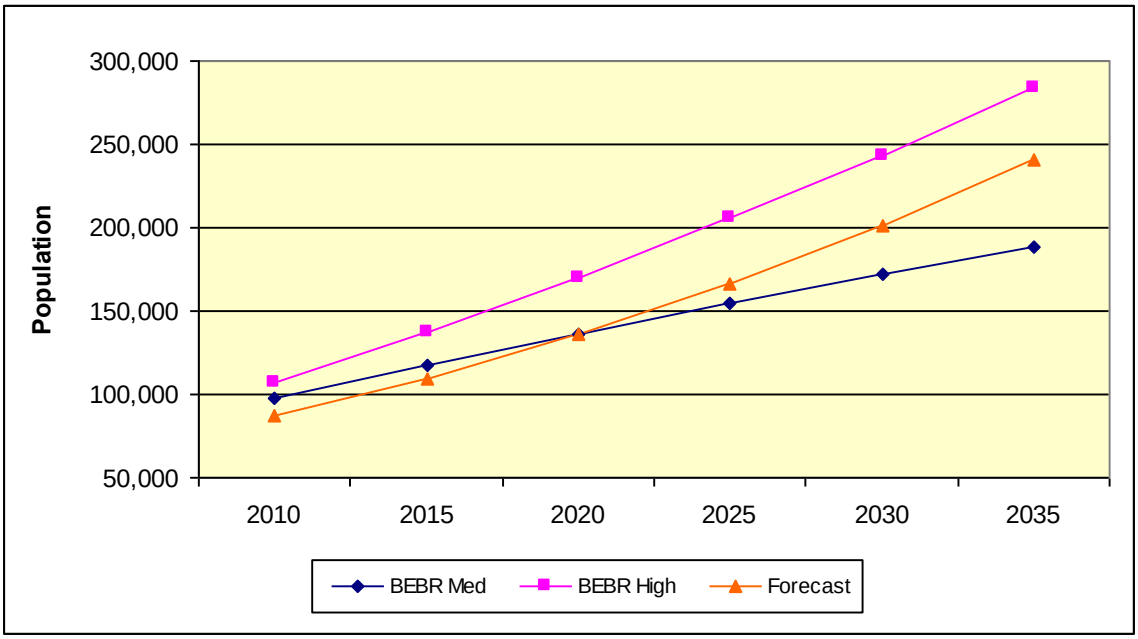


Source: Fishkind and Associates, Inc.

Figure 3.2, above, indicates that with respect to statistical significance, Fishkind's non-linear regression forecast for Sumter County is highly reliable. As such, Fishkind feels confident that the forecast has appropriately captured the impact of structural change on future population growth and accurately projects future growth in the County.

Fishkind's forecast strongly supports the accuracy of the 2008 BEBR Medium forecasts for Sumter County through 2020, however, Fishkind's analysis suggests that the 2008 BEBR Medium forecasts do not accurately reflect the impact of the structural change on population growth beyond 2020. As shown below in Figure 3.3, by 2020, both forecasts are projecting a total population of approximately 136,000 in Sumter County; however, Fishkind's forecast projects population growth occurring at a much higher pace from 2020 through 2035. Fishkind's forecast projects a total population of roughly 240,000 in 2035 as compared to 188,000 in the BEBR Medium projection. Thus, Fishkind believes that the 2008 BEBR Medium forecast understates growth in Sumter County by roughly 52,000 people between 2020 and 2035.

Figure 3.3.
Comparison of Fishkind's Non-Linear Forecast to the 2008 BEBR Medium and BEBR High Forecasts.



Source: Fishkind & Associates, Inc.

A quick comparison of the average annual growth for the counties shown in Figure 3.1 to that projected for Sumter County in Figure 3.3 reveals that the Fishkind non-linear forecast most closely reflects the magnitude of annual growth that occurs in comparable secondary counties that have experienced a structural shift. The average annual growth across all five counties shown in Figure 3.1 was 9,000 people per year with a maximum of 11,000 in St. Lucie County and a minimum of 6,000 in Flagler County. The Fishkind non-linear model projects annual growth of 7,000 people per year beyond 2020 in Sumter County. This places the projected growth well below that of the average of comparable counties, thus suggesting that the levels of growth projected in the Fishkind non-linear model are reasonable with respect to other counties facing dramatic structural change and by these standards do not represent aggressive growth.

Given the structural change in Sumter County and the supporting analysis for Fishkind's non-linear forecast model, Fishkind has concluded that the 2008 BEBR Medium forecast for Sumter County is inadequate and understates population growth in Sumter County through 2035. As a result, the Fishkind non-linear forecast model is believed to provide the most accurate projections for Sumter County, and as such, has been utilized in this analysis as the basis for determining the municipal population forecast and need within the Wildwood FLUM.

4.0 City of Wildwood Demand Projections

4.1 City of Wildwood Population as a Percentage of Countywide Population

Fishkind's non-linear forecast projects a Sumter County population of roughly 136,000 by 2020 and 240,000 by 2035. It is next necessary to determine what percentage of the future growth will be accommodated by the City of Wildwood. To determine an appropriate percentage share for the City of Wildwood, Fishkind analyzed the historical Wildwood population share and evaluated the potential growth in that share based on a number of factors. Historically, the City of Wildwood has accounted for anywhere between 5% and 14% of the countywide population. In 1970, the City of Wildwood share of total countywide housing units was 14%. By 1990 the percentage had decreased to 11% before falling to 5% by 2007. The significant drop in municipal share between 1990 and 2007 is a result of the substantial growth of The Villages, which is located in unincorporated Sumter County. The share change is not a function of decreased demand in the City of Wildwood. Table 4.1 shows the historical share of countywide population found within the City of Wildwood.

Table 4.1. City of Wildwood Share of Sumter County Population.

	Sumter County	City of Wildwood	Wildwood %
1970	14,835	2,082	14%
1975	20,970	2,432	12%
1980	24,272	2,841	12%
1985	28,183	3,076	11%
1990	31,577	3,331	11%
1995	36,017	3,615	10%
2000	53,345	3,924	7%
2005	74,052	4,115	6%
2007	89,771	4,895	5%

Source: Bureau of Economic and Business Research (BEBR).

Although the share of growth accommodated within the City of Wildwood has decreased recently, it is expected to increase significantly over the next 10 to 20 years as a result of a number of factors including, but not limited to:

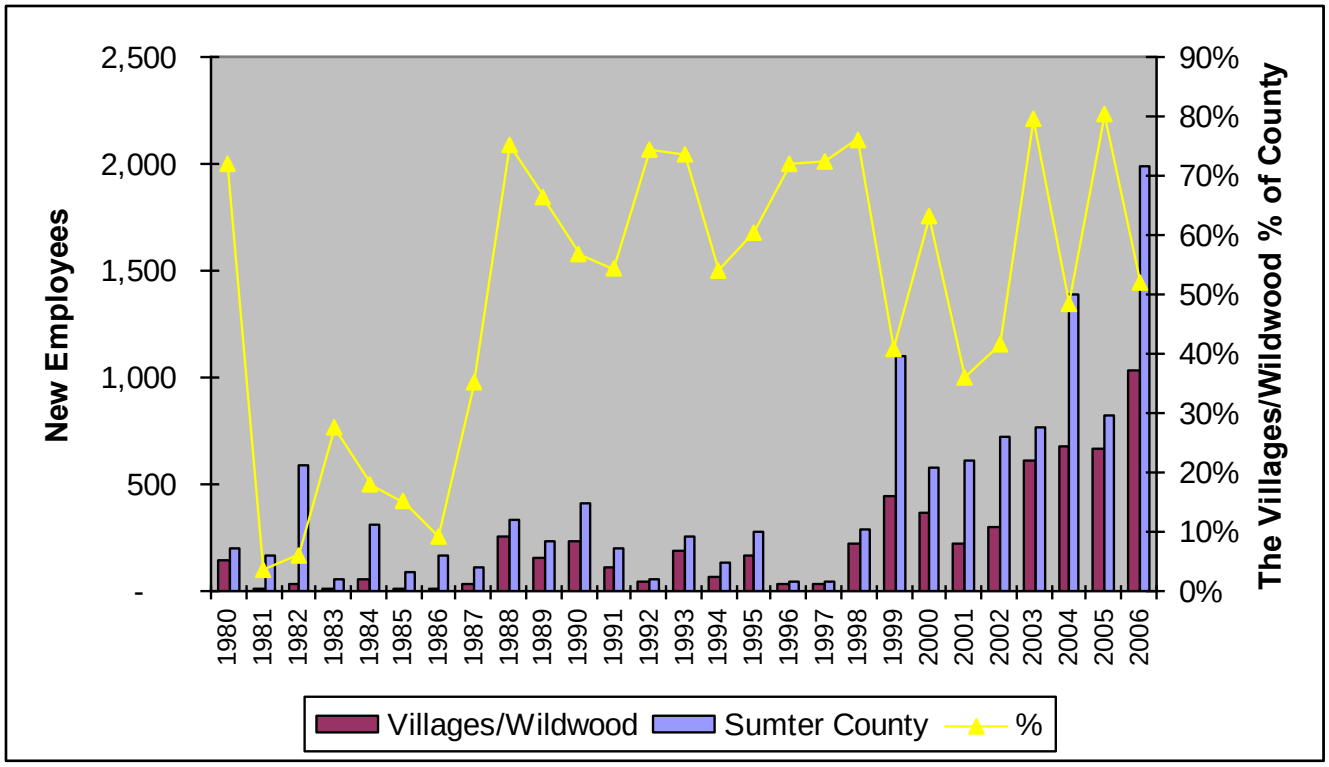
- Future employment growth required to service The Villages
- The relocation of existing employees who work in the region but currently live elsewhere
- The build out of The Villages
- The City's commitment to providing the necessary infrastructure to accommodate future growth
- The existing and planned Interstate 75 and Florida Turnpike interchanges in Wildwood
- The recent expansion of the City's municipal boundaries.

Future Employment Growth

Based on the current growth patterns occurring within Sumter County, future employment growth in the County is expected to occur predominantly in and around The Villages. This includes to a large degree the City of Wildwood which is located immediately adjacent to The Villages southwest border. As such, the City of Wildwood is expected to capture a significant portion of the household demand generated by employment growth in The Villages; and employment growth in The Villages is expected to make up greater than half of all employment growth in the County.

Since 1990, The Villages and the City of Wildwood have accounted for an average of 56% of all retail, office, and industrial generated employment growth in the County, while occupying less than 15% of the total land area in the County. Fishkind estimated the annual employment growth by applying an industry specific square feet per employee ratio to the annual growth of retail, office, and industrial square footage as indicated in the Sumter County Property Appraiser records. Figure 4.1 shows the historical percentage of employment growth which occurred within The Villages and the City of Wildwood collectively.

Figure 4.1.
Employment Growth in The Villages/Wildwood vs. Sumter County.

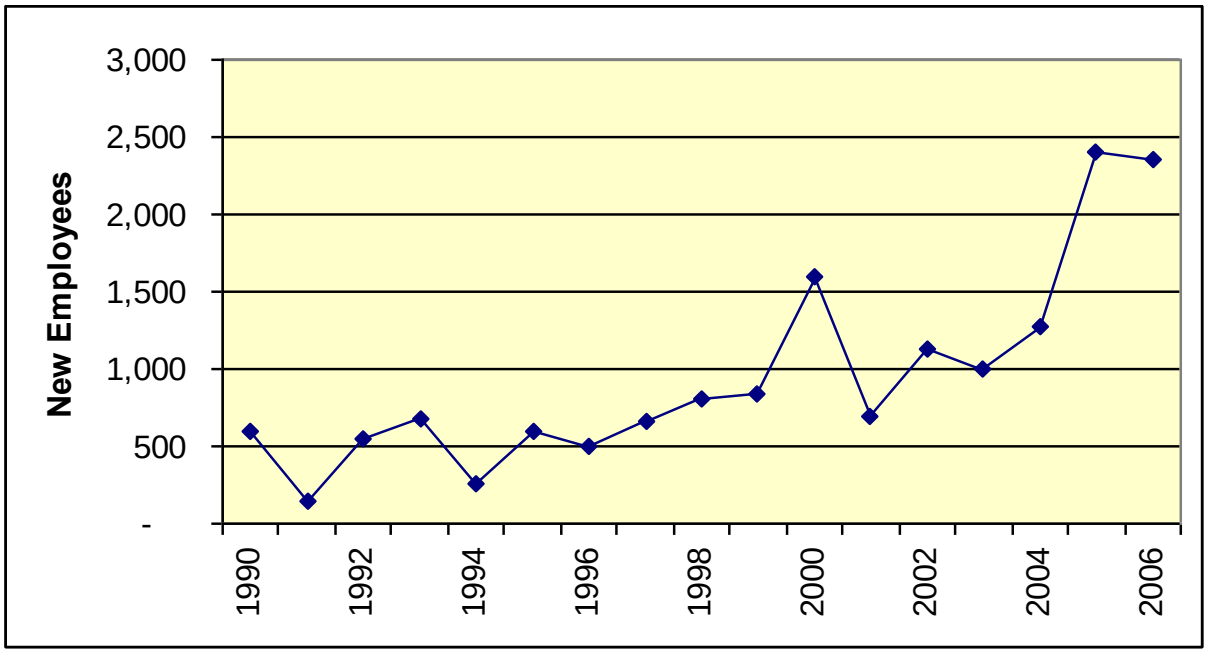


Source: Fishkind and Associates, Inc.

As the population at The Villages continues to increase at a significant rate, the employment opportunities required in the local region to service that population will also increase significantly. An analysis of the historical growth patterns within a 10-mile radius around the City of Wildwood supports this conclusion. Again, Fishkind estimated the annual employment growth by applying an industry specific square feet per employee ratio to the annual growth of retail, office, and industrial square footage as indicated in the Sumter, Lake, and Marion County Property Appraiser records. The 10-mile trade area includes the City of Wildwood, The Villages, and most of the employment centers servicing The Villages.

As shown in Figure 4.2, the annual volume of new employees generated in the 10-mile trade area increased at an average rate of 26% between 1996 and 2004. In 2005 and 2006, the volume of new employees in the trade area increased dramatically from an average of 1,000 new employees per year (between 1996 and 2004) to an average of 2,400 new employees each year. These findings indicate that the City of Wildwood and the areas surrounding The Villages are experiencing and should continue to experience significant annual employment growth that far exceeds historical averages. In turn, these employment opportunities are expected to generate demand for housing in the City of Wildwood that far surpasses the historical norms, thus, warranting a substantially increased capture rate for the City.

Figure 4.2.
Annual Employment Growth in 10-Mile Trade Area Surrounding the City of Wildwood.



Source: Fishkind and Associates, Inc.

Relocation of Existing Employees

In addition to the significant volume of new employees that are generated annually in the City of Wildwood and the market surrounding The Villages, there is also a significant volume of current employees in the region who, due to a lack of appropriate housing options in the immediate market, are forced to commute long distances between their place of employment and their homes. Recent surveys conducted by Fishkind and LPG Urban Planners support this observation and suggest that the vast majority of these commuting employees would relocate to a home closer to their place of work if the appropriate housing opportunity was available.

The Villages currently has an estimated 3 million square feet of commercial space. This equates to roughly 10,000 employees and over 5,000 households. In Fishkind's survey, which was administered to over 1,000 Villages employees, close to 50% of the respondents indicated that they live farther than 10 miles from The Villages. If this figure is applied to the total volume of existing employees, then an estimated 5,000 employees are estimated to live farther than 10 miles from The Villages.

When asked to rate the importance of living within 5-miles of their place of employment, over 70% of the Fishkind survey respondents indicated that it was of either moderate or great importance for them to live within 5-miles of The Villages. It is not surprising that a large portion of the respondents indicated they would prefer to live within 5-miles of their place of employment; however, this finding does support the conclusion that as appropriate housing options are made available, a significant portion of the current City of Wildwood and Villages workforce who currently commute long distance will choose to relocate to areas in and around the City of Wildwood. The relocating of existing employees represents additional housing demand that is not reflected in the historical growth projections for the City.

The LPG Urban Planners Survey was administered to 25 private businesses in and around the City of Wildwood. Seventeen of the businesses provided responses as to the number of employees that currently reside outside of Sumter County. Of the 17 businesses who provided a response, 11 indicated that greater than 50% of their employees live outside of Sumter County. Table 4.2 shows the results of the LPG Urban Planners survey.

Table 4.2.
Percentage of Employees Living Outside of Sumter County

Company	Current # of Employees	% of Employees living outside Sumter County
Foam Express	5	0%
Mini Craft	10	10%
Utility Systems Construction	51	33%
Colonial Bank	8	37%
Outo Kumpo	141	40%
Irby	22	40%
Bedrock Resources	13	50%
Mike Scott Plumbing	20	50%
Cindy Broker Chevrolet	42	65%
Farner Barley	70	70%
Pike's Electrical	55	75%
American Cement Company	26	80%
Mohawk Rugs and Carpets	25	80%
Russell Stover (Warehouse)	10	80%
Freimuth Insulation, Inc	15	87%
Electrical Wholesalers, Inc	5	100%
Aluminum Manufacturing	5	100%
SECO	250	N/A
Graham Family of Companies	180	N/A
Progress Energy	115	N/A
Coleman Federal Prison	1,264	N/A
Wachovia	13	N/A
Arbor Village	280	N/A
Total/Average	2,625	59%

Source: LPG Urban Planners.

The Villages Buildout

The drastic decline in Wildwood's county share from 1990 to 2007 is not a result of decreased demand within the City of Wildwood, but rather, it is a result of the significant growth that has occurred within The Villages. The Villages is located largely within the unincorporated portions of Sumter County. As such, the unincorporated portions of the County have grown at an uncharacteristically high rate over the last decade. In other words, while growth has remained consistent within the City of Wildwood, growth within The Villages has increased exponentially over the same time period. Consequently, as The Villages reaches build out causing growth to decline in the unincorporated County, the percentage of growth occurring in the remainder of the County, most notably within the City of Wildwood, should increase dramatically.

Commitment to Infrastructure and Services

The City of Wildwood is committed to providing the necessary infrastructure and services to accommodate an increased level of future growth. A great deal of these services and infrastructure have already been put in place. *In this respect, the City of Wildwood represents the only location in Sumter County with the appropriate infrastructure and services to capture the housing demand generated by The Villages.*

Interstate 75 and Turnpike Interchanges

The City of Wildwood's location near Interstate 75 and the Florida Turnpike places it at the crossroads of growth. The City currently enjoys two major interchanges, one at I-75 and SR 44 and the other at the Florida Turnpike and CR 470, with a third major interchange planned at the intersection of the Turnpike and CR 468. The CR 470 interchange was recently opened at a cost of $20 million. A fourth planned interchange is also being planned at I-75 and CR 466a. As such, the City of Wildwood represents the front door to Sumter County making it ideally located, with the necessary access to accommodate a significant portion of the new growth pushing up I-75 and the Florida Turnpike.

Expansion of Municipal Boundaries

In 2000, the City of Wildwood accounted for slightly less than 1% or 3,300 acres of land within the County, while at the same time accounting for 8% of dwelling units in the County. Since 2000, the City has annexed roughly 21,500 additional acres of land. Currently, the total land area within the City of Wildwood is approximately 25,000 acres. This represents an increase of seven times the land area that was within the City in 2000. While an increase in land area of 700% does not necessarily translate into a 700% increase in countywide housing unit share, it is useful to note that a 700% increase in the 2000 share of housing units would equate to the City of Wildwood accounting for well over 50% of the total countywide housing units. Fishkind believes a percentage share of 50% is unattainable in the foreseeable forecast horizon; however, this exercise does suggest that a 25% share is both reasonable and conservative given the substantial increase in the City's land area.

4.2 City of Wildwood Population Projection

Based on the observations and analysis provided above, Fishkind has concluded that by 2025, the City of Wildwood will account for 25% of the total population in Sumter County. By applying the 25% Wildwood share to the countywide projections shown in Table 3.2, Fishkind projects that the City of Wildwood will grow to 41,595 people by 2025 and to just over 60,000 people by 2035. Fishkind's population forecast for the City of Wildwood is shown below in Table 4.3.

Table 4.3. City of Wildwood Population Projections.

	2010	2015	2020	2025	2030	2035
Sumter County Population	87,092	109,537	135,736	166,381	201,398	240,746
Wildwood %	10%	15%	20%	25%	25%	25%
Wildwood Population	8,709	16,431	27,147	41,595	50,350	60,186

Source: Fishkind and Associates, Inc.

4.3 City of Wildwood Household Projections

According to the 2000 Census, the City of Wildwood had a persons per household number of 2.42 in 2000. Fishkind believes that trends in the market point to an increasing persons per household number over time as a result of a decreasing percentage of 55+ residents in the City as well as a result of a more macro phenomenon arising from new household and family formations as the children of the baby boom generation age and create new families.

According to the U.S. Department of Education, the year 1971 represents the peak year of public school enrollment for the baby boom generation. In 1971 the majority of baby boomers were still living at home. In the years immediately following 1971, the baby boomers graduated from school, moved out of their parent's households, and created households of their own. As a result the number of persons per household decreased considerably. By 1984, the baby boom generation had created families of their own and the school enrollment records show a sizeable increase in students each year following 1984. Thus, in the years following 1984 the number of persons per household stopped decreasing as a result of the increasing number of baby boomers with families and international migration.

The echo boom generation (children of the baby boomers) are currently reaching their peak of school enrollment and forecasts place the peak year sometime between 2001 and 2005. Based on the cyclical nature of this process, the majority of the echo boom generation have graduated, and moved out of their parent's households. Thus, immediately following the echo boom peak, the number of persons per household should decrease slightly. However, within 5 years the echo boom generation will begin having children of their own, and once again, the number of persons per household should begin to rise. Based on the above forces impacting the demographic profile of the region as well as the nation, Fishkind has concluded that the number of persons per household will increase from 2.42 to 2.50 by 2010.

Applying the persons per household figure to the population projections reported in Table 4.3 results in the demand for households. Fishkind's forecast projects demand for 16,638 households in 2025. Table 4.4 shows the estimated demand for households through 2025.

Table 4.4. Household Demand Projections.

	2010	2015	2020	2025	2030	2035
Wildwood Population	8,709	16,431	27,147	41,595	50,350	60,186
Wildwood PPH	2.5	2.5	2.5	2.5	2.5	2.5
Wildwood Households	3,484	6,572	10,859	16,638	20,140	24,074

Source: Fishkind and Associates, Inc.

4.4 City of Wildwood Housing Unit Demand Projections

The household demand in Wildwood must be modified to account for seasonal use and normal occupancy/vacancy rates. Applying a occupancy rate to the household demand projections results in the total number of housing units required to accommodate the projected increase in population. The historical seasonal/vacancy rate dating back to 1980 in Wildwood has been 22%, which is reflective of the seasonal, non permanent nature of the retiree market which makes up a large percentage of the Wildwood household base.

Fishkind projects that seasonal rates will decrease in the City as the proportion of primary households increases. For this reason, Fishkind projects that the seasonal/vacancy rate will decrease to 10% by 2035. Applying the seasonal/vacancy rate to the household demand projections reported in Table 4.4 results in a demand for 26,750 housing units in 2025, which will accommodate both the permanent and seasonal population growth and allow for typical vacancy rates. The total demand for housing units in the City of Wildwood through 2025 is shown in Table 4.5.

Table 4.5. Housing Unit Projections.

	2010	2015	2020	2025	2030	2035
Wildwood Population	8,709	16,431	27,147	41,595	50,350	60,186
Wildwood PPH	2.5	2.5	2.5	2.5	2.5	2.5
Wildwood Households	3,484	6,572	10,859	16,638	20,140	24,074
Seasonal/Vacancy %	21%	19%	17%	15%	12%	10%
Wildwood Housing Units	4,410	8,114	13,083	19,574	22,886	26,750

Source: Fishkind and Associates, Inc.

5.0 Residential Holding Capacity of Approved City of Wildwood FLUM

5.1 Existing Units in City of Wildwood FLUM

The total holding capacity of the Wildwood Future Land Use Map (FLUM) is a function of the existing volume of housing units within the City combined with the holding capacity of the vacant residential acreage within the Wildwood FLUM. Based on the revised and currently proposed City of Wildwood Comprehensive Plan produced by LPG Urban Planners, there are currently 2,208 housing units within the City of Wildwood. To determine the total holding capacity of the Wildwood FLUM as it currently exists, the holding capacity of the vacant acreage within the FLUM needs to be calculated and added to the 2,208 currently existing units.

5.2 Holding Capacity of Vacant Acreage in Currently Approved FLUM

The currently adopted Future Land Use Map (FLUM) includes all land use amendments adopted through the end of 2005. The acreage annexed since 2003 is also included, however the land use amendments and future municipal development capacity which was requested in 2006 and 2007 is excluded. Therefore, the FLUM relies on the existing underlying County land use designations for the recently annexed acres. Table 5.1 shows the breakdown of FLUM residential acres (both vacant and improved) and future land use categories for The City of Wildwood as indicated in the currently adopted Wildwood Comprehensive Plan. As noted, many of the annexed parcels still possess Sumter County FLUM designations. Municipal lands with Sumter County FLUM designations have been designated with a “C” in the following tables.

Table 5.1.
City of Wildwood FLUM Acreage

Improved	Total Acres	Improved Acres	Vacant Acres
AG	191	-	191
COM	507	260	247
GMU	1,169	54	1,115
GU	83	83	0
GU/I	39	39	-
I	1,384	520	864
INS	237	236	1
LDR	337	52	285
LMDR	2	2	-
MDR	283	216	67
MHDR	-	-	-
HDR	52	49	3
MHP	182	141	41
REC	108	108	-
RIO	42	30	12
RMU	166	140	26
ROW	6	6	-
CON	-	-	-
ER	-	-	-
AGR - C	18,801	778	18,023
COM - C	170	20	150
IND - C	28	17	11
LDR - C	466	48	418
LKE - C	9	9	0
MDR - C	82	9	74
MUN - C	223	170	54
PUD - C	94	8	86
REC - C	0	0	0
RUR - C	458	193	264
Total	25,119	3,186	21,933

Source: City of Wildwood FLUM.

The Wildwood FLUM assigns a maximum density to each of the FLUM categories. By applying these maximum densities to the total vacant residential acreage, Fishkind was able to calculate the maximum number of units that can be accommodated by the vacant residential acreage found within the Wildwood FLUM. According to the maximum densities assigned to each FLUM category, the Wildwood FLUM, as adopted, contains enough vacant residential acreage to accommodate a maximum of 18,024 housing units. Table 5.2 shows the maximum densities allowed under each land use category and applies these figures to the respective total residential acreage.

Table 5.2. Wildwood FLUM Maximum Vacant Residential Holding Capacity

Vacant	2005 Total Acres	Maximum Density	Maximum Capacity
AG	191	0.20	38
COM	247	-	-
GMU	1,115	10.50	11,712
GU	0	-	-
I	864	-	-
INS	1	-	-
LDR	285	4.50	1,284
LMDR	-	6.00	-
MDR	67	9.00	604
MHDR		12	-
HDR	3	15.00	42
MHP	41	10.00	408
REC	-	1.00	-
RIO	12	7.50	94
RMU	26	5.00	129
AGR - C	18,023	0.10	1,802
COM - C	150	-	-
IND - C	11	-	-
LDR - C	418	2.00	837
LKE - C	0	-	-
MDR - C	74	4.00	294
MUN - C	54	-	-
PUD - C	86	6.00	516
REC - C	0	-	-
RUR - C	264	1.00	264
Total	21,933		18,024

Source: City of Wildwood FLUM. Fishkind and Associates, Inc.

As shown in Table 5.2, the Wildwood FLUM could accommodate a maximum of 18,024 housing units based on the maximum densities assigned to each land use category. Maximum densities, however, are never achieved in practice for a number of reasons including, but not limited to:

- Environmental protection
- Right of way and drainage requirements
- Physical and geographical limitations
- Property ownership patterns
- Inconsistent surrounding uses
- Concurrency constraints

Due to these factors, only a percentage of the maximum densities are ever actually achieved. In other words, although the FLUM indicates that 18,024 units can be accommodated in the City, in reality, only a percentage of those units will ever be built.

Among existing development, Fishkind conducted an analysis on the historical densities that have actually been achieved within each major residential land use type in Wildwood as of 2005. As shown in Table 5.3 below, the Fishkind analysis estimates average gross densities well below the maximum densities allowed in the comprehensive plan. This indicates that the actual densities achieved in residential approvals are in fact sharply lower than the Comprehensive Plan anticipates.

Table 5.3.
Wildwood Historical Densities by Land Use Category

Land Use Category	Maximum Allowable Density	Historical Density	% of Maximum
HDR	15.00	7.51	50%
LDR	4.50	0.42	9%
MDR	9.00	2.83	31%
MHP	10.00	4.43	44%
RIO	7.50	2.79	37%
RMU	5.00	2.89	58%

Source: Fishkind and Associates, Inc.

Fishkind believes that infrastructure improvements and densification policies may allow the City of Wildwood to buildout at densities above those shown in Table 5.3, but at densities well below the maximum densities outlined in the comprehensive plan. Fishkind has estimated that each of the FLUM categories (except for General Mixed Use) will reach buildout at an average of 70% of the maximum densities allowed. The highest historical percentage of maximum density in any one FLUM category was 58% for the RMU category; thus, projecting that ultimate buildout will occur at 70% of the maximum density represents a very dramatic increase in the densities of future growth.

The General Mixed Use (GMU) FLUM category allows for a maximum of 70% of the land area to be developed as residential. Furthermore, the category has assigned a maximum density of 15 units per acre for multi-family product and 6 units per acre for single family product. Therefore, in theory, the maximum achievable density within the GMU category is 10.5 units per gross acre. In reality, the GMU category is likely to build out at a much lower density due to increased non-residential land utilization and the likelihood of a higher proportion of single family product. Fishkind has projected that the GMU category will actually build out at a density of 6 units per acre. This is consistent with the historical mixed-use density build out shown in Table 5.3. As shown in Table 5.4, utilizing the densities that are actually expected to occur results in a total vacant capacity for 11,111 housing units within the Wildwood FLUM.

Table 5.4.
Wildwood FLUM Estimated Vacant Holding Capacity
Based on Actual Densities

Vacant	2005 Total Acres	Actual Density	Actual Capacity
AG	191	0.14	27
COM	247	-	-
GMU	1,115	6.00	6,693
GU	0	-	-
I	864	-	-
INS	1	-	-
LDR	285	3.15	899
LMDR	-	4.20	-
MDR	67	6.30	423
MHDR		8.40	-
HDR	3	10.50	29
MHP	41	7.00	286
REC	-	0.70	-
RIO	12	5.25	66
RMU	26	3.50	90
AGR - C	18,023	0.07	1,262
COM - C	150	-	-
IND - C	11	-	-
LDR - C	418	1.40	586
LKE - C	0	-	-
MDR - C	74	2.80	206
MUN - C	54	-	-
PUD - C	86	4.20	361
REC - C	0	-	-
RUR - C	264	0.70	185
Total	21,933		11,111

Source: Fishkind and Associates, Inc. LPG Urban and Regional Planners.
(1) 6 units per acre for the GMU category. 70% of maximum for all other categories.

5.3 Total Holding Capacity of Currently Approved FLUM

As described above, the total holding capacity of the existing and approved Wildwood FLUM is a function of the existing units within the City of Wildwood combined with the housing unit capacity of the vacant acreage within the Wildwood FLUM. The City of Wildwood currently has 2,208 housing units and the remaining vacant acreage within the FLUM has the capacity to accommodate 11,111 housing units. Thus, the total holding capacity of the Wildwood FLUM as it is currently approved is 19,441. Table 5.5 provides a summary of the total holding capacity of the adopted and approved Wildwood FLUM.

Table 5.5. Total Holding Capacity of Currently Approved Wildwood FLUM.

	Holding Capacity (d.u.)
Existing Units	2,208
Vacant FLUM Acreage Capacity	11,111
Total	13,319

Source: Fishkind and Associates, Inc.

6.0 Estimating Need for Housing Capacity based on Recommended Allocation Ratios

In the previous sections, supply and demand for residential housing in Wildwood was calculated for the year 2035 using Fishkind's revised population forecast for the City of Wildwood and the most recent FLUM. The next step is to compare the supply and demand in order to determine the land allocation conditions for the City of Wildwood. Land allocation conditions are measured by the allocation ratio. This ratio is the total allocated housing unit capacity in the FLUM divided by the total housing unit demand. The allocation ratio measures the amount of additional acreage required in relation to the directly utilized acreage to assure proper market functioning in the sale, useage and development of land. The additional acreage is required in order to maintain market level pricing and to account for the likelihood that certain lands will not be placed on the market for sale during the forecast horizon, or may be subject to future environmental or other constraints. Thus, the lands allocated in the FLUM should be considerably greater than those that will actually be used or developed.

The projections provided above in Table 4.5 show a total demand for 26,750 units by 2035. The designated supply of residential land contained in the Wildwood FLUM shows a holding capacity of 13,319 units. Thus, as shown in Table 6.1, the FLUM currently has an allocation ratio of 0.50. As such, the FLUM does not contain sufficient land to accommodate the direct demand for housing units, nor does it contain enough additional supply to maintain flexibility in the market. Based on this analysis, the holding capacity of the Wildwood FLUM is insufficient to accommodate future demand and maintain proper market flexibility.

Table 6.1. 2035 Allocation Ratio.

	2025
Housing Unit Demand	26,750
Holding Capacity (DU)	13,319
Allocation Ratio	0.50

Source: Fishkind and Associates, Inc.

The allocation ratio is an important planning criterion regarding how developable lands should be provided in the comprehensive plan and what the appropriate number of acres should be over time to effectively meet demand. Due to the varying levels of flexibility required to serve existing versus future growth, it is important to apply two different allocation ratios to each of the two increments of growth. Existing households require less flexibility than do future households, thus it is important to utilize a lower allocation ratio when evaluating the future land use needs of existing development.

Utilizing two different allocation ratios specific to each of the two increments of growth results in excess allocation of land and acres such that sufficient lands will ultimately be available to meet demand from both current and future households. These excess allocations take into account the fact that certain lands may not be for sale or be developed by existing land owners. Further, over time development restrictions may change due to increased environmental protection which may limit development, effectively removing the development availability of some lands.

Regardless of FLUM designation, the developable capacity of the land may be considerably lower due to existing wetlands or other critical habitat concerns. This is often more common in historically rural locations like Wildwood. Therefore, the supply of designated developable lands should be sufficiently in excess of demand such that the marketplace is not constrained causing an effective restriction of supply. Such an artificial restriction of supply will drive land prices much higher, contributing to ever increasing real estate and housing prices and compromising the provision of affordable and workforce housing. It is important there is some allocation so residents can have some market choice and flexibility in choosing housing alternatives. A low allocation ratio limits the choices available to consumers, stifles economic growth and drives prices higher.

For these reasons, the allocation ratio of developable lands to demand should be in excess of 2.0 for vacant lands and between 1.0 and 2.0 for existing development. Proper planning practices suggest that an allocation ratio of roughly 1.5 for existing development and 2.5 for future growth is generally appropriate for most planning districts provided infrastructure, capital planning and concurrency needs are adequately addressed. The appropriate allocation ratio for any one planning district varies and is dependant on a number of factors including, but not limited to: the length of the planning horizon, the historical growth patterns, and the expected levels of growth.

The uncertainty involved with projecting long-term population forecasts in areas undergoing a structural change or areas with limited historical growth requires that the FLUM contain a higher than normal allocation ratio. In general, the accuracy of long-term population forecasts degrade as the time horizon is extended. This is especially the case in areas experiencing a major structural change, because in these areas, historical growth patterns are inadequate predictors of the expected future growth. In areas undergoing a structural change, there exists the significant possibility that growth will exceed the established forecasts. As such, the FLUM needs to have the flexibility to accommodate growth in excess of what the forecasts project. Thus, not only does the FLUM need to provide market flexibility for the projected population, but, in the case of historically small rural areas undergoing a structural change, the FLUM also needs to offer appropriate flexibility to accommodate the potential for growth in excess of the forecasts.

The economic structure of Sumter County is largely characterized by The Villages. As mentioned above, The Villages has constructed roughly 3 million square feet of commercial space with another 3 million anticipated over the next 5 to 10 years. This amount of commercial space will likely support in excess of 20,000 employees or between 10,000 and 15,000 households. Historically, there has been a very limited supply of workforce housing to accommodate this job growth. The area has experienced tremendous population growth, but this growth has come in the form of retirees moving into The Villages and other surrounding age-restricted communities. The substantial growth in retirees has spurred demand for a significant volume of commercial space without a corresponding increase in non-age-restricted, work force housing. As a result, direct employee survey data indicates the majority of Villages employees are forced to commute long distances.

One implication of this market trend is that population growth in the areas immediately surrounding The Villages (most notably the City of Wildwood) has been constrained in recent years, not by a lack of demand, but by a lack of supply. The tremendous commercial growth of The Villages indicates that demand has been and will continue to be very strong in the region, but in the absence of increased supply, the population growth in the area will continue to be restricted and employees will be forced to continue to commute long distances.

It is important to understand this characteristic of Sumter County when attempting to project land use needs in the City of Wildwood. There will continue to be strong employment growth in the County which drives the need for more housing options in the City. In addition, according to direct employee survey data, there exists the likelihood that many current employees of The Villages who are commuting long distances will choose to relocate to the City of Wildwood if appropriately priced housing options are made available. These household transfers represent additional demand that is not included in the existing projections. In this regard, the potential for population growth in the City of Wildwood in excess of the existing projections increases due to its close proximity to the employment opportunities at The Villages. To accommodate the potential for this excess growth, and the structural change identified earlier, the Wildwood FLUM needs to contain significant flexibility and an appropriate allocation of lands.

Fishkind participated in a recent administrative hearing which supports the application of an allocation ratio to ensure flexibility in the comprehensive plan and suggests that an allocation ratio of 2.5 for vacant lands is appropriate. In the case, a range of allocation ratios above 2.0 were supported and the argument that smaller communities on the cusp of a structural change require higher than normal allocation ratios was found appropriate by the Administrative Law Judge.

In the matter Panhandle Citizens Coalition Inc. (PCC) vs. Department of Community Affairs, a petition was filed by PCC to challenge DCA's finding that the West Bay Detailed Specific Area Plan (WB DSAP) was in compliance as an amendment to the County Comprehensive Plan. The findings of fact in this case include item #92 which reads:

> "In addition to projecting population growth and assessing capacity to accommodate growth an allocation needs ratio (or multiplier) is necessary to ensure housing affordability and variety in the market; otherwise, the supply and demand relationship is too tight, which may cause a rapid escalation of housing prices. Because the farther in time a local government projects growth, the less accurate those projections tend to be, actual need is multiplied by an allocation needs ratio to produce an additional increment of residential land to accommodate this potential error."

Finding #93 states:

> "Small Counties that experience above-normal growth rates may use allocation ratios as high as three more in order to realistically allocate sufficient buildable land for future growth. The County's allocation ratio of 2.2 before the WB DSAP and FLUM amendments was low from a long term forecasting perspective. When the WB DSAP amendments are factored into the allocation ratio, such growth would raise the allocation ratio to 2.3, which is still relatively low."

Further, in finding #94 it is stated:

> "A land use plan should allow for sufficient inventory to accommodate demand and to provide some choice in order to react to economic factors."

The Administrative Law Judge found the proposed land use amendments in compliance with section 163.3184 (1) (b) in part because the demonstration of need with respect to the allocation ratio indicated the allocation ratio of 2.3 was too low to properly accommodate projected future growth over the planning horizon. Consistent with this finding, it can be concluded that the allocation ratio of 0.50 for the City of Wildwood by year 2035 is far too low. By 2035 flexibility in the plan is gone and this will hinder economic growth. At these levels there is insufficient land to accommodate future growth. Fishkind believes an allocation ratio of 1.5 for existing development and 2.5 for future growth in the City of Wildwood is appropriate given the planning time horizon and the expected levels of growth. Applying these allocation ratios to the two increments of population (existing and future) found in the 2035 forecast results in a weighted recommended allocation ratio of 2.42 through 2035.

To illustrate, if the existing development requires an allocation ratio of 1.5, then the required capacity to accommodate existing development is 3,312 (2,208 x 1.5 = 3,312). Additionally, if future growth through 2035 requires an allocation ratio of 2.5, then the required capacity to accommodate future growth is 61,354 ((26,750 – 2,208) x 2.5 = 61,354). The total capacity, then, to accommodate the projected population in 2035 (both existing and future housing units) is 64,666 (3,312 + 61,354 = 64,666). The resulting weighted allocation ratio can next be calculated by dividing the required holding capacity of the FLUM (64,666) by the housing unit demand in 2035 (26,750) which equals 2.42. Thus, as shown in Table 6.2, Fishkind believes an appropriate allocation ratio for the City of Wildwood is 2.42 if evaluating growth through a 2035 time horizon.

Table 6.2. Recommended Allocation Ratio.

2035 Forecast	# of Units	Allocation Ratio	Capacity Required
Existing Housing Units	2,208	1.50	3,312
Future Housing Units	24,542	2.50	61,354
Total	26,750	2.42	64,666

Source: Fishkind and Associates, Inc.

7.0 Estimated Capacity of 2006 Comp Plan Amendments

Fishkind analyzed the 2006 comp plan amendments to determine the volume of additional capacity that would be added to the Wildwood FLUM if all of the amendments are approved. In total, the amendments account for 1,176 acres. If it is assumed that future residential development on this acreage will occur at densities that are 70% of the maximum (and 6 units per acre for the GMU category), then, if approved, the amendments would add capacity for an additional 3,128 housing units to the Wildwood FLUM. Table 7.1 shows the capacity analysis for the 2006 comp plan amendments.

Table 7.1.
Capacity of 2006 Comp Plan Amendments.

	2006 Net Acreage Added	Actual Density[1] (d.u./acres)	2006 Net Capacity Added (d.u.)
AG	-	0.14	-
COM	104	-	-
GMU	143	6.00	861
GU	-	-	-
GU/I	-	-	-
I	181	-	-
INS	-	-	-
LDR	337	3.15	1,060
LMDR	105	4.20	441
MDR	38	6.30	239
MHDR	50	8.40	421
HDR	-	10.50	-
MHP	(3)	7.00	(20)
REC	-	0.70	-
RIO	-	5.25	-
RMU	135	3.50	473
ROW	-	-	-
CON	83	-	-
ER	-	-	-
AGR - C	(709)	0.07	(50)
COM - C	(123)	-	-
IND - C	(28)	-	-
LDR - C	(96)	1.40	(134)
LKE - C	-	-	-
MDR - C	(5)	2.80	(15)
PUD - C	-	4.20	-
REC - C	-	-	-
RUR - C	(212)	0.70	(148)
Total	-		3,128

Source: Fishkind and Associates, Inc. LPG Urban and Regional Planners.
(1) 6 units per acre for the GMU category. 70% of maximum for all other categories.

Table 7.2 provides the City of Wildwood FLUM as it would appear if all of the 2006 amendments are approved. As shown, the capacity of the vacant acreage within the Wildwood FLUM would be 14,239 units after the approval of all of the proposed 2006 amendments.

Table 7.2. City of Wildwood FLUM Vacant Acreage Capacity. (with 2006 proposed amendments)

Vacant	Vacant Acreage with 2006 Amendments	Capacity with 2006 Amendments
AG	191	27
COM	351	-
GMU	1,259	7,554
GU	0	-
GU/I	-	-
I	1,044	-
INS	1	-
LDR	622	1,959
LMDR	105	441
MDR	105	662
MHDR	50	421
HDR	3	29
MHP	38	265
REC	-	-
RIO	12	66
RMU	161	563
ROW	-	-
CON	83	-
ER	-	-
AGR - C	17,314	1,212
COM - C	27	-
IND - C	(17)	-
LDR - C	322	451
LKE - C	0	-
MDR - C	68	191
MUN - C	54	-
PUD - C	86	361
REC - C	0	-
RUR - C	52	37
Vacant Total	21,933	14,239

Source: Fishkind and Associates, Inc. LPG Urban and Regional Planners.
(1) 6 units per acre for the GMU category. 70% of maximum for all other categories.

Table 7.3 summarizes the calculation of the allocation ratio resulting from the approval of the 2006 amendments. As shown, the total capacity of the FLUM would be 16,477 units, which includes 2,208 existing units and capacity for 14,239 units within the vacant FLUM acreage. With demand for 26,750 units by 2035, the allocation ratio of the Wildwood FLUM would increase from 0.50 to 0.61 with the approval of the 2006 amendments. As shown in Table 6.2, the recommended allocation ratio for the City of Wildwood through a 2035 time horizon is 2.42; therefore, even with the approval of the 2006 amendments, the Wildwood FLUM would continue to remain under-allocated.

Table 7.3. City of Wildwood FLUM Allocation Ratio. (with 2006 proposed amendments)

FLUM Capacity w/ 2006 Amendments	16,447
Existing	2,208
Vacant	14,239
Current Vacant Capacity	11,111
Net Vacant Capacity Added from 2006 Amendments	3,128
2035 Housing Unit Demand	26,750
Allocation Ratio with Approval of 2006 Amendments	0.61

Source: Fishkind and Associates, Inc.

8.0 Estimated Capacity of 2007 Comp Plan Amendments

Fishkind analyzed the 2007 comp plan amendments to determine the volume of additional capacity that would be added to the Wildwood FLUM if all of the amendments are approved. In total, the amendments account for 1,624 acres. If it is assumed that future residential development on this acreage will occur at densities that are 70% of the maximum (and 6 units per acre for the GMU category), then, if approved, the amendments would add capacity for an additional 4,962 housing units to the Wildwood FLUM. Table 8.1 shows the capacity analysis for the 2007 comp plan amendments.

Table 8.1.
Capacity of 2007 Comp Plan Amendments.

	2007 Net Acreage Added	Actual Density (70% of Max.)	2007 Capacity Added
AG	-	0.14	-
COM	178	-	-
GMU	70	6.00	420
GU	-	-	-
GU/I	-	-	-
I	-	-	-
INS	10	-	-
LDR	414	3.15	1,303
LMDR	930	4.20	3,904
MDR	-	6.30	-
MHDR	22	8.40	185
HDR	-	10.50	-
MHP	-	7.00	-
REC	-	0.70	-
RIO	-	5.25	-
RMU	(96)	3.50	(337)
ROW	-	-	-
CON	-	-	-
ER	-	-	-
AGR - C	(1,146)	0.07	(80)
COM - C	(5)	-	-
IND - C	-	-	-
LDR - C	(214)	1.40	(300)
LKE - C	-	-	-
MDR - C	(10)	2.80	(27)
MUN - C	-	-	
PUD - C	-	4.20	-
REC - C	-	-	-
RUR - C	(153)	0.70	(107)
Total	(0)		4,962

Source: Fishkind and Associates, Inc. LPG Urban and Regional Planners.
(1) 6 units per acre for the GMU category. 70% of maximum for all other categories.

Table 8.2 provides the City of Wildwood FLUM as it would appear if all of the 2006 and 2007 amendments are approved. As shown, the capacity of the vacant acreage within the Wildwood FLUM would be 19,201 units after the approval of all of the proposed 2006 and 2007 amendments.

Table 8.2. City of Wildwood FLUM Vacant Acreage Capacity. (with 2006 and 2007 proposed amendments)

Vacant	Vacant Acreage with 2007 Amendments	Capacity with 2007 Amendments
AG	191	27
COM	529	-
GMU	1,329	7,974
GU	0	-
GU/I	-	-
I	1,044	-
INS	10	-
LDR	1,036	3,262
LMDR	1,035	4,346
MDR	105	662
MHDR	72	606
HDR	3	29
MHP	38	265
REC	-	-
RIO	12	66
RMU	65	226
ROW	-	-
CON	83	-
ER	-	-
AGR - C	16,051	1,062
COM - C	22	-
IND - C	-	-
LDR - C	108	152
LKE - C	0	-
MDR - C	58	163
MUN - C	54	-
PUD - C	86	361
REC - C	0	-
RUR - C	-	-
Vacant Total	21,933	19,201

Source: Fishkind and Associates, Inc. LPG Urban and Regional Planners.
(1) 6 units per acre for the GMU category. 70% of maximum for all other categories.

Table 8.3 summarizes the calculation of the allocation ratio resulting from the approval of the 2006 and 2007 amendments. As shown, the total capacity of the FLUM would be 21,408 units, which includes 2,208 existing units and capacity for 19,200 units within the vacant FLUM acreage. With demand for 26,750 units by 2035, the allocation ratio of the Wildwood FLUM would increase from 0.50 to 0.80 with the approval of the 2006 and 2007 amendments. As shown in Table 6.2, the recommended allocation ratio for the City of Wildwood through a 2035 time horizon is 2.42; therefore, even with the approval of the 2006 and 2007 amendments, the Wildwood FLUM would continue to remain under-allocated.

Table 8.3. City of Wildwood FLUM Allocation Ratio. (with 2006 and 2007 proposed amendments)

FLUM Capacity w/ 2006 and 2007 Amendments	21,408
Existing	2,208
Vacant	19,200
Current Vacant Capacity	11,111
Net Vacant Capacity Added from 2006 Amendments	3,128
Net Vacant Capacity Added from 2007 Amendments	4,962
2035 Housing Unit Demand	26,750
Allocation Ratio with Approval of 2006 and 2007 Amendments	0.80

Source: Fishkind and Associates, Inc.

9.0 Estimated Capacity of DRI Comp Plan Amendments

Fishkind analyzed the three DRI comp plan amendments to determine the volume of additional capacity that would be added to the Wildwood FLUM if all of the amendments are approved. In total, the amendments account for 6,377 acres. If approved, the amendments would add capacity for an additional 12,841 housing units to the Wildwood FLUM. Table 9.1 shows the capacity analysis for the DRI comp plan amendments.

Table 9.1.
Capacity of DRI Comp Plan Amendments.

	DRI Net Acreage Added	Actual Density (70% of Max.)	DRI Capacity Added
AG		0.14	-
COM		-	-
GMU		6.00	-
GU		-	-
GU/I		-	-
I		-	-
INS		-	-
LDR		3.15	-
LMDR		4.20	-
MDR		6.30	-
MHDR		8.40	-
HDR		10.50	-
MHP		7.00	-
REC		0.70	-
RIO		5.25	-
RMU		3.50	-
ROW		-	-
CON		-	-
ER		-	-
AGR - C	(6,377)	0.07	(446)
COM - C	-	-	-
IND - C		-	-
LDR - C		1.40	-
LKE - C		-	-
MDR - C		2.80	-
MUN - C		-	
PUD - C		4.20	-
REC - C		-	-
RUR - C	-	0.70	-
Landstone DRI	4,076		8,025
Renaissance Trails DRI	1,296		2,262
Wildwood Springs DRI	1,005		3,000
Total	-		12,841

Source: Fishkind and Associates, Inc. LPG Urban and Regional Planners.

Table 9.2 provides the City of Wildwood FLUM as it would appear if all of the 2006, 2007, and DRI amendments are approved. As shown, the capacity of the vacant acreage within the Wildwood FLUM would be 32,041 units after the approval of all of the proposed 2006, 2007 and DRI amendments.

Table 9.2. City of Wildwood FLUM Vacant Acreage Capacity. (with 2006, 2007 and DRI proposed amendments)

	Vacant Acreage with DRI Amendments	Capacity with DRI Amendments
AG	191	27
COM	529	-
GMU	1,329	7,974
GU	0	-
GU/I	-	-
I	1,044	-
INS	10	-
LDR	1,036	3,262
LMDR	1,035	4,346
MDR	105	662
MHDR	72	606
HDR	3	29
MHP	38	265
REC	-	-
RIO	12	66
RMU	65	226
ROW	-	-
CON	83	-
ER	-	-
AGR - C	9,674	615
COM - C	22	-
IND - C	-	-
LDR - C	108	152
LKE - C	0	-
MDR - C	58	163
MUN - C	54	-
PUD - C	86	361
REC - C	0	-
RUR - C	-	-
Landstone DRI	4,076	8,025
Renaissance Trails DRI	1,296	2,262
Wildwood Springs DRI	1,005	3,000
Total	21,933	32,041

Source: Fishkind and Associates, Inc. LPG Urban and Regional Planners.

Table 9.3 summarizes the calculation of the allocation ratio resulting from the approval of the 2006, 2007 and DRI amendments. As shown, the total capacity of the FLUM would be 34,249 units, which includes 2,208 existing units and capacity for 32,041 units within the vacant FLUM acreage. With demand for 26,750 units by 2035, the allocation ratio of the Wildwood FLUM would increase from 0.50 to 1.28 with the approval of the 2006, 2007 and DRI amendments. As shown in Table 6.2, the recommended allocation ratio for the City of Wildwood through a 2035 time horizon is 2.42; therefore, even with the approval of the 2006, 2007 and DRI amendments, the Wildwood FLUM would continue to remain under-allocated.

Table 9.3. City of Wildwood FLUM Allocation Ratio. (with 2006, 2007 and DRI proposed amendments)

FLUM Capacity w/ 2006, 2007, and DRI Amendments	34,249
Existing	2,208
Vacant	32,041
Current Vacant Capacity	11,111
Net Vacant Capacity Added from 2006 Amendments	3,128
Net Vacant Capacity Added from 2007 Amendments	4,962
Net Vacant Capacity Added from DRI Amendments	12,841
2035 Housing Unit Demand	26,750
Allocation Ratio with approval of 2006, 2007 and DRI Amendments	1.28

Source: Fishkind and Associates, Inc.

10.0 Estimated Capacity of Revised Comprehensive Plan FLUM

Fishkind analyzed the revised FLUM of the updated and currently proposed City of Wildwood Comprehensive Plan to determine the capacity of the vacant acreage. The revised FLUM contains the 2006, 2007 and DRI amendments as well as a number of additional land use changes. Three of the newly created FLUM categories allow a mix of land uses. In these cases, Fishkind has assumed the percentage of vacant acreage which will accommodate residential uses. Table 10.1 provides the capacity of the vacant acreage within the revised City of Wildwood FLUM.

Table 10.1.
Vacant Capacity of Revised Wildwood Comprehensive Plan FLUM.

FLU	Vacant Acres	Vacant Residential Acres	Actual Density (70% of Max.)	Actual Capacity
Agriculture	144	144	0.14	20
Conservation	5,119	-	-	-
Recreational	34	34	0.70	24
Public Facilities	221	-	-	-
Low Density Residential	681	681	3.15	2,145
Low Medium Density Residential	359	359	4.20	1,508
Medium Density Residential	165	165	6.30	1,040
Medium High Density Residential	39	39	8.40	328
High Density Residential	8	8	10.50	84
Residential/Institutional/Office	24	24	5.25	126
Community Mixed Use	3,630	1,452	8.40	12,197
Neighborhood Mixed Use	2,458	1,475	4.20	6,194
Estate Mixed Use	1,537	769	1.75	1,345
General Commercial	426	-	-	-
Community Commercial	593	-	-	-
Neighborhood Commercial	54	-	-	-
Industrial	696	-	-	-
Business Park	393	-	-	-
Brownwood	298	-	-	-
Renaissance Trails DRI	1,293	1,293	1.75	2,262
Wildwood Springs DRI	1,081	1,081	2.78	3,000
Landstone DRI	4,156	4,156	1.93	8,025
Total	23,409	11,679		38,297

Source: Fishkind and Associates, Inc. LPG Urban and Regional Planners.

Table 10.2 summarizes the calculation of the allocation ratio resulting from the approval of the revised Comprehensive Plan FLUM. As shown, the total capacity of the FLUM would be 40,505 units, which includes 2,208 existing units and capacity for 38,297 units within the vacant FLUM acreage. With demand for 26,750 units by 2035, the allocation ratio of the revised Wildwood FLUM would increase from 0.50 to 1.51 with the approval of the 2006, 2007 and DRI amendments and any additional land use changes requested through the adoption of the updated Comprehensive Plan. As shown in Table 6.2, the recommended allocation ratio for the City of Wildwood through a 2035 time horizon is 2.42; therefore, with a demonstrated allocation ratio of 1.51 the need for the revised City of Wildwood Comprehensive Plan FLUM is justified.

Table 10.2.
City of Wildwood Revised Comp Plan FLUM Allocation Ratio.

Revised Comp Plan FLUM Capacity	40,505
Existing	2,208
Vacant Capacity of Revised Comp Plan FLUM	38,297
2035 Housing Unit Demand	26,750
Revised Comp Plan Allocation Ratio	1.51

Source: Fishkind and Associates, Inc.

13.0 Conclusions

The recommended allocation ratio for the City of Wildwood is 2.42. This level of allocation ensures proper plan flexibility and an adequate supply of housing units for the City of Wildwood through the planning horizon.

Fishkind's revised housing unit projections for the City of Wildwood show demand for a total of 26,750 housing units in 2035. There are currently an estimated 2,208 housing units within the City of Wildwood. As adopted, the Wildwood FLUM contains vacant capacity for an additional 11,111 housing units. Thus, the total capacity of the FLUM, as approved, is 13,319 units and the current allocation ratio for the City of Wildwood FLUM is 0.50. The recommended allocation ratio for the City of Wildwood through a 2035 time horizon is 2.42. The recommended allocation ratio is based on the application of a recommended 1.5 allocation ratio on existing units and 2.5 allocation ratio on future units. Thus, the 2.42 recommended allocation ratio represents the weighted average allocation ratio required to achieve proper flexibility within both existing and future units.

Table 13.1 summarizes the calculation of the allocation ratio resulting from the approval of the 2006 amendments. As shown, the total capacity of the FLUM would be 16,477 units, which includes 2,208 existing units and capacity for 14,239 units within the vacant FLUM acreage. With demand for 26,750 units by 2035, the allocation ratio of the Wildwood FLUM would increase from 0.50 to 0.61 with the approval of the 2006 amendments.

Table 13.1. City of Wildwood FLUM Allocation Ratio.
(with 2006 proposed amendments)

FLUM Capacity w/ 2006 Amendments	16,447
Existing	2,208
Vacant	14,239
Current Vacant Capacity	11,111
Net Vacant Capacity Added from 2006 Amendments	3,128
2035 Housing Unit Demand	26,750
Allocation Ratio with Approval of 2006 Amendments	0.61

Source: Fishkind and Associates, Inc.

Table 13.2 summarizes the calculation of the allocation ratio resulting from the approval of the 2006 and 2007 amendments. As shown, the total capacity of the FLUM would be 21,408 units, which includes 2,208 existing units and capacity for 19,200 units within the vacant FLUM acreage. With demand for 26,750 units by 2035, the allocation ratio of the Wildwood FLUM would increase from 0.50 to 0.80 with the approval of the 2006 and 2007 amendments.

Table 13.2. City of Wildwood FLUM Allocation Ratio. (with 2006 and 2007 proposed amendments)

FLUM Capacity w/ 2006 and 2007 Amendments	21,408
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Net Vacant Capacity Added from 2007 Amendments	4,962
2035 Housing Unit Demand	26,750
Allocation Ratio with Approval of 2006 and 2007 Amendments	0.80

Source: Fishkind and Associates, Inc.

Table 13.3 summarizes the calculation of the allocation ratio resulting from the approval of the 2006, 2007 and DRI amendments. As shown, the total capacity of the FLUM would be 34,249 units, which includes 2,208 existing units and capacity for 32,041 units within the vacant FLUM acreage. With demand for 26,750 units by 2035, the allocation ratio of the Wildwood FLUM would increase from 0.50 to 1.28 with the approval of the 2006, 2007 and DRI amendments.

Table 13.3. City of Wildwood FLUM Allocation Ratio. (with 2006, 2007 and DRI proposed amendments)

FLUM Capacity w/ 2006, 2007, and DRI Amendments	34,249
Existing	2,208
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Net Vacant Capacity Added from 2006 Amendments	3,128
Net Vacant Capacity Added from 2007 Amendments	4,962
Net Vacant Capacity Added from DRI Amendments	12,841
2035 Housing Unit Demand	26,750
Allocation Ratio with approval of 2006, 2007 and DRI Amendments	1.28

Source: Fishkind and Associates, Inc.

Table 13.4 summarizes the calculation of the allocation ratio resulting from the approval of the revised Comprehensive Plan FLUM. As shown, the total capacity of the FLUM would be 40,505 units, which includes 2,208 existing units and capacity for 38,297 units within the vacant FLUM acreage. With demand for 26,750 units by 2035, the allocation ratio of the revised Wildwood FLUM would increase from 0.50 to 1.51 with the approval of the 2006, 2007 and DRI amendments and any additional land use changes requested through the adoption of the updated Comprehensive Plan. As shown in Table 6.2, the recommended allocation ratio for the City of Wildwood through a 2035 time horizon is 2.42; therefore, with a demonstrated allocation ratio of 1.51 the need for the revised City of Wildwood Comprehensive Plan FLUM is justified.

Table 13.4.
City of Wildwood Revised Comp Plan FLUM Allocation Ratio.

Revised Comp Plan FLUM Capacity	40,505
Existing	2,208
Vacant Capacity of Revised Comp Plan FLUM	38,297
2035 Housing Unit Demand	26,750
Revised Comp Plan Allocation Ratio	1.51

Source: Fishkind and Associates, Inc.

STATE OF FLORIDA

DEPARTMENT OF COMMUNITY AFFAIRS

"Dedicated to making Florida a better place to call home"

CHARLIE CRIST
Governor

THOMAS G. PELHAM
Secretary

March 10, 2010

FILED
MAR 12 2010
IN THE OFFICE OF
BOARD OF COUNTY COMMISSIONERS
SUMTER COUNTY
BUSHNELL, FLORIDA

Jerri A. Blair, Esq.
Post Office Box 130
Tavares, Florida 32778-0130

Bradley Arnold
Sumter County Administrator
910 North Main Street
Bushnell, Florida 33513

Re: Population Allocation Agreement

Dear Ms. Blair and Mr. Arnold:

I have enclosed a fully executed original for each of you of the Population Allocation Agreement Between Sumter County, The City Of Wildwood And The Department Of Community Affairs.

Thank you for your cooperation in this matter

Sincerely yours,

David L. Jordan

David L. Jordan
Assistant General Counsel
(850) 922-1720

DJ/ms

Enclosure(s)

cc (with copy of enclosure):
Linda Shelley, Esq.
Cecelia Bonifay,. Esq.

Copy To:

Commrs	____	Pub Wks Div	____
Co Atty	____	Bldg & Dev Div	____
Co Fin	____	Admin Div	____
Other	____	Com Svcs Div	____

POPULATION ALLOCATION AGREEMENT BETWEEN SUMTER COUNTY, THE CITY OF WILDWOOD AND THE DEPARTMENT OF COMMUNITY AFFAIRS

THIS POPULATION ALLOCATION AGREEMENT ("Agreement") is entered into by and between the State of Florida, Department of Community Affairs ("DCA"), the City of Wildwood ("Wildwood"), and Sumter County pursuant to the authority of section 163.3171(4), Florida Statutes.

WHEREAS, as authorized by section 163.3171(4), Florida Statutes, DCA, Wildwood and Sumter County have the power to enter into agreements with each other as may be necessary or desirable to effectuate the provisions and purposes of ss. 163.3177(6)(h) and (11)(a) and (b); and

WHEREAS, section 163.3177(6)(h) provides for intergovernmental coordination between counties and municipalities, including joint processes for collaborative planning and decisionmaking on population projections; and

WHEREAS, this Agreement will implement collaborative planning and decisionmaking on population projections between Wildwood and Sumter County; and

WHEREAS, section 163.3177(11)(a) provides that,

> The Legislature recognizes the need for innovative planning and development strategies which will address the anticipated demands of continued urbanization of Florida's coastal and other environmentally sensitive areas, and which will accommodate the development of less populated regions of the state which seek economic development and which have suitable land and water resources to accommodate growth in an environmentally acceptable manner. The Legislature further recognizes the substantial advantages of innovative approaches to development which may better serve to protect environmentally sensitive areas, maintain the economic viability of agricultural and other predominantly rural land uses, and provide for the cost-efficient delivery of public facilities and services; and

WHEREAS, this Agreement addresses the anticipated demands of continued urbanization of environmentally sensitive areas, accommodates economic development in an environmentally

acceptable manner, maintains the economic viability of agricultural and rural land uses, provides for the cost-effective delivery of public facilities and services, and protects environmentally sensitive areas; and

WHEREAS, section 163.3177(11)(b) provides in pertinent part that,

> (b) It is the intent of the Legislature that the local government comprehensive plans and plan amendments adopted pursuant to the provisions of this part provide for a planning process which allows ... for the conversion of rural lands to other uses, where appropriate and consistent with the other provisions of this part and the affected local comprehensive plans, through the application of innovative and flexible planning and development strategies and creative land use planning techniques....; and

WHEREAS, this Agreement is a planning strategy which identifies the presently existing boundaries of Wildwood as the appropriate area within Sumter County for the conversion of rural lands to other uses; and

WHEREAS, Wildwood adopted Comprehensive Plan Amendment 09-1 by Ordinance No. 615 on May 4, 2009 (the "Plan Amendment") that increases the potential for development within Wildwood; and

WHEREAS, DCA has determined that the Plan Amendment is not supported by data and analysis demonstrating that the additional land designated for residential and nonresidential uses is needed to accommodate the population growth for the 2035 planning timeframe; and

WHEREAS, the population of Wildwood is presently 5.6 % of the population of Sumter County; and

WHEREAS, the Wildwood plan amendments are based on the premise that twenty-five percent (25%) of the population of Sumter County will be located within the presently existing boundaries of Wildwood by 2035; and

WHEREAS, Sumter County supports the Wildwood Plan Amendment, supports Wildwood's contention that twenty-five percent (25%) of the population of Sumter County will be within the jurisdiction of the City by 2035, and is willing to commit in this Agreement to allocate future population growth to the City of Wildwood; and

WHEREAS, this Agreement will serve as data and analysis to demonstrate that the additional land designated by Wildwood Plan Amendment 09-1 for residential and nonresidential uses is needed to accommodate the population growth in Wildwood and Sumter County for the 2035 planning timeframe; and

WHEREAS, on April 14, 2009, Wildwood and Sumter County entered into a Master Interlocal Service Boundary and Joint Planning Agreement ("ISBJPA") which includes a Planning Services Service Delivery Sub-Agreement authorized by sections 163.01 and 163.3171 and Part II of Chapter 171, Florida Statutes; and

WHEREAS, this Agreement is necessary and desirable to effectuate the provisions and purposes of ss. 163.3177(6)(h), (11)(a) and (11)(b).

NOW, THEREFORE, in consideration of the mutual covenants and promises hereinbelow set forth, and in consideration of the benefits to accrue to each of the parties, the receipt and sufficiency of which are hereby acknowledged, and recognizing the above recitals as true and incorporating same as if stated herein, the parties to the Agreement hereby represent and agree as follows:

1. Allocation of Population Growth. The parties agree that the future population growth of Sumter County shall be directed to the City of Wildwood, so that 25% of the population of Sumter County will be located in the presently existing boundaries (but not including lands designated for Agriculture) of Wildwood by 2035. Sumter County

acknowledges that the development potential in the presently effective Wildwood Comprehensive Plan, as amended by the Plan Amendment if the Plan Amendment becomes effective (but not including those lands designated for Agriculture), is intended to accommodate 25% of the population of Sumter County by 2035.

2. Methodology. Sumter County and Wildwood shall coordinate to use the same methodology for population projections, based upon the medium range population projections from the University of Florida, Bureau of Economic and Business Research or another professionally acceptable methodology, for Wildwood and County comprehensive plan amendments proposed or adopted after the execution of this Agreement.

3. Data and Analysis. Sumter County agrees that when considering the need for any future land use plan amendment in the unincorporated area of the County to accommodate projected growth, the County will first allocate 25% of the total projected population of the County (both incorporated and unincorporated) to the City of Wildwood, and then allocate the appropriate percentage of population to the remaining incorporated municipalities. Sumter County will rely on the remaining population not allocated to the municipalities in determining the need for additional land use capacity in the unincorporated area.

4. Incorporation into ISBJPA and Comprehensive Plans. Within three months after the execution of this Agreement, Sumter County and Wildwood shall amend the Master Interlocal Service Boundary and Joint Planning Agreement to incorporate this Population Allocation Agreement into the Master Interlocal Service Boundary and Joint Planning Agreement. Sumter County and Wildwood shall also incorporate the provisions of this Agreement into their Comprehensive Plans in the next proposed large-scale plan amendment.

5. Changes in Law. Nothing in this Agreement shall be construed to relieve any party from adhering to the law, and in the event of a change in any statute or administrative regulation inconsistent with this agreement, the statute or regulation shall take precedence and shall be deemed incorporated in this Agreement by reference.

6. Attorney Fees and Costs. Each party shall bear its own costs, including attorney fees, incurred in connection with this Agreement.

7. Construction of Agreement. All parties to this Agreement are deemed to have participated in its drafting. In the event of any ambiguity in the terms of this Agreement, the parties agree that such ambiguity shall be construed without regard to which of the parties drafted the provision in question.

8. Entire Agreement. This is the entire agreement between the parties and no verbal or written assurance or promise is effective or binding unless included in this document.

9. Approval by Governing Body. This Agreement has been approved by each local government's governing body in the manner provided for development agreements in s. 163.3225, Florida Statutes. This Agreement has been executed by the appropriate officer as provided in the local government's charter or other regulations.

10. Multiple Originals. This Agreement may be executed in any number of originals, all of which evidence one agreement, and only one of which need be produced for any purpose.

11. Captions. The captions inserted in this Agreement are for the purpose of convenience only and shall not be utilized to construe or interpret any provision of this Agreement.

12. Effective Date. This Agreement shall become effective immediately upon execution by all the parties to this Agreement.

In witness whereof, the parties hereto have caused this Agreement to be executed by their undersigned officials as duly authorized.

DEPARTMENT OF COMMUNITY AFFAIRS

By: _____
Thomas Pelham, Secretary
Division of Community Planning

_____
Date

Approved as to form and legality:
David C. Jordan
Assistant General Counsel

3/2/10
Date

CITY OF WILDWOOD

By: _____
Ed Wolf, Mayor

2/22/10
Date

Approved as to form and legality:
Jerri A. Blair
Jerri A. Blair, City Attorney

2/22/10
Date

SUMTER COUNTY

By: _____
Doug Gilpin, Chairman

2/9/10
Date

Approved as to form and legality:
Janis M. Coter for the firm
County Attorney

2-9/10
Date

Chapter 2
Transportation Element
Data and Analysis

Unified Sumter County/Center Hill/Webster
Comprehensive Plan

The following pages replace pages 1-12 of the
Transportation Element Data and Analysis

Chapter 2 – Transportation Element – Data & Analysis

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Sumter County Transit Operational Characteristics
Sumter County Transit Fixed Route Circulator Schedule
2035 Long Range Transportation Plan–Lake-Sumter Metropolitan Planning Organization
Letter from Pam Richmond, Lake-Sumter Metropolitan Planning Organization dated August 24, 2012

Introduction

A diverse and efficient transportation system is a keystone to strong economic development and promoting a high quality of life. The county, as a whole, has an extremely strong transportation system in place, and the County and Cities have partnerships and cooperative relationships in place to assure the operation of an effective and efficient transportation system. The Interlocal Service Boundary and Joint Planning Agreements (ISBA), pursuant to Chapter 171, Part II, Florida Statutes, between the County and Cities establish close coordination of transportation issues between the County and Cities.

Data and Analysis of Transportation

Existing Transportation System

The existing transportation system within the county and cities is comprised of a connected network of roads, rail, transit, bicycle/pedestrian, and golf cart facilities. The following provides an overview of the existing transportation network.

As shown in Map 2-1 and Map 2-2, the county and cities are served by a well-developed road network. Several critical regional and state roads traverse through the county and cities. These significant roads include:

- I-75 (Florida Strategic Intermodal System)
- Florida Turnpike (Florida Strategic Intermodal System)
- S.R. 44 (portion from I-75 to Citrus County part of Florida Strategic Intermodal System)
- U.S. 301
- S.R. 50
- S.R. 471
- U.S. 441/27
- C-466
- C-470
- C-48
- CSX S-rail line (Florida Strategic Intermodal System)

Near the center of the county, all four transportation facilities (I-75, Florida Turnpike, S.R. 44, and CSX S-rail line), which are part of the Florida Strategic Intermodal System, connect. This location is a prime transportation center for the region and the state. In addition, this location is identified as the "Florida Crossroads Industrial Activity Center" within the Withlacoochee Regional Planning Council's 2010 Comprehensive Economic Development Strategy for the Withlacoochee Region (CEDS), and identified by the Florida Department of Transportation (FDOT) as the "Central Florida Mixing Center/Monarch ILC" on the Draft Intermodal Logistics Center Tool, dated February 2, 2012.

Within the City of Center Hill the primary transportation corridors are C-48 (Kings Highway), C-469, and CR-478. These roadways provide connectivity to and from Center Hill with the surrounding communities. The local road network within Center Hill provides a fairly good connected grid to meet the local transportation needs of the community.

Within the City of Webster, the primary transportation corridors are SR 471 and CR-478. These roadways provide connectivity to and from Webster with the surrounding communities. The local road network within Webster provides a good connected grid to meet the local transportation needs of the community.

Although the County and Cities no longer enforce transportation concurrency, the County and Cities have adopted the following transportation level of service standards to use as a guide in identifying congestion and prioritizing improvements and coordination with the Lake-Sumter Metropolitan Planning Organization (LSMPO) and FDOT to resolve congestion concerns:

Table 2-1 - LOS Standards for FIHS/SIS/TRIP

FIHS/SIS/TRIP Facility	From	To	LOS Based on Area Type
SR 44	Citrus County line	I-75	C (Rural)
I-75	Hernando County line	Marion County line	C (Rural)
Florida Turnpike	Lake County line	I-75	C (Rural)
TRIP Funded Facility (None at time of Adoption)	N/A	N/A	C (Rural)

The County and Cities adopt the following LOS standards for roadways not on the FIHS or SIS, and not funded through TRIP:

a. LOS D for roadways within the unincorporated areas of the county that are within or adjacent to the Urban Development Area, as shown on the Future Land Use Map, or within the city limits of the City of Center Hill and City of Webster; and

b. LOS C for roadways within the unincorporated areas of the county outside and not adjacent to the Urban Development Area, as shown on the Future Land Use Map.

In addition, the County and Cities have adopted the following level of service standards for bicycle and pedestrian facilities and transit to use as a guide in identifying needs and prioritizing improvements and coordination with the Lake-Sumter Metropolitan Planning Organization (LSMPO) and FDOT to address needs:

a. **Bicycle Level of Service Standards.** The County and Cities adopt a LOS "D" for bicycle facilities within the unincorporated areas of the county that are within the Urban Development Area, as shown on the Future Land Use Map, and

within the city limits of the City of Center Hill and City of Webster. Within the unincorporated areas of the county outside of the Urban Development Area, the County adopts a LOS "F" for bicycle facilities. The following table describes the level of service standard classifications for bicycle facilities:

Table 2-2 Bicycle Level of Service Classifications

LOS	Facility	Amenities	Conflicts	Maintenance
A	Completely separated facility by 6' buffer from travel lane designed for the exclusive use of bicycles, pedestrians, and golf carts with minimal interruption by motorists. Minimum width of 12'.	Paths connect residential areas with retail and employment areas, recreation areas, or educational facilities.	Minimal.	No problems.
B	Restricted right-of-way designated with a completely separate 6' buffer from travel lane for the exclusive or semi-exclusive use of bi-directional bicycles. Minimum eight-foot striped and/or signed lane.	Paths connect residential areas with retail and employment areas, recreation areas, or educational facilities.	Vehicle parking and cross flows by pedestrians and motorists permitted. Posted speed 40 mph or less. Crosswalks and signals at major intersections.	Minor or infrequent problems.
C	Restricted right-of-way designated with a single direction bike path on both sides of all travel lanes for the exclusive or semi-exclusive use of bicycles. Minimum four-foot striped	Paths connect residential areas with majority of retail and employment areas, recreation areas, or educational facilities.	Vehicle parking and cross flows by pedestrians and motorists permitted. Posted speed 45 mph or less. Crosswalks and signals at major intersections.	Minor or infrequent problems.

	on both sides of lane and/or signed lanes.			
D	Restricted right-of-way designated with a single direction bike path on either side of all travel lanes for the exclusive or semi-exclusive use of bicycles. Minimum 4' striped lane and/or signed lane. One side only.	Paths connect residential areas with majority of retail and employment areas, recreation areas, or educational facilities.	Vehicle parking and cross flows by pedestrians and motorists permitted. Posted speed 45 mph or less. Crosswalks and signals at major intersections.	Minor or infrequent problems.
E	Limited restricted right-of-way designated for the exclusive or semi-exclusive use of bicycles on either side of travel lanes. Minimum 4' non signed and unmarked single direction.	Limited connection between residential areas with retail and employment areas, recreation areas, or educational facilities.	Posted speed 45 mph or less. Crosswalks and signals at major intersections.	Minor or frequent problems.
F	Areas where bicycles share the road with other modes of travel (hard shoulders).	Sporadic connection between residential areas with retail and employment areas, recreation areas, or educational facilities.	Limited crosswalks and signals. No reduced speed limits.	Major or frequent problems.

b. **Pedestrian Level of Service Standards.** The County and Cities adopt a LOS "D" for pedestrian facilities within the unincorporated areas of the county that are within the Urban Development Area, as shown on the Future Land Use Map, and within the city limits of the City of Center Hill and City of Webster. Within the unincorporated areas of the county outside of the Urban Development Area, the County adopts a LOS "F" for pedestrian facilities. The following table describes the level of service standard classifications for pedestrian facilities:

Table 2-3 Pedestrian Level of Service Classifications

LOS	Facility	Amenities	Conflicts	Maintenance
A	Sidewalks continuous on both sides. Minimum width 6'.	Buffer (minimum width 3'), shade trees, benches & pedestrian scale lighting.	Crossing width 60' or less. Posted speed 40 mph or less. Medians present. Crosswalks, signals and crossing guards at major intersections.	No problems.
B	Sidewalks continuous on one side. Minimum width 5'.	Intermittent shade trees and benches. Pedestrian scale lighting.	Crossing width 60' or less. Posted speed 40 mph or less. Crosswalks and signals at major intersections.	No problems.
C	Sidewalks non-continuous on both sides. Minimum width 4'.	Intermittent shade trees, benches & lighting.	Posted speed 45 mph or less. Crosswalks and signals at major intersections.	Minor or infrequent problems.
D	Sidewalks non-continuous on one side. Minimum width 4'.	Intermittent shade trees & lighting.	Posted speed 45 mph or less. Limited crosswalks and signals.	Minor or infrequent problems.
E	Sporadic provision. Minimum width 3'.	None	Limited crosswalks and signals. No reduced speed limits.	Major or frequent problems.
F	None	None	No signalized crossings or reduced speed limits.	N/A

c. **Transit Level of Service Standards.** The County and Cities adopt a LOS "D" for transit within the unincorporated areas of the county that are within the Urban Development Area, as shown on the Future Land Use Map, and within the city limits of the City of Center Hill and City of Webster. Within the unincorporated areas of the county outside of the Urban Development Area, the County adopts a LOS "E" for transit. The following table describes the level of service standard classifications for transit:

Table 2-4 Transit Level of Service Classifications

LOS	Availability	Frequency & Reliability	Safety & Comfort	Accessibility & Affordability
A	Weekday service available.	Less than two vehicles per hour, or peak hour provision only. Information on routes, schedules, fares, connections, and destinations available at stops.	Clean bus shelters and enclosed waiting areas. Shade trees and awnings. Well lit waiting areas.	Stops within walking or cycling distance of destinations. Payment options available
B	Weekday service available	Less than two vehicles per hour, or peak hour provision only. Information on routes, schedules, fares, connections, and destinations available online and/or select locations.	Covered shelters at some stops. Well lit waiting areas.	Stops within walking or cycling distance of destinations. Payment options available.
C	Weekday service available.	Peak hour provision only. Information on routes, schedules, fares, connections, and destinations available online and/or select locations.	Covered shelters at some stops.	Stops within walking or cycling distance of destinations.
D	On demand service available.	Specified shuttle route with deviations available. Reservations required.	Covered shelters at some stops. Door to door service available.	Stops within walking or cycling distance of local retail/service facilities. Fixed price on shuttle route.
E	On demand service available.	No set route. Reservations required for door to door	Door to door service available.	Door to door service available.

		service.		Fixed price.
F	No service available.	N/A	N/A	N/A

The County and Cities are fortunate to have limited congestion problems within the transportation network. As shown in Table 2-5, the collector and arterial road systems are currently operating at a condition less than the maximum capacity at the adopted level of service.

Table 2-5 also shows the projected level of service for collector and arterial road systems in 2017. This five (5) year analysis is based on traffic projections and level of service analysis provided by the LSMPO. Through 2017, all but five (5), of nearly 230 road segments, are projected to operate at a condition less than the maximum capacity at the adopted level of service. The following provides information regarding these five (5) deficient road segments:

a. Buena Vista Boulevard – from Temberry Forest Drive to CR 472 (Rainey Trail)
The road segment is projected to operate at a volume to capacity (v/c) ratio of 1.02 in 2017, during the peak hour in the peak direction. This road segment is within The Villages Development of Regional Impact. The extensive multi-modal system that exists and will be expanded within The Villages, as further described within this data and analysis, provides for appropriate mitigation to this slight v/c deficit.

b. Buenos Aires Boulevard – from El Camino Real to US 27/441
This road segment is projected to operate at a v/c ratio of 1.19 in 2017, during the peak hour in the peak direction. This road segment is within The Villages Development of Regional Impact. The extensive multi-modal system that exists and will be expanded within The Villages, as further described within this data and analysis, provides for appropriate mitigation to this v/c deficit.

c. El Camino Real – from Morse Boulevard North to Lake County
This road segment is projected to operate at a v/c ratio of 1.15 in 2017, during the peak hour and peak direction. During the peak hour in the non-peak direction, the v/c ratio is 1.09 in 2017. This road segment is within The Villages Development of Regional Impact. The extensive multi-modal system that exists and will be expanded within The Villages, as further described within this data and analysis, provides for appropriate mitigation to this v/c deficit.

d. Morse Boulevard North – from C-466 to Rio Grande Avenue
This road segment is projected to operate at a v/c ratio of 1.12 in 2017, during the peak hour and peak direction. This road segment is within The Villages Development of Regional Impact. The extensive multi-modal system that exists and will be expanded within The Villages, as further described within this data and analysis, provides for appropriate mitigation to this v/c deficit.

e. US 301 – from SR 471 to C-470 East
This road segment is projected to operate at a v/c ratio of 1.02 in 2017, during the peak hour and peak direction. US 301 from SR 48 in Bushnell to SR 44 in Wildwood is programmed by FDOT for a PD&E analysis in 2014 (FDOT 5 Year Work Program 2013-2017 – Item Numbers 430133-1 and 430132-1). This PD&E will provide supporting analysis for the need and type of improvements to US 301, which will address this projected 2017 deficient segment.

The County and Cities have established and will maintain coordination with the LSMPO in taking a proactive approach to minimizing congestion.

The most critical concern of the county's and cities' road system is to provide for the appropriate maintenance to extend the effective life of the roads. This concern is addressed within the Transportation Element's goals, objectives and policies through assuring that development activities either make required operational or structural improvements to substandard roads and by maintaining a proactive approach to road maintenance needs.

Also, as part of the ISBA, the County and cities (Bushnell, Center Hill, Webster and Wildwood) have agreed to standards for the transition of road jurisdiction from county to city. This standard is based on the amount of parcel frontage within the city along a county maintained road. Once properties within a city front 51% or more of a designated county road segment, then the road segment transfers jurisdiction from the County to the city. The exception to this jurisdiction transfer is for roads that are identified as "Regionally Significant" by the LSMPO. These roads will continue to be County jurisdiction roads regardless of the amount of city properties along the road segment. For roads identified as "Emerging Regionally Significant" by the LSMPO, if after three years from being designated as "Emerging Regionally Significant" and they have not been designated as "Regionally Significant" than they shall transition based on the 51% threshold. Map 2-3 shows the identified Emerging and Regionally Significant roads.

The CSX S-rail line bisects the county from north to south and primarily parallels U.S. 301 through the county. The CSX S-rail line is a primary freight rail line for the state. It provides a critical rail connection from South Florida to Jacksonville. The importance of this rail line is exemplified by its inclusion as part of the Florida Strategic Intermodal System. The County recognizes the critical importance of this rail line to the future economic health of the county, region, and state. As discussed above, the CSX S-rail line is part of the critical transportation hub near the center of the county. In addition, the County, as well as the LSMPO and FDOT, continue to have open dialog with CSX to better forge and implement partnerships to support the economic development interests of the county, region, and state while supporting the businesses interests of CSX. Current CSX plans call for a significant increase in rail traffic along the CSX S-rail line.

Currently, there are no public airports operating in the county or cities. However, there is a small private airport, Freeflight Airport, located to the northwest of the City of Coleman on the east side of I-75, which has plans to convert from a private to public airport over the next ten years. If this private

airport does convert to a public airport, then the County will work with the airport, LSMPO, and FDOT to include the appropriate components to the comprehensive plan to address public airports. There are also numerous small private airstrips located throughout the county.

Sumter County provides a countywide, including all cities, transit service. This transit service is comprised of a transportation disadvantaged service, fixed route circulator, and on-call services. The County provides the transit service through a contract with a private transit provider (Ride Right). The operation of the County's transit service is successful given its small size. In 2012, the County's Transit System was awarded by the Florida Commission for the Transportation Disadvantaged as the Florida Rural Community Transportation Coordinator of the Year. An overview of the operational characteristics of the transit system and route schedules for the fixed route circulator is provided as attachments to this data and analysis. Currently, there is not a transit development plan to guide the future of the County's transit system. However, the LSMPO is tasked in preparing a transit development plan for the County by 2017. This pending transit development plan will identify the short-term and long-term needs of the County's transit system. It is acknowledged that a need for transit by 2017 is to coordinate the provision of transit services with the cities within the county to support their proper urbanization, as expressed within their comprehensive plans, and to coordinate with transit operations of adjacent counties. The funding for the development of the transit development plan will be provided through contributions, required mitigation by their development orders, by the Landstone Development of Regional Impact, Wildwood Springs Development of Regional Impact, and Southern Oaks Development of Regional Impact.

Bicycle/pedestrian and golf cart access within the county is focused primarily within the cities and within The Villages Development of Regional Impact. The Villages provides a well-developed and extensive multi-modal system of trails and paths. These multi-modal trails and paths within The Villages connect the residential areas to the commercial, office, medical, and recreational areas. In addition, these multi-modal trails and paths accommodate pedestrians, bicyclists, and golf carts. The County designated The Villages as a self-contained retirement community that allows for the operation of golf carts on certain roads within The Villages.

As The Villages continues development activities through buildout, anticipated prior to 2017, this multi-modal system will continue to expand and provide for additional linkages from its residential areas to its shopping areas and town center, recreation amenities, and other public facilities (schools, libraries, etc.).

The other primary sidewalk (pedestrian) facilities within the unincorporated county, outside of The Villages, include:

- SR 44 from NE 25th Street to NE 40th Street
- CR 466A from Pinellas Place to US 301
- Powell Road from CR 44-A to CR 466A
- CR 101 from Woodridge Drive to North of 124th Place

C-470 from CR 491 to Moe's Family Restaurant
CR 475 from SR 48 to Winn Dixie
SR 48 from CR 471 to CR 616
US 301 from South of Cherokee Avenue to Rutland Street
US 301 from 200' South of Clarke Avenue to Stokes Street
US 301 from Spring Lake Road to CR 204
C-466 from CR 105 to Murphy Gas Station
C-466 from CR 103 to CR 101

Given the characteristics of these sidewalk facilities, the current pedestrian level of service within the unincorporated areas of the county is at best a pedestrian level of service "D" or "E", within the urbanized areas. Within the rural areas, the pedestiral level of service is "F".

For bicycle facilities, with the exception of the multi-modal system within The Villages and other trail systems managed by state agenices, the primary bicycle facilities, within unincorporated areas of the county, is comprised of paved shoulders on state roads and some major county roads.

Given the characteristics of the these bicycle facilities, the current bicycle level of service within the unincorporated areas of the county is "F".

It is important to note, that the County has made recent improvements to encouraging multi-modal transportation options within the unincorporated Lake Panasoffkee area. The Tracy's Point neighborhood in Lake Panasoffkee was designated by the County as an area to allow the operation of golf carts on county roads. Also within the Lake Panasoffkee area, the County recently constructed a sidewalk along C-470 to provide access from the residential areas to the elementary school, park, and commercial/office areas.

The cities of Center Hill and Webster have a limited system of sidewalks. Within Center Hill the existing sidewalks are located on Market Street between Magnolia Avenue and Maryland Avenue and on Kings Highway (C-48) from Washington Avenue to Magnolia Avenue. Within Webster, the existing sidewalks are located on SR 471 from Webster Elementary School to Webster Flea Market, E Central Avenue in front of City Hall, NE 1st Avenue from SR 471 to NE 2nd Street, and SE 1st Street from Central Avenue to Webster Elementary. Based on the characteristics of the Cities' sidewalks, the pedestrian level of service is "E".

Bicycle facilities within the cities of Center Hill and Webster are also limited primarily to paved shoulders on state roads or major county road. Based on the characteristics of the Cities's bicycle facilties the bicycle level of service is "F".

Currently, the public trail system is focused within the large publicly managed lands within the county. The most regionally connected trail within the county is the General James Van Fleet State Trail. The

trail head is located in Mabel (south of S.R. 50 near the Lake County line) and extends through the Green Swamp into Polk County.

An effort is underway to certify the Sumter Scenic Heritage Byway (See "Scenic Sumter Heritage Byway Information Package" dated September 1, 2010) through the Florida Department of Transportation. This proposed byway will provide a scenic and information route through the county from the General James Van Fleet State Trail at SR 50 to the Withlacoochee River at SR 44. The proposed byway route includes the City of Webster. The Sumter County Board of County Commissioners and Webster City Council are fully in support of the byway.

Through 2017, the primary need for the County's and Cities' pedestrian and bicycle network are to provide for enhanced pedestrian and bicycle access and connectivity within the urbanized unincorporated areas and within Center Hill and Webster.

As indicated above, the pedestrian and bicycle network within the unincorporated county, with the exception of The Villages, and within Center Hill and Webster leave room for improvement to expand the opportunities for these modes. The further improvement of the pedestrian and bicycle network through 2017 will be pursued through the strong coordination between the County and Cities with the LSMPO and FDOT. The LSMPO's 2035 Long Range Transportation Plan provides for the framework and strategies to enhance the pedestrian and bicycle network within the county and the region for both the short-term (2017) and long-term (2035).

Future Transportation System 2035

The County and Cities have a strong relationship with the LSMPO. Based on the interlocal agreement between the County and the LSMPO, the LSMPO serves as the County's transportation planning entity. Through the ISBA between the County and the Cities, the County and Cities have agreed to utilize the LSMPO's 2035 Long Range Transportation Plan (LRTP) as the long range transportation plan for the County and Cities. The LRTP provides for the long-term multi-modal needs (automobiles, trucks, bicycles, pedestrians, and transit).

This unified approach to long range transportation planning between the LSMPO, County, and Cities is possible due to the close coordination between the entities in the development of the LRTP. The population projections that are part of this comprehensive plan are the same projections utilized in the development of the LRTP (the 9,000 difference in population between the LRTP and the population projections within this comprehensive plan is due to the prison population – prison population not included in the transportation analysis). In addition, the future land use pattern shown on the adopted Future Land Use Map was also considered in the development of the LRTP. In support of this land use consistency between this comprehensive plan and the LRTP, the LSMPO provided a letter, dated August 24, 2012, verifying this consistency. A copy of the LSMPO letter is attached to this data and analysis. Because of this close coordination, the results of the LRTP are fully sufficient to serve as the long range

transportation plan for the County and Cities. In addition, as part of a 2011 stipulated settlement agreement between the County and the Florida Department of Economic Opportunity (fka Department of Community Affairs) (Case N0. 10-10931 GM), the County committed to utilizing the LRTP as the County's long range transportation plan.

Because the LRTP provides extensive data and analysis to support the transportation system of the County and the Cities, and pursuant to Poly 2.3.2, which adopt the LRTP by reference, the LRTP provides the required data and analysis to support the Transportation Element's goals, objectives and policies. Pursuant to Section 163.3177(b), Florida Statutes, the LRTP is included as an attachment to this data and analysis and serves as the data and analysis for the Transportation Element.

Conclusion

The County's and Cities' transportation system over the next twenty years has an outstanding opportunity to expand its positive impact on the local, regional, and state economy and to promote a positive lifestyle. This opportunity is based on the continued coordination and a strong regional approach to transportation between the County, Cities, LSMPO, and FDOT.

Table 2-5 County Transportation Management System

TABLE 2-5 - COUNTY TRANSPORTATION MANAGEMENT SYSTEM

SUMTER COUNTY TMS SEGMENT REPORT - EXISTING AND 2017 LEVEL OF SERVICE

ROAD NAME	FROM	TO	NUMBER OF LANES	AREA TYPE	MAINTAINING AGENCY	JURISDICTION	FUNCTIONAL CLASSIFICATION	ADOPTED LOS STANDARD	LOS CAPACITY	EVACUATION ROUTE	SIS?	PEAK HOUR DIRECTION CAPACITIES					EXISTING LEVEL OF SERVICE								2017 LEVEL OF SERVICE							
												A	B	C	D	E	AADT	PM PEAK HOUR TOTAL	EB/NB	V/C RATIO	LOS	WB/SB	V/C RATIO	LOS	AADT	PM PEAK HOUR TOTAL	EB/NB	V/C RATIO	LOS	WB/SB	V/C RATIO	LOS
BAILEY TRL	BUENA VISTA BLVD (N)	SUNSET RIDGE DR	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	6,658	515	318	0.56	B	197	0.34	B	8,690	672	415	0.73	C	257	0.45	B
BAILEY TRL	SUNSET RIDGE DR	ST. CHARLES PLACE	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	6,608	659	271	0.47	B	388	0.68	C	8,625	860	354	0.62	C	506	0.89	C
BAILEY TRL	ST. CHARLES PL	BASSINGER CT	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	2,659	301	162	0.28	B	139	0.24	B	3,471	393	211	0.37	B	181	0.32	B
BAILEY TRL	BASSINGER CT	BUENA VISTA BLVD (S)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	3,295	241	102	0.18	B	139	0.24	B	4,301	315	133	0.23	B	181	0.32	B
BELVEDERE BLVD	C-466E	CHURCHILL DOWNS	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	8,609	754	352	0.44	B	402	0.51	B	11,237	984	459	0.58	C	525	0.66	C
BELVEDERE BLVD	CHURCHILL DOWNS	BUENA VISTA BLVD	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	4,946	398	206	0.26	B	192	0.24	B	6,456	519	269	0.34	B	251	0.32	B
BONITA BLVD	BUENA VISTA BLVD	CANAL ST	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	2,769	326	150	0.26	B	176	0.31	B	3,614	426	196	0.34	B	230	0.40	B
BONITA BLVD	CANAL ST	MORSE BLVD N	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	3,056	250	120	0.21	B	130	0.23	B	3,989	326	157	0.27	B	170	0.30	B
BUENA VISTA BLVD	C-466A	ST.CHARLES PL	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	7,935	646	320	0.25	B	326	0.26	B	10,357	843	418	0.33	B	426	0.33	B
BUENA VISTA BLVD	ST. CHARLES PL	ODELL CIRCLE S. END	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	5,672	459	260	0.20	B	199	0.16	B	7,403	599	339	0.27	B	260	0.20	B
BUENA VISTA BLVD	ODELL CIRCLE S. END	BONITA BLVD	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	6,460	580	335	0.26	B	245	0.19	B	8,432	757	437	0.34	B	320	0.25	B
BUENA VISTA BLVD	BONITA BLVD	ODELL CIRCLE N. END	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	9,695	795	428	0.34	B	367	0.29	B	12,654	1,038	559	0.44	B	479	0.38	B
BUENA VISTA BLVD	ODELL CIRCLE N. END	STILLWATER TRAIL	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	15,002	1,150	519	0.41	B	631	0.50	B	19,581	1,501	677	0.53	B	824	0.65	B
BUENA VISTA BLVD	STILLWATER TRAIL	TEMBERRY FOREST DR	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	16,395	1,462	725	0.57	B	737	0.58	B	21,400	1,908	946	0.74	B	962	0.76	B
BUENA VISTA BLVD	TEMBERRY FOREST DR	C-472 (Rainey Trail)	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	21,221	1,863	866	0.68	B	997	0.78	B	27,699	2,432	1,130	0.89	C	1,301	1.02	F
BUENA VISTA BLVD	C-472 (Rainey Trail)	BELVEDERE BLVD	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	19,153	1,697	765	0.60	B	932	0.73	B	25,000	2,215	999	0.78	B	1,216	0.95	C
BUENA VISTA BLVD	BELVEDERE BLVD	TALL TREES LN	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	19,099	1,698	774	0.61	B	924	0.73	B	24,929	2,216	1,010	0.79	B	1,206	0.95	C
BUENA VISTA BLVD	TALL TREES LN	LAUREL MANOR DR	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	18,975	1,679	770	0.60	B	909	0.71	B	24,767	2,192	1,005	0.79	B	1,186	0.93	C
BUENA VISTA BLVD	LAUREL MANOR DR	C-466	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	16,912	1,459	698	0.55	B	761	0.60	B	22,074	1,904	911	0.72	B	993	0.78	B
BUENA VISTA BLVD	C-466	SADDLEBROOK LN	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	17,433	1,454	687	0.54	B	767	0.60	B	22,754	1,898	897	0.70	B	1,001	0.79	B
BUENA VISTA BLVD	SADDLEBROOK LN	EL CAMINO REAL	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	17,050	1,449	672	0.53	B	777	0.61	B	22,255	1,891	876	0.69	B	1,014	0.80	C
BUENA VISTA BLVD	EL CAMINO REAL	MARION COUNTY BOUNDARY	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	16,667	1,443	656	0.51	B	787	0.62	B	21,755	1,883	856	0.67	B	1,027	0.81	C
BUENOS AIRES BLVD	EL CAMINO REAL	US 27/US 441/SR 500	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	10,906	893	373	0.65	C	520	0.91	C	14,235	1,166	487	0.85	C	679	1.19	F
C-44A	SR 44 (W)	CR 213	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	1,123	96	42	0.07	B	54	0.09	B	1,466	125	55	0.10	B	70	0.12	B
C-44A	CR 213	US 301/SR 35	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	912	105	50	0.09	B	55	0.10	B	1,190	137	65	0.11	B	72	0.13	B
C-44A	US 301/SR 35	CR 139	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	1,127	114	61	0.11	B	53	0.09	B	1,471	149	80	0.14	B	69	0.12	B
C-44A	CR 139	BUENA VISTA BLVD	4U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	1,313	112	56	0.04	B	56	0.04	B	1,714	146	73	0.06	B	73	0.06	B
C-44A	BUENA VISTA BLVD	SR 44 (E)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	1,313	112	56	0.10	B	56	0.10	B	1,714	146	73	0.13	B	73	0.13	B
C-462	C-475	CR 229	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	515	58	18	0.04	C	40	0.09	C	672	76	23	0.05	C	52	0.11	C
C-462	CR 229	CR 223	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	1,388	137	62	0.13	C	76	0.16	C	1,812	179	80	0.17	C	99	0.21	C
C-462	CR 223	CR 209	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	2,261	216	105	0.22	C	111	0.24	C	2,951	282	137	0.29	C	145	0.31	C
C-462	CR 209	US 301/SR 35	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	2,326	226	76	0.13	B	150	0.26	B	3,036	295	99	0.17	B	196	0.34	B
C-462	US 301/SR 35	CR 131	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	5,104	433	130	0.23	B	303	0.53	B	6,662	565	170	0.30	B	395	0.69	C
C-462	CR 131	CR 121	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	6,005	482	143	0.25	B	339	0.59	C	7,838	629	187	0.33	B	442	0.77	C
C-462	CR 121	CR 134	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	6,655	581	372	0.65	C	209	0.37	B	8,686	758	486	0.85	C	273	0.48	B
C-462	CR 134	C-466A	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	5,514	508	314	0.55	B	194	0.34	B	7,197	663	410	0.72	C	253	0.44	B
C-466	C-475	CR 229	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	C	468	N	N	0	0	468	621	666	4,457	421	282	0.60	C	139	0.30	C	5,818	550	368	0.79	C	181	0.39	C
C-466	CR 229	CR 209	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	C	468	N	N	0	0	468	621	666	4,854	462	170	0.36	C	292	0.62	C	6,336	603	222	0.47	C	381	0.81	C
C-466	CR 209	US 301/SR 35	2U	U	COUNTY	WILDWOOD	ARTERIAL 1	D	572	N	N	0	332	533	572	572	6,374	590	211	0.37	B	379	0.66	C	8,320	770	275	0.48	B	495	0.86	C
C-466	US 301/SR 35	CR 105	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	ARTERIAL 1	D	1,960	N	N	0	1,560	1,890	1,960	1,960	20,725	1,662	708	0.36	B	954	0.49	B	27,051	2,169	924	0.47	B	1,245	0.64	B
C-466	CR 105	CR 103	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	ARTERIAL 1	D	1,960	N	N	0	1,560	1,890	1,960	1,960	18,330	1,505	681	0.35	B	824	0.42	B	23,925	1,964	889	0.45	B	1,076	0.55	B
C-466	CR 103	CR 101	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	ARTERIAL 1	D	1,960	N	N	0	1,560	1,890	1,960	1,960	23,112	1,910	929	0.47	B	981	0.50	B	30,167	2,493	1,213	0.62	B	1,280	0.65	B
C-466	CR 101	BUENA VISTA BLVD	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	ARTERIAL 1	D	1,960	N	N	0	1,560	1,890	1,960	1,960	28,100	2,323	1,162	0.59	B	1,161	0.59	B	36,678	3,032	1,517	0.77	B	1,515	0.77	B
C-466	BUENA VISTA BLVD	MORSE BLVD	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	ARTERIAL 1	D	1,960	N	N	0	1,560	1,890	1,960	1,960	22,727	1,900	952	0.49	B	948	0.48	B	29,665	2,480	1,243	0.63	B	1,237	0.63	B
C-466	MORSE BLVD	C-100 (LAKE COUNTY BOUNDARY	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	ARTERIAL 1	D	1,960	N	N	0	1,560	1,890	1,960	1,960	24,085	2,078	1,009	0.51	B	1,069	0.55	B	31,437	2,712	1,317	0.67	B	1,395	0.71	B
C-466A	US 301/SR 35	C-462/CR 139	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	7,870	622	309	0.54	B	313	0.55	B	10,272	812	403	0.71	C	409	0.71	C
C-466A	C-462/CR 139	C-133 (NE 57th Dr)	4D	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	9,695	795	428	0.34	B	367	0.29	B	12,654	1,038	559	0.44	B	479	0.38	B
C-466A	C-133 (NE 57th Dr)	BUENA VISTA BLVD	4D	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	10,244	866	456	0.36	B	410	0.32	B	13,371	1,130	595	0.47	B	535	0.42	B
C-466A	BUENA VISTA BLVD	CANAL ST	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	10,839	946	488	0.38	B	458	0.36	B	14,147	1,235	637	0.50	B	598	0.47	B
C-466A	CANAL ST	MORSE BLVD	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	11,433	1,026	520	0.41	B	506	0.40	B	14,923	1,339	679	0.53	B	660	0.52	B
C-466A	MORSE BLVD	LAKE COUNTY BOUNDARY	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	12,307	1,046	551	0.43	B	495	0.39	B	16,064	1,365	719	0.56	B	646	0.51	B
C-468	US 301/SR 35	CR 513	2U	R	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	621	N	N	0	0	468	621	666	3,039	287	131	0.21	C	156	0.25	C	3,967	375	171	0.28	C	204	0.33	C
C-468	CR 513	CR 501	2U	R	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	621	N	N	0	0	468	621	666	2,369	233	85	0.14	C	148	0.24	C	3,092	304	111	0.18	C	193	0.31	C
C-468	CR 501	SANDALWOOD DR	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	621	N	N	0	0	468	621	666	2,789	250	119	0.19	C	131	0.21	C	3,640	326	155	0.25	C	171	0.28	C
C-468	SANDALWOOD DR	SR 44	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	3,755	329	149	0.26	B	180	0.31	B	4,901	429	194	0.34	B	235	0.41	B
C-469	SR 50	CR 728	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	2,868	242	114	0.24	C	128	0.27	C	3,743	315	148	0.32	C	167	0.36	C
C-469	CR 728	C-48 E	2U	R	COUNTY	CENTER HILL	COLLECTOR	D	621	N	N	0	0	468	621	666	1,981	154	78	0.13	C	76	0.12	C	2,586	201	102	0.16	C	99	0.16	C
C-470 E	SR 93/I-75	US 301/SR 35	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	7,117	581	238	0.42	B	343	0.60	C	9,289	758	311	0.54	B	448	0.78	C
C-470 E	US 301/SR 35	NE 50TH WAY	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	6,552	561	210	0.37	B	351	0.61	C	8,552	732	274	0.48	B	458	0.80	C
C-470 E	NE 50TH WAY	CR 501	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	6,422	627	304	0.53	B	323	0.56	B	8,382	818	397	0.69	C	422	0.74	C
C-470 E	CR 501	LAKE COUNTY BOUNDARY	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	5,642	508	322	0.56	B	186	0.33	B	7,364	663	420	0.73	C	243	0.42	B
C-470 N	SR 44	CR 412	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MINOR ARTERIAL	D	572	N	N	0	332	533	572	572	2,458	238	119	0.21	B	119	0.21	B	3,208	311	155	0.27	B	155	0.27	B
C-470 N	CR 412	CR 416 N	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MINOR ARTERIAL	D	572	N	N	0	332	533	572	572	3,547	325	171	0.30	B	154	0.27	B	4,630	424	223	0.39	B	201	0.35	B
C-470 N	CR 416 N	CR 479	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MINOR ARTERIAL	D	572	N	N	0	332	533	572	572	6,903	600	359	0.63	C	241	0.42	B	9,010	783	469	0.82	C	315	0.55	B
C-470 N	CR 479	SR 93/I-75	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MINOR ARTERIAL	D	572	N	N	0	332	533	572	572	8,092	689	408	0.71	C	281	0.49	B	10,562	899	533	0.93	C	367	0.64	C
C-472	US 301/SR 35	CR 117	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	3,755	329	149	0.26	B	180	0.31	B	4,901	429	194	0.34	B	235	0.41	B
C-472	CR 117	LYNN HAVEN LANE	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	3,219	313	145	0.25	B	168	0.29	B	4,202	409	189	0.33	B	219	0.38	B
C-472	LYNN HAVEN LANE	BUENA VISTA BLVD	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	4,619	385	187	0.33	B	198	0.35	B	6,029	503	244	0.43	B	258	0.45	B
C-475 S (Main Street)	SR 48 W	JUMPER DR S	4U	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	572	N	N	0	1,014	1,229	1,274	1,274	9,062	901	385	0.30	B	516	0.41	B	11,828	1,176	503	0.39	B	674	0.53	B
C-475 S (Main Street)	JUMPER DR S	CR 542 W	4U	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	572	N	N	0	1,014	1,229	1,274	1,274	5,030	461	228	0.18	B	233	0.18	B	6,565	602	298	0.23	B	304	0.24	B
C-475 S	CR 542 W	CR 532 W	2U	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	4,199	356	191	0.33	B	165	0.29	B	5,481	465	249	0.44	B	215	0.38	B
C-475 S	CR 532 W	C-470 E	2U	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	3,611	314	174	0.30	B	140	0.24	B	4,713	410	227	0.40	B	183	0.32	B
C-475 N	SR 44	C-462	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	533	N	N	0	332	533	572	572	2,771	281	109	0.20	B	172	0.32	B	3,617	367	142	0.27	B	225	0.42	B
C-475 N	C-462	C-466	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	533	N	N	0	332	533	572	572	2,801	276	110	0.21	B	166	0.31	B	3,656	360	144	0.27	B	217	0.41	B
C-475 N	C-466	MARION COUNTY BOUNDARY	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	4,255	382	204	0.36	B	178	0.31	B	5,554	499	266	0.47	B	232	0.41	B
C-476 E (Noble Ave)	US 301/SR 35	JASPER ST	2U	U	COUNTY	BUSHNELL	COLLECTOR	D	572	N	N	0	332	533	572	572	1,734	160	87	0.15	B	73	0.13	B	2,263	209	114	0.20	B	95	0.17	B
C-476 E	JASPER ST	SR 471	2U	U	COUNTY	BUSHNELL	COLLECTOR	D	572	N	N	0	332	533	572	572	1,734	160	87	0.15	B	73	0.13	B	2,263	209	114	0.20	B	95	0.17	B
C-476 W	HERNANDO COUNTY BOUNDARY	C-575	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	533	Y	N	0	332	533	572	572	3,034	272	95	0.18	B	177	0.33	B	3,960	355	124	0.23	B	231	0.43	B
C-476 W	C-575	C-476B	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	533	Y	N	0	332	533	572	572	3,381	334	117	0.22	B	217	0.41	B	4,413	436	153	0.29	B	283	0.53	B
C-476 W	C-476B	CR 625	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	533	Y	N	0	332	533	572	572	3,312	308	132	0.25	B	176	0.33	B	4,323	402	172	0.32	B	230	0.43	B
C-476 W	CR 625	CR 616	2U	U	COUNTY	BUSHNELL	COLLECTOR	C	533	Y	N	0	332	533	572	572	3,792	355	141	0.26	B	214	0.40	B	4,950	463	184	0.35	B	279	0.52	B
C-476 W	CR 616	US 301/SR 35	2U	U	COUNTY	BUSHNELL	COLLECTOR	D	572	Y	N	0	332	533	572	572	4,272	402	150	0.26	B	252	0.44	B	5,576	525	196	0.34	B	329	0.58	B
C-476 (Seminole Ave)	US 301/SR 35	C-48	2U	U	COUNTY	BUSHNELL	COLLECTOR	D	572	Y	N	0	332	533	572	572	4,272	402	150	0.26	B	252	0.44	B	5,576	525	196	0.34	B	329	0.58	B
C-476B	SR 93/I-75	SW 95TH AVE	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	533	N	N	0	332	533	572	572	1,576	173	91	0.17	B	82	0.15	B	2,057	226	119	0.22	B	107	0.20	B
C-476B	SW 95TH AVE	C-476 W	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	533	N	N	0	332	533	572	572	1,721	198	145	0.27	B	53	0.10	B	2,246	258	189	0.36	B	69	0.13	B
C-478 W	US 301/SR 35	CR 747	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	2,056	183	84	0.15	B	99	0.17	B	2,684	239	110	0.19	B	129	0.23	B
C-478 E	CR 747	SR 471	2U	U	COUNTY	WEBSTER	COLLECTOR	D	572	N	N	0	332	533	572	572	1,744	159	82	0.14	B	77	0.13	B	2,276	208	107	0.19	B	101	0.18	B
C-478 E	SR 471	CR 707	2U	U	COUNTY	CENTER HILL	COLLECTOR	D	572	N	N	0	332	533	572	572	1,793	177	83	0.15	B	94	0.16	B	2,340	231	108	0.19	B	123	0.21	B
C-478 E (Virginia Ave)	CR 707	C-48 E	2U	U	COUNTY	CENTER HILL	COLLECTOR	D	572	N	N	0	332	533	572	572	869	105	43	0.08	B	62	0.11	B	1,134	137	56	0.10	B	81	0.14	B
C-478A	SR 50	SR 471	2U	U	COUNTY	WEBSTER	COLLECTOR	D	572	N	N	0	332	533	572	572	612	62	24	0.04	B	38	0.07	B	799	81	31	0.05	B	50	0.09	B
CR 48 (Florida St)	US 301/SR 35 (Noble Ave)	C-476 W	2U	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	5,579	479	233	0.41	B	246	0.43	B	7,282	625	304	0.53	B	321	0.56	B
C-48	C-476 W	CR 557	2U	R	COUNTY	BUSHNELL	COLLECTOR	D	621	Y	N	0	0	468	621	666	5,579	479	233	0.38	C	246	0.40	C	7,282	625	304	0.49	C	321	0.52	C
C-48	CR 557	CR 747	2U	R	COUNTY	BUSHNELL	COLLECTOR	D	621	Y	N	0	0	468	621	666	5,579	479	233	0.38	C	246	0.40	C	7,282	625	304	0.49	C	321	0.52	C
C-48	CR 747	SR 471	2U	R	COUNTY	BUSHNELL	COLLECTOR	D	621	Y	N	0	0	468	621	666	5,077	436	205	0.33	C	231	0.37	C	6,627	568	268	0.43	C	301	0.48	C
C-48	SR 471	CR 567	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	621	N	N	0	0	468	621	666	4,575	392	177	0.29	C	215	0.35	C	5,972	512	231	0.37	C	281	0.45	C

TABLE 2-5 - COUNTY TRANSPORTATION MANAGEMENT SYSTEM

SUMTER COUNTY TMS SEGMENT REPORT - EXISTING AND 2017 LEVEL OF SERVICE

ROAD NAME	FROM	TO	NUMBER OF LANES	AREA TYPE	MAINTAINING AGENCY	JURISDICTION	FUNCTIONAL CLASSIFICATION	ADOPTED LOS STANDARD	LOS CAPACITY	EVACUATION ROUTE	SIS?	PEAK HOUR DIRECTION CAPACITIES					EXISTING LEVEL OF SERVICE								2017 LEVEL OF SERVICE							
												A	B	C	D	E	AADT	PM PEAK HOUR TOTAL	EB/NB	V/C RATIO	LOS	WB/SB	V/C RATIO	LOS	AADT	PM PEAK HOUR TOTAL	EB/NB	V/C RATIO	LOS	WB/SB	V/C RATIO	LOS
C-48	CR 567	CR 569	2U	R	COUNTY	CENTER HILL	COLLECTOR	D	621	N	N	0	0	468	621	666	4,291	344	159	0.26	C	185	0.30	C	5,601	449	208	0.33	C	241	0.39	C
C-48	CR 569	C-478	2U	R	COUNTY	CENTER HILL	MAJOR COLLECTOR	D	621	N	N	0	0	468	621	666	4,291	344	159	0.26	C	185	0.30	C	5,601	449	208	0.33	C	241	0.39	C
C-48	C-478	C-469	2U	R	COUNTY	CENTER HILL	MAJOR COLLECTOR	D	621	N	N	0	0	468	621	666	2,437	223	84	0.14	C	139	0.22	C	3,181	291	110	0.18	C	181	0.29	C
C-48	C-469	CR 558	2U	R	COUNTY	CENTER HILL	MAJOR COLLECTOR	D	621	N	N	0	0	468	621	666	2,437	223	84	0.14	C	139	0.22	C	3,181	291	110	0.18	C	181	0.29	C
C-48	CR 558	LAKE COUNTY BOUNDARY	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	621	N	N	0	0	468	621	666	1,301	97	39	0.06	C	58	0.09	C	1,698	127	51	0.08	C	76	0.12	C
C-48	CITRUS COUNTY BOUNDARY	C-575	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	Y	N	0	0	468	621	666	3,277	317	125	0.27	C	192	0.41	C	4,277	414	163	0.35	C	251	0.54	C
C-48	C-575	CR 625	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	Y	N	0	0	468	621	666	4,016	374	138	0.29	C	236	0.50	C	5,241	488	180	0.38	C	307	0.66	C
C-48	CR 625	CR 616	2U	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	572	Y	N	0	332	533	572	572	4,754	430	151	0.26	B	279	0.49	B	6,205	561	197	0.34	B	364	0.64	C
C-48	CR 616	CR 313	4D	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	1,764	Y	N	0	1,404	1,701	1,764	1,764	7,004	630	243	0.14	B	387	0.22	B	9,142	822	317	0.18	B	505	0.29	B
C-48	CR 313	SR 93/I-75	4D	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	1,764	Y	N	0	1,404	1,701	1,764	1,764	8,174	701	274	0.16	B	427	0.24	B	10,669	915	358	0.20	B	557	0.32	B
C-575	C-476	CR 663	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	793	102	70	0.15	C	32	0.05	C	1,035	133	91	0.20	C	42	0.09	C
C-575	CR 663	C-48	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	643	92	59	0.13	C	33	0.05	C	839	120	77	0.16	C	43	0.09	C
CANAL ST	C-466A	ODELL CIR (S)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	2,292	197	119	0.21	B	78	0.14	B	2,992	257	155	0.27	B	102	0.18	B
CANAL ST	ODELL CIR (S)	BONITA BLVD	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	3,473	287	143	0.25	B	144	0.25	B	4,533	375	187	0.33	B	188	0.33	B
CANAL ST	BONITA BLVD	ODELL CIR (N)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	5,292	421	211	0.37	B	210	0.37	B	6,907	550	275	0.48	B	274	0.48	B
CANAL ST	ODELL CIR (N)	STILLWATER TRL	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	3,982	329	143	0.25	B	186	0.33	B	5,198	429	187	0.33	B	243	0.42	B
CHURCHILL DOWNS	BELEVEDERE BLVD	MORVEN PARKWAY	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	2,044	179	80	0.14	B	99	0.17	B	2,668	234	104	0.18	B	129	0.23	B
CHURCHILL DOWNS	MORVEN PARKWAY	LYNNHAVEN LN	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	1,366	105	49	0.09	B	56	0.10	B	1,783	137	64	0.11	B	73	0.13	B
CR 101	C-466	WOODRIDGE DR	4D	U	COUNTY	WILDWOOD	COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	5,650	500	276	0.22	B	224	0.18	B	7,375	653	360	0.28	B	292	0.23	B
CR 101	WOODRIDGE DR	CR 102	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	2,652	239	150	0.26	B	89	0.16	B	3,462	312	196	0.34	B	116	0.20	B
CR 103	C-466 E	WOODRIDGE DR	4D	U	COUNTY	WILDWOOD	COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	2,170	182	81	0.06	B	101	0.08	B	2,832	238	106	0.08	B	132	0.10	B
CR 103	WOODRIDGE DR	CR 102	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	1,577	152	76	0.13	B	76	0.13	B	2,058	198	99	0.17	B	99	0.17	B
CR 139 (Powell Rd)	SR 44	C-44A	4D	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	3,950	371	208	0.16	B	163	0.13	B	5,156	484	271	0.21	B	213	0.17	B
CR 139 (Powell Rd)	C-44A	C-466A	4D	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	3,950	371	208	0.16	B	163	0.13	B	5,156	484	271	0.21	B	213	0.17	B
CR 209	CR 232	C-462 E	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	724	101	71	0.12	B	30	0.05	B	945	132	93	0.16	B	39	0.07	B
CR 209	C-462 E	CR 216	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	724	101	71	0.12	B	30	0.05	B	945	132	93	0.16	B	39	0.07	B
CR 209	CR 216	C-466	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	645	86	63	0.11	B	24	0.04	B	841	112	82	0.14	B	31	0.05	B
CR 209	C-466	CR 202	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	565	71	54	0.09	B	17	0.03	B	737	93	70	0.12	B	22	0.04	B
CR 213 (Walker Rd)	SR 44	C-44A	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	406	40	16	0.03	B	24	0.04	B	530	52	21	0.04	B	31	0.05	B
CR 229	SR 44	C-462	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	2,138	193	112	0.24	C	81	0.17	C	2,791	252	146	0.31	C	106	0.23	C
CR 229	C-462	C-466	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	2,039	180	106	0.23	C	74	0.16	C	2,661	235	138	0.30	C	97	0.21	C
CR 237	CR 222	C-466	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	386	34	18	0.04	C	16	0.03	C	504	44	23	0.05	C	21	0.04	C
CR 501	C-470E	C-500	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	1,916	182	94	0.16	B	88	0.15	B	2,501	238	123	0.21	B	115	0.20	B
CR 501	C-500	C-468	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	2,390	257	166	0.29	B	91	0.16	B	3,120	335	217	0.38	B	119	0.21	B
CR 616 (Hayes Rd)	C-476	C-48	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	3,163	301	140	0.30	C	161	0.34	C	4,129	393	183	0.39	C	210	0.45	C
CR 673	SR 93/I-75	CR 674	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	C	468	N	N	0	0	468	621	666	1,693	123	73	0.16	C	50	0.11	C	2,210	161	95	0.20	C	65	0.14	C
CR 673	CR 674	US 301/SR 35	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	C	468	N	N	0	0	468	621	666	1,301	104	54	0.12	C	50	0.11	C	1,698	136	70	0.15	C	65	0.14	C
CR 721	SR 471	CR 727	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	686	65	36	0.08	C	29	0.06	C	895	85	47	0.10	C	38	0.08	C
CR 727	SR 50	CR 721	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	177	21	13	0.03	C	8	0.02	C	231	27	17	0.04	C	10	0.02	C
CR 747	C-478 E	CR 730	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	683	71	24	0.05	C	47	0.10	C	891	93	31	0.07	C	61	0.13	C
CR 747	CR 730	C-48	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	1,164	147	77	0.16	C	70	0.15	C	1,519	192	101	0.21	C	91	0.20	C
EL CAMINO REAL	BUENA VISTA BLVD	ENRIQUE DR	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	17,097	1,430	774	0.61	B	656	0.51	B	22,316	1,867	1,010	0.79	B	856	0.67	B
EL CAMINO REAL	ENRIQUE DR	BUENOS AIRES BLVD	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	15,801	1,254	507	0.40	B	747	0.59	B	20,624	1,637	662	0.52	B	975	0.77	B
EL CAMINO REAL	BUENOS AIRES BLVD	MORSE BLVD N	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	12,299	1,080	633	0.50	B	447	0.35	B	16,053	1,410	826	0.65	B	583	0.46	B
EL CAMINO REAL	MORSE BLVD N	LAKE COUNTY BOUNDARY	2D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	14,206	1,356	661	0.83	C	695	0.88	C	18,542	1,770	863	1.09	F	907	1.15	F
JASPER ST	C-476A (Seminole Ave)	C-476 E	2U	U	COUNTY	BUSHNELL	COLLECTOR	D	572	N	N	0	332	533	572	572	504	52	23	0.04	B	29	0.05	B	658	68	30	0.05	B	38	0.07	B
LYNNHAVEN LN	C-472	CHURCHILL DOWNS	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	2,389	201	89	0.11	B	117	0.15	B	3,118	262	116	0.15	B	153	0.19	B
LYNNHAVEN LN	CHURCHILL DOWNS	BELVEDERE BLVD	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	2,509	199	119	0.15	B	80	0.10	B	3,275	260	155	0.20	B	104	0.13	B
MARIPOSA WAY	C-466E	500 FT SOUTH MARIPOSA WAY	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	731	74	20	0.03	B	54	0.09	B	954	97	26	0.05	B	70	0.12	B
MARIPOSA WAY	500 FT SOUTH MARIPOSA WAY	MORSE BLVD N	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	1,017	93	66	0.12	B	27	0.05	B	1,327	121	86	0.15	B	35	0.06	B
MORSE BLVD N	C-466A	ODELL CIRCLE S. END	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	12,830	1,240	731	0.57	B	509	0.40	B	16,746	1,619	954	0.75	B	664	0.52	B
MORSE BLVD N	ODELL CIRCLE S. END	BONITA BLVD	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	7,622	680	349	0.27	B	331	0.26	B	9,949	888	456	0.36	B	432	0.34	B
MORSE BLVD N	BONITA BLVD	ODELL CIRCLE N. END	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	7,232	631	325	0.26	B	306	0.24	B	9,440	824	424	0.33	B	399	0.31	B
MORSE BLVD N	ODELL CIRCLE N. END	STILLWATER TRAIL	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	12,120	1,014	530	0.42	B	484	0.38	B	15,820	1,324	692	0.54	B	632	0.50	B
MORSE BLVD N	STILLWATER TRAIL	C-466	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	20,989	1,724	790	0.62	B	934	0.73	B	27,396	2,250	1,031	0.81	C	1,219	0.96	C
MORSE BLVD N	C-466	RIO GRANDE AVE	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	15,578	1,224	547	0.69	C	677	0.85	C	20,333	1,598	714	0.90	C	884	1.12	F
MORSE BLVD N	RIO GRANDE AVE	EL CAMINO REAL	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	10,704	915	388	0.49	B	527	0.67	C	13,971	1,194	506	0.64	C	688	0.87	C
NE 90TH ST (CR 100)	TERMINUS (Lake Ella Rd)	C-466	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	1,191	111	38	0.05	B	73	0.09	B	1,555	145	50	0.06	B	95	0.12	B
ODELL CIRCLE	BUENA VISTA BLVD (S)	BACKWATER WAY	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	3,914	315	167	0.21	B	148	0.19	B	5,109	411	218	0.28	B	193	0.24	B
ODELL CIRCLE	BACKWATER WAY	CANAL ST (S)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	4,719	395	195	0.25	B	200	0.25	B	6,159	516	255	0.32	B	261	0.33	B
ODELL CIRCLE	CANAL ST (S)	ARVIN LN	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	4,695	491	227	0.29	B	264	0.33	B	6,128	641	296	0.37	B	345	0.44	B
ODELL CIRCLE	ARVIN LN	MORSE BLVD N (S)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	4,309	366	210	0.27	B	156	0.20	B	5,624	478	274	0.35	B	204	0.26	B
ODELL CIRCLE	MORSE BLVD N (S)	STILLWATER TRL	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	4,468	453	279	0.35	B	174	0.22	B	5,832	591	364	0.46	B	227	0.29	B
ODELL CIRCLE	STILLWATER TRL	MORSE BLVD N (N)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	3,597	338	172	0.22	B	166	0.21	B	4,694	441	225	0.28	B	217	0.27	B
ODELL CIRCLE	MORSE BLVD N (N)	CANAL ST (N)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	2,725	223	65	0.08	B	158	0.20	B	3,557	291	85	0.11	B	206	0.26	B
ODELL CIRCLE	CANAL ST (N)	BUENA VISTA BLVD (N)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	3,261	281	142	0.18	B	139	0.18	B	4,256	367	185	0.23	B	181	0.23	B
RIO GRANDE AVE	MORSE BLVD N	LAKE COUNTY BOUNDARY	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	7,640	746	317	0.55	B	429	0.75	C	9,972	974	414	0.72	C	560	0.98	D
SR 44	CITRUS COUNTY BOUNDARY	C-470 N	4D	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	2,040	Y	Y	0	1,300	2,040	2,630	3,000	8,742	751	261	0.13	B	490	0.24	B	11,411	980	341	0.17	B	640	0.31	B
SR 44	C-470 N	C-475	4D	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	2,040	Y	Y	0	1,300	2,040	2,630	3,000	8,252	697	245	0.12	B	452	0.22	B	10,771	909	320	0.16	B	589	0.29	B
SR 44	C-475	SR 93/I-75	4D	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	2,040	Y	Y	0	1,300	2,040	2,630	3,000	7,762	642	229	0.11	B	413	0.20	B	10,131	838	299	0.15	B	539	0.26	B
SR 44	SR 93/I-75	C-44A	4D	U	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,274	Y	N	0	1,014	1,229	1,274	1,274	12,611	1,063	441	0.35	B	622	0.49	B	16,461	1,387	576	0.45	B	812	0.64	B
SR 44	C-44A	US 301/SR 35	4D	U	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,274	Y	N	0	1,014	1,229	1,274	1,274	12,947	951	437	0.34	B	514	0.40	B	16,899	1,241	570	0.45	B	671	0.53	B
SR 44	US 301/SR 35	CR 139	4D	U	STATE	WILDWOOD	ARTERIAL 1	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	12,429	954	411	0.21	B	543	0.28	B	16,223	1,245	536	0.27	B	709	0.36	B
SR 44	CR 139	BUENA VISTA BLVD	4D	U	STATE	WILDWOOD	PRINCIPAL ARTERIAL	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	12,429	954	411	0.21	B	543	0.28	B	16,223	1,245	536	0.27	B	709	0.36	B
SR 44	BUENA VISTA BLVD	C-468	4D	U	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,960	N	N	0	1,560	1,890	1,960	1,960	13,188	1,037	456	0.23	B	581	0.30	B	17,214	1,353	595	0.30	B	758	0.39	B
SR 44	C-468	LAKE COUNTY BOUNDARY	4D	U	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	13,947	1,119	500	0.26	B	619	0.32	B	18,204	1,461	653	0.33	B	808	0.41	B
SR 471	POLK COUNTY BOUNDARY	SR 50	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	780	Y	N	0	420	780	1,100	1,400	1,918	131	55	0.07	B	76	0.10	B	2,503	171	72	0.09	B	99	0.13	B
SR 471	SR 50	CR 721	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	780	Y	N	0	420	780	1,100	1,400	3,900	277	121	0.16	B	156	0.20	B	5,090	362	158	0.20	B	204	0.26	B
SR 471	CR 721	C-478A	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,100	Y	N	0	420	780	1,100	1,400	3,807	307	137	0.12	B	170	0.15	B	4,969	401	179	0.16	B	222	0.20	B
SR 471	C-478A	C-478 E (S)	2U	R	STATE	WEBSTER	PRINCIPAL ARTERIAL	D	1,100	Y	N	0	420	780	1,100	1,400	3,807	307	137	0.12	B	170	0.15	B	4,969	401	179	0.16	B	222	0.20	B
SR 471	C-478 E (S)	C-478 E (N)	2U	R	STATE	WEBSTER	PRINCIPAL ARTERIAL	D	1,100	Y	N	0	420	780	1,100	1,400	3,807	307	137	0.12	B	170	0.15	B	4,969	401	179	0.16	B	222	0.20	B
SR 471	C-478 (N)	CR 722	2U	R	STATE	WEBSTER	PRINCIPAL ARTERIAL	D	1,100	Y	N	0	420	780	1,100	1,400	4,792	378	158	0.14	B	220	0.20	B	6,255	493	206	0.19	B	287	0.26	B
SR 471	CR 722	C-48 E	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,100	Y	N	0	420	780	1,100	1,400	4,792	378	158	0.14	B	220	0.20	B	6,255	493	206	0.19	B	287	0.26	B
SR 471	C-48 E	C-476	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,100	Y	N	0	420	780	1,100	1,400	4,178	327	127	0.12	B	200	0.18	B	5,453	427	166	0.15	B	261	0.24	B
SR 471	C-476	US 301/SR 35	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,100	Y	N	0	420	780	1,100	1,400	2,846	202	73	0.07	B	129	0.12	B	3,715	264	95	0.09	B	168	0.15	B
SR 48 (CR 48 W)	SR 93/I-75	CR 609	2D	U	STATE	BUSHNELL	PRINCIPAL ARTERIAL	D	880	Y	N	0	510	820	880	880	10,852	830	372	0.42	B	458	0.52	B	14,165	1,083	486	0.55	B	598	0.68	C
SR 48 (CR 48 W)	CR 609	CR 311 (N West St)	2U	U	STATE	BUSHNELL	PRINCIPAL ARTERIAL	D	880	Y	N	0	510	820	880	880	10,000	773	337	0.38	B	437	0.50	B	13,052	1,009	439	0.50	B	570	0.65	C
SR 48 (CR 48 W)	CR 311 (N West St)	C-475 S (Main St)	2U	U	STATE	BUSHNELL	PRINCIPAL ARTERIAL	D	880	Y	N	0	510	820	880	880	9,147	716	301	0.34	B	415	0.47	B	11,939	935	393	0.45	B	542	0.62	C
SR 48 (Main St N)	US 301/SR 35	SR 48	4U	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	10,111	823	383	0.30	B	440	0.35	B	13,197	1,074	500	0.39	B	574	0.45	B

TABLE 2-5 - COUNTY TRANSPORTATION MANAGEMENT SYSTEM

SUMTER COUNTY TMS SEGMENT REPORT - EXISTING AND 2017 LEVEL OF SERVICE

ROAD NAME	FROM	TO	NUMBER OF LANES	AREA TYPE	MAINTAINING AGENCY	JURISDICTION	FUNCTIONAL CLASSIFICATION	ADOPTED LOS STANDARD	LOS CAPACITY	EVACUATION ROUTE	SIS?	PEAK HOUR DIRECTION CAPACITIES					EXISTING LEVEL OF SERVICE								2017 LEVEL OF SERVICE							
												A	B	C	D	E	AADT	PM PEAK HOUR TOTAL	EB/NB	V/C RATIO	LOS	WB/SB	V/C RATIO	LOS	AADT	PM PEAK HOUR TOTAL	EB/NB	V/C RATIO	LOS	WB/SB	V/C RATIO	LOS
SR 50	HERNANDO COUNTY BOUNDARY	C-478A	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	780	Y	N	0	420	780	1,100	1,400	4,457	311	137	0.18	B	174	0.22	B	5,818	406	179	0.23	B	227	0.29	B
SR 50	C-478A	SR 471	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	780	Y	N	0	420	780	1,100	1,400	5,336	367	163	0.21	B	204	0.26	B	6,965	479	213	0.27	B	266	0.34	B
SR 50	SR 471	C-469	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	780	Y	N	0	420	780	1,100	1,400	5,104	368	154	0.20	B	214	0.27	B	6,662	480	201	0.26	B	279	0.36	B
SR 50	C-469	LAKE COUNTY BOUNDARY	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	780	Y	N	0	420	780	1,100	1,400	6,112	430	191	0.24	B	239	0.31	B	7,978	561	249	0.32	B	312	0.40	B
SR 91/FLORIDAS TURNPIKE	SR 93/I-75	US 301/SR 35	4F	R	STATE	WILDWOOD	FREEWAY	C	2,820	Y	Y	0	2,100	2,820	3,360	3,600	18,753	1,534	738	0.26	B	796	0.28	B	24,477	2,002	963	0.34	B	1,039	0.37	B
SR 91/FLORIDAS TURNPIKE	US 301/SR 35	LAKE COUNTY BOUNDARY	4F	R	STATE	WILDWOOD	FREEWAY	C	2,820	Y	Y	0	2,100	2,820	3,360	3,600	30,086	2,251	1,062	0.38	B	1,189	0.42	B	39,270	2,938	1,386	0.49	B	1,552	0.55	B
SR 93/I-75	HERNANDO COUNTY BOUNDARY	CR 673	4F	R	STATE	UNINCORPORATED SUMTER COUNTY	FREEWAY	C	2,820	Y	Y	0	2,100	2,820	3,360	3,600	30,456	2,092	987	0.35	B	1,105	0.39	B	39,753	2,731	1,288	0.46	B	1,442	0.51	B
SR 93/I-75	CR 673	C-48	4F	R	STATE	BUSHNELL	FREEWAY	C	2,820	Y	Y	0	2,100	2,820	3,360	3,600	27,740	1,847	881	0.31	B	966	0.34	B	36,208	2,411	1,150	0.41	B	1,261	0.45	B
SR 93/I-75	C-48	C-470 E	4F	R	STATE	BUSHNELL	FREEWAY	C	2,820	Y	Y	0	2,100	2,820	3,360	3,600	28,103	2,112	1,118	0.40	B	994	0.35	B	36,682	2,757	1,459	0.52	B	1,297	0.46	B
SR 93/I-75	C-470 E	SR 91/FLORIDAS TURNPIKE	4F	R	STATE	UNINCORPORATED SUMTER COUNTY	FREEWAY	C	2,820	Y	Y	0	2,100	2,820	3,360	3,600	28,501	2,150	1,135	0.40	B	1,015	0.36	B	37,201	2,806	1,481	0.53	B	1,325	0.47	B
SR 93/I-75	SR 91/FLORIDAS TURNPIKE	SR 44	6F	R	STATE	UNINCORPORATED SUMTER COUNTY	FREEWAY	C	4,220	Y	Y	0	3,100	4,220	5,040	5,560	49,799	3,432	1,376	0.33	B	2,056	0.49	B	65,000	4,480	1,796	0.43	B	2,684	0.64	B
SR 93/I-75	SR 44	MARION COUNTY BOUNDARY	6F	R	STATE	UNINCORPORATED SUMTER COUNTY	FREEWAY	C	4,220	Y	Y	0	3,100	4,220	5,040	5,560	52,879	3,656	1,597	0.38	B	2,059	0.49	B	69,021	4,772	2,084	0.49	B	2,688	0.64	B
STILLWATER TRL	BUENA VISTA BLVD	CANAL ST	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	7,892	628	291	0.23	B	337	0.26	B	10,301	820	380	0.30	B	440	0.35	B
STILLWATER TRL	CANAL ST	MORSE BLVD	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	8,113	640	265	0.21	B	375	0.29	B	10,590	835	346	0.27	B	489	0.38	B
STILLWATER TRL	MORSE BLVD	LOCKHART AVE	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	4,714	397	226	0.40	B	171	0.30	B	6,153	518	295	0.52	B	223	0.39	B
STILLWATER TRL	LOCKHART AVE	ODELL CIRCLE	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	2,697	230	114	0.20	B	116	0.20	B	3,520	300	149	0.26	B	151	0.26	B
US 27/US 441/SR 500	MARION COUNTY BOUNDARY	BUENOS AIRES BLVD	4D	U	STATE	UNINCORPORATED SUMTER COUNTY	ARTERIAL 1	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	36,331	2,579	1,410	0.72	B	1,169	0.60	B	47,421	3,366	1,840	0.94	C	1,526	0.78	B
US 27/US 441/SR 500	BUENOS AIRES BLVD	MORSE BLVD	6D	U	STATE	UNINCORPORATED SUMTER COUNTY	ARTERIAL 1	D	2,940	Y	N	0	2,400	2,860	2,940	2,940	36,331	2,579	1,410	0.48	B	1,169	0.40	B	47,421	3,366	1,840	0.63	B	1,526	0.52	B
US 301/SR 35	HERNANDO COUNTY BOUNDARY	CR 656	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	780	Y	N	0	420	780	1,100	1,400	3,442	284	115	0.15	B	169	0.22	B	4,493	371	150	0.19	B	221	0.28	B
US 301/SR 35	CR 656	C-478	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	780	Y	N	0	420	780	1,100	1,400	4,790	377	136	0.17	B	241	0.31	B	6,252	492	178	0.23	B	315	0.40	B
US 301/SR 35	C-478	C-476 (Seminole Av)	2U	R	STATE	BUSHNELL	PRINCIPAL ARTERIAL	D	690	Y	N	0	0	520	690	740	5,588	466	162	0.23	C	304	0.44	C	7,294	608	211	0.31	C	397	0.58	C
US 301/SR 35 (Main St)	C-476 (Seminole Ave)	SR 48 (Main St)	4U	R	STATE	BUSHNELL	PRINCIPAL ARTERIAL	D	1,490	Y	N	0	0	1,240	1,490	1,590	8,734	714	278	0.19	C	436	0.29	C	11,400	932	363	0.24	C	569	0.38	C
US 301/SR 35 (Noble Av)	SR 48 (Main St)	C-48 (Florida St)	2U	R	STATE	BUSHNELL	PRINCIPAL ARTERIAL	D	690	Y	N	0	0	520	690	740	8,734	714	278	0.40	C	436	0.63	C	11,400	932	363	0.53	C	569	0.82	D
US 301/SR 35 (Noble Av)	C-48 (Florida St)	C-476 (Noble Av)	2U	R	STATE	BUSHNELL	PRINCIPAL ARTERIAL	D	690	Y	N	0	0	520	690	740	4,062	343	154	0.22	C	189	0.27	C	5,302	448	201	0.29	C	247	0.36	C
US 301/SR 35	C-476 (Noble Av)	C-542	2U	R	STATE	BUSHNELL	PRINCIPAL ARTERIAL	D	690	Y	N	0	0	520	690	740	4,357	370	158	0.23	C	212	0.31	C	5,687	483	206	0.30	C	277	0.40	C
US 301/SR 35	C-542	C-470 E (S)	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	690	Y	N	0	0	520	690	740	7,423	598	258	0.37	C	340	0.49	C	9,689	781	337	0.49	C	444	0.64	C
US 301/SR 35	C-470 E (S)	SR 471	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	690	Y	N	0	0	520	690	740	7,423	598	258	0.37	C	340	0.49	C	9,689	781	337	0.49	C	444	0.64	C
US 301/SR 35	SR 471	C-470 E (N)	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	690	Y	N	0	0	520	690	740	10,831	915	378	0.55	C	537	0.78	D	14,137	1,194	493	0.72	C	701	1.02	E
US 301/SR 35	C-470 E (N)	CR 514 (Warm Springs Ave)	2U	R	STATE	COLEMAN	ARTERIAL 1	D	690	Y	N	0	0	520	690	740	5,795	497	242	0.35	C	255	0.37	C	7,564	649	316	0.46	C	333	0.48	C
US 301/SR 35 (Warm Springs Ave)	CR 514 (Warm Springs Ave)	C-468	2U	U	STATE	COLEMAN	ARTERIAL 1	D	880	Y	N	0	510	820	880	880	7,443	625	305	0.35	B	320	0.36	B	9,715	815	398	0.45	B	417	0.47	B
US 301/SR 35	C-468	SR 91/FLORIDAS TURNPIKE	2U	U	STATE	WILDWOOD	ARTERIAL 1	D	880	Y	N	0	510	820	880	880	9,091	752	368	0.42	B	384	0.44	B	11,866	982	480	0.55	B	501	0.57	B
US 301/SR 35 (Main St)	SR 91/FLORIDAS TURNPIKE	CR 156 (Clay Drain Rd)	4D	U	STATE	WILDWOOD	PRINCIPAL ARTERIAL	D	3,320	Y	N	0	1,770	2,560	3,320	3,760	11,171	901	447	0.13	B	454	0.14	B	14,580	1,175	583	0.18	B	592	0.18	B
US 301/SR 35 (Main St)	CR 156 (Clay Drain Rd)	SR 44	4D	U	STATE	WILDWOOD	ARTERIAL 1	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	13,250	1,049	526	0.27	B	523	0.27	B	17,295	1,369	687	0.35	B	683	0.35	B
US 301/SR 35 (Main St)	SR 44	C-44A	4D	U	STATE	WILDWOOD	ARTERIAL 1	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	18,333	1,328	684	0.35	B	644	0.33	B	23,929	1,733	893	0.46	B	841	0.43	B
US 301/SR 35 (Main St)	C-44A	C-466A (Cleveland Ave)	4D	U	STATE	WILDWOOD	ARTERIAL 1	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	16,684	1,208	637	0.33	B	571	0.29	B	21,777	1,577	831	0.42	B	745	0.38	B
US 301/SR 35	C-466A (Cleveland Ave)	C-462 (S)	4D	U	STATE	WILDWOOD	ARTERIAL 1	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	12,995	963	524	0.27	B	439	0.22	B	16,962	1,257	684	0.35	B	573	0.29	B
US 301/SR 35	C-462 (S)	C-462 (N)	4D	U	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	14,229	1,103	643	0.33	B	460	0.23	B	18,572	1,440	839	0.43	B	600	0.31	B
US 301/SR 35	C-462 (N)	CR 222	4D	U	STATE	WILDWOOD	PRINCIPAL ARTERIAL	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	14,807	1,171	699	0.36	B	472	0.24	B	19,326	1,528	912	0.47	B	615	0.31	B
US 301/SR 35	CR 222	C-472	4D	U	STATE	WILDWOOD	PRINCIPAL ARTERIAL	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	15,384	1,238	755	0.39	B	483	0.25	B	20,080	1,616	985	0.50	B	630	0.32	B
US 301/SR 35	C-472	C-466	4D	U	STATE	WILDWOOD	PRINCIPAL ARTERIAL	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	16,302	1,330	783	0.40	B	547	0.28	B	21,278	1,736	1,022	0.52	B	714	0.36	B
US 301/SR 35	C-466	CR 204	4D	U	STATE	WILDWOOD	ARTERIAL 1	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	14,229	1,141	729	0.37	B	412	0.21	B	18,572	1,489	952	0.49	B	538	0.27	B
US 301/SR 35	CR 204	MARION COUNTY BOUNDARY	4D	U	STATE	WILDWOOD	PRINCIPAL ARTERIAL	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	14,229	1,141	729	0.37	B	412	0.21	B	18,572	1,489	952	0.49	B	538	0.27	B

Note: Sum of directionals may not equal total volumes due to rounding error.

Source: Lake-Sumter MPO Transportation Management System 2012

TABLE 2-2 - COUNTY TRANSPORTATION MANAGEMENT SYSTEM

SUMTER COUNTY TMS SEGMENT REPORT - 2011 Level of Service

Posted on January 17, 2012

Segment ID	ROAD NAME	FROM	TO	NUMBER OF LANES	AREA TYPE	MAINTAINING AGENCY	JURISDICTION	FUNCTIONAL CLASSIFICATION	ADOPTED LOS STANDARD	LOS CAPACITY	EVACUATION ROUTE	SIS?	PEAK HOUR DIRECTION CAPACITIES					2011 LEVEL OF SERVICE							
													A	B	C	D	E	AADT	PM PEAK HOUR TOTAL	EB/NB	V/C RATIO	LOS	WB/SB	V/C RATIO	LOS
5000	BAILEY TRL	BUENA VISTA BLVD (N)	SUNSET RIDGE DR	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	6,658	515	318	0.56	B	197	0.34	B
5010	BAILEY TRL	SUNSET RIDGE DR	ST. CHARLES PLACE	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	6,608	659	271	0.47	B	388	0.68	C
5020	BAILEY TRL	ST. CHARLES PL	BASSINGER CT	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	2,659	301	162	0.28	B	139	0.24	B
5030	BAILEY TRL	BASSINGER CT	BUENA VISTA BLVD (S)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	3,295	241	102	0.18	B	139	0.24	B
6000030	BELVEDERE BLVD	C-466E	CHURCHILL DOWNS	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	8,609	754	352	0.44	B	402	0.51	B
6000035	BELVEDERE BLVD	CHURCHILL DOWNS	BUENA VISTA BLVD	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	4,946	398	206	0.26	B	192	0.24	B
6000050	BONITA BLVD	BUENA VISTA BLVD	CANAL ST	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	2,769	326	150	0.26	B	176	0.31	B
6000045	BONITA BLVD	CANAL ST	MORSE BLVD N	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	3,056	250	120	0.21	B	130	0.23	B
60000005	BUENA VISTA BLVD	C-466A	ST.CHARLES PL	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	7,935	646	320	0.25	B	326	0.26	B
60000051	BUENA VISTA BLVD	ST. CHARLES PL	ODELL CIRCLE S. END	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	5,672	459	260	0.20	B	199	0.16	B
60000052	BUENA VISTA BLVD	ODELL CIRCLE S. END	BONITA BLVD	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	6,460	580	335	0.26	B	245	0.19	B
60000053	BUENA VISTA BLVD	BONITA BLVD	ODELL CIRCLE N. END	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	9,695	795	428	0.34	B	367	0.29	B
60000054	BUENA VISTA BLVD	ODELL CIRCLE N. END	STILLWATER TRAIL	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	15,002	1,150	519	0.41	B	631	0.50	B
60000055	BUENA VISTA BLVD	STILLWATER TRAIL	TEMBERRY FOREST DR	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	16,395	1,462	725	0.57	B	737	0.58	B
60000056	BUENA VISTA BLVD	TEMBERRY FOREST DR	C-472 (Rainey Trail)	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	21,221	1,863	866	0.68	B	997	0.78	B
3300000	BUENA VISTA BLVD	C-472 (Rainey Trail)	BELVEDERE BLVD	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	19,153	1,697	765	0.60	B	932	0.73	B
33000001	BUENA VISTA BLVD	BELVEDERE BLVD	TALL TREES LN	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	19,099	1,698	774	0.61	B	924	0.73	B
33000002	BUENA VISTA BLVD	TALL TREES LN	LAUREL MANOR DR	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	18,975	1,679	770	0.60	B	909	0.71	B
33000003	BUENA VISTA BLVD	LAUREL MANOR DR	C-466	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	16,912	1,459	698	0.55	B	761	0.60	B
50000101	BUENA VISTA BLVD	C-466	SADDLEBROOK LN	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	17,433	1,454	687	0.54	B	767	0.60	B
50000102	BUENA VISTA BLVD	SADDLEBROOK LN	EL CAMINO REAL	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	17,050	1,449	672	0.53	B	777	0.61	B
5000000	BUENA VISTA BLVD	EL CAMINO REAL	MARION COUNTY BOUNDARY	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	16,667	1,443	656	0.51	B	787	0.62	B
5000110	BUENOS AIRES BLVD	EL CAMINO REAL	US 27/US 441/SR 500	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	10,906	893	373	0.65	C	520	0.91	C
35281102	C-44A	SR 44 (W)	CR 213	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	1,123	96	42	0.07	B	54	0.09	B
35281103	C-44A	CR 213	US 301/SR 35	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	912	105	50	0.09	B	55	0.10	B
3528120	C-44A	US 301/SR 35	CR 139	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	1,127	114	61	0.11	B	53	0.09	B
35281301	C-44A	CR 139	BUENA VISTA BLVD	4U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	1,313	112	56	0.04	B	56	0.04	B
35281302	C-44A	BUENA VISTA BLVD	SR 44 (E)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	1,313	112	56	0.10	B	56	0.10	B
3542100	C-462	C-475	CR 229	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	515	58	18	0.04	C	40	0.09	C
3542120	C-462	CR 229	CR 223	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	1,388	137	62	0.13	C	76	0.16	C
3542130	C-462	CR 223	CR 209	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	2,261	216	105	0.22	C	111	0.24	C
3542150	C-462	CR 209	US 301/SR 35	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	2,326	226	76	0.13	B	150	0.26	B
3541110	C-462	US 301/SR 35	CR 131	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	5,104	433	130	0.23	B	303	0.53	B
35411101	C-462	CR 131	CR 121	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	6,005	482	143	0.25	B	339	0.59	C
35411002	C-462	CR 121	CR 134	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	6,655	581	372	0.65	C	209	0.37	B
35411003	C-462	CR 134	C-466A	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	5,514	508	314	0.55	B	194	0.34	B
3537100	C-466	C-475	CR 229	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	C	468	N	N	0	0	468	621	666	4,457	421	282	0.60	C	139	0.30	C
3537200	C-466	CR 229	CR 209	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	C	468	N	N	0	0	468	621	666	4,854	462	170	0.36	C	292	0.62	C
3537130	C-466	CR 209	US 301/SR 35	2U	U	COUNTY	WILDWOOD	ARTERIAL 1	D	572	N	N	0	332	533	572	572	6,374	590	211	0.37	B	379	0.66	C
3537140	C-466	US 301/SR 35	CR 105	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	ARTERIAL 1	D	1,960	N	N	0	1,560	1,890	1,960	1,960	20,725	1,662	708	0.36	B	954	0.49	B
35371401	C-466	CR 105	CR 103	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	ARTERIAL 1	D	1,960	N	N	0	1,560	1,890	1,960	1,960	18,330	1,505	681	0.35	B	824	0.42	B
3537150	C-466	CR 103	CR 101	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	ARTERIAL 1	D	1,960	N	N	0	1,560	1,890	1,960	1,960	23,112	1,910	929	0.47	B	981	0.50	B
3537180	C-466	CR 101	BUENA VISTA BLVD	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	ARTERIAL 1	D	1,960	N	N	0	1,560	1,890	1,960	1,960	28,100	2,323	1,162	0.59	B	1,161	0.59	B
3537160	C-466	BUENA VISTA BLVD	MORSE BLVD	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	ARTERIAL 1	D	1,960	N	N	0	1,560	1,890	1,960	1,960	22,727	1,900	952	0.49	B	948	0.48	B
3537170	C-466	MORSE BLVD	C-100 (LAKE COUNTY BOUNDARY	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	ARTERIAL 1	D	1,960	N	N	0	1,560	1,890	1,960	1,960	24,085	2,078	1,009	0.51	B	1,069	0.55	B
3533100	C-466A	US 301/SR 35	C-462/CR 139	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	7,870	622	309	0.54	B	313	0.55	B
35331101	C-466A	C-462/CR 139	C-133 (NE 57th Dr)	4D	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	9,695	795	428	0.34	B	367	0.29	B
35331102	C-466A	C-133 (NE 57th Dr)	BUENA VISTA BLVD	4D	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	10,244	866	456	0.36	B	410	0.32	B
35331103	C-466A	BUENA VISTA BLVD	CANAL ST	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	10,839	946	488	0.38	B	458	0.36	B
35331104	C-466A	CANAL ST	MORSE BLVD	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	11,433	1,026	520	0.41	B	506	0.40	B
35331105	C-466A	MORSE BLVD	LAKE COUNTY BOUNDARY	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	12,307	1,046	551	0.43	B	495	0.39	B
3557110	C-468	US 301/SR 35	CR 513	2U	R	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	621	N	N	0	0	468	621	666	3,039	287	131	0.21	C	156	0.25	C
3557120	C-468	CR 513	CR 501	2U	R	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	621	N	N	0	0	468	621	666	2,369	233	85	0.14	C	148	0.24	C
3557130	C-468	CR 501	SANDALWOOD DR	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	621	N	N	0	0	468	621	666	2,789	250	119	0.19	C	131	0.21	C
3557140	C-468	SANDALWOOD DR	SR 44	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	3,755	329	149	0.26	B	180	0.31	B
3553150	C-469	SR 50	CR 728	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	2,868	242	114	0.24	C	128	0.27	C
3553140	C-469	CR 728	C-48 E	2U	R	COUNTY	CENTER HILL	COLLECTOR	D	621	N	N	0	0	468	621	666	1,981	154	78	0.13	C	76	0.12	C
3550110	C-470 E	SR 93/I-75	US 301/SR 35	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	7,117	581	238	0.42	B	343	0.60	C
35270001	C-470 E	US 301/SR 35	NE 50TH WAY	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	6,552	561	210	0.37	B	351	0.61	C
35270002	C-470 E	NE 50TH WAY	CR 501	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	6,422	627	304	0.53	B	323	0.56	B
35270003	C-470 E	CR 501	LAKE COUNTY BOUNDARY	2U	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	5,642	508	322	0.56	B	186	0.33	B
3526000	C-470 N	SR 44	CR 412	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MINOR ARTERIAL	D	572	N	N	0	332	533	572	572	2,458	238	119	0.21	B	119	0.21	B
3530000	C-470 N	CR 412	CR 416 N	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MINOR ARTERIAL	D	572	N	N	0	332	533	572	572	3,547	325	171	0.30	B	154	0.27	B
3550100	C-470 N	CR 416 N	CR 479	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MINOR ARTERIAL	D	572	N	N	0	332	533	572	572	6,903	600	359	0.63	C	241	0.42	B
3550100I	C-470 N	CR 479	SR 93/I-75	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MINOR ARTERIAL	D	572	N	N	0	332	533	572	572	8,092	689	408	0.71	C	281	0.49	B
3543100	C-472	US 301/SR 35	CR 117	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	3,755	329	149	0.26	B	180	0.31	B
35431101	C-472	CR 117	LYNN HAVEN LANE	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	3,219	313	145	0.25	B	168	0.29	B
35431102	C-472	LYNN HAVEN LANE	BUENA VISTA BLVD	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	4,619	385	187	0.33	B	198	0.35	B
35310001	C-475 S (Main Street)	SR 48 W	JUMPER DR S	4U	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	9,062	901	385	0.67	C	516	0.90	C
35310002	C-475 S (Main Street)	JUMPER DR S	CR 542 W	4U	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	5,030	461	228	0.40	B	233	0.41	B
35310003	C-475 S	CR 542 W	CR 532 W	2U	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	4,199	356	191	0.33	B	165	0.29	B
35310004	C-475 S	CR 532 W	C-470 E	2U	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	3,611	314	174	0.30	B	140	0.24	B
3525100	C-475 N	SR 44	C-462	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	533	N	N	0	332	533	572	572	2,771	281	109	0.20	B	172	0.32	B
3525110	C-475 N	C-462	C-466	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	533	N	N	0	332	533	572	572	2,801	276	110	0.21	B	166	0.31	B
3537120	C-475 N	C-466	MARION COUNTY BOUNDARY	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	4,255	382	204	0.36	B	178	0.31	B
3540100	C-476 E (Noble Ave)	US 301/SR 35	JASPER ST	2U	U	COUNTY	BUSHNELL	COLLECTOR	D	572	N	N	0	332	533	572	572	1,734	160	87	0.15	B	73	0.13	B
3540110	C-476 E	JASPER ST	SR 471	2U	U	COUNTY	BUSHNELL	COLLECTOR	D	572	N	N	0	332	533	572	572	1,734	160	87	0.15	B	73	0.13	B
3549100	C-476 W	HERNANDO COUNTY BOUNDARY	C-575	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	533	Y	N	0	332	533	572	572	3,034	272	95	0.18	B	177	0.33	B
3549110	C-476 W	C-575	C-476B	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	533	Y	N	0	332	533	572	572	3,381	334	117	0.22	B	217	0.41	B
3549120	C-476 W	C-476B	CR 625	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	533	Y	N	0	332	533	572	572	3,312	308	132	0.25	B	176	0.33	B

TABLE 2-2 - COUNTY TRANSPORTATION MANAGEMENT SYSTEM

SUMTER COUNTY TMS SEGMENT REPORT - 2011 Level of Service

Posted on January 17, 2012

Segment ID	ROAD NAME	FROM	TO	NUMBER OF LANES	AREA TYPE	MAINTAINING AGENCY	JURISDICTION	FUNCTIONAL CLASSIFICATION	ADOPTED LOS STANDARD	LOS CAPACITY	EVACUATION ROUTE	SIS?	PEAK HOUR DIRECTION CAPACITIES					2011 LEVEL OF SERVICE							
													A	B	C	D	E	AADT	PM PEAK HOUR TOTAL	EB/NB	V/C RATIO	LOS	WB/SB	V/C RATIO	LOS
3549130	C-476 W	CR 625	CR 616	2U	U	COUNTY	BUSHNELL	COLLECTOR	C	533	Y	N	0	332	533	572	572	3,792	355	141	0.26	B	214	0.40	B
3549140	C-476 W	CR 616	US 301/SR 35	2U	U	COUNTY	BUSHNELL	COLLECTOR	D	572	Y	N	0	332	533	572	572	4,272	402	150	0.26	B	252	0.44	B
3549160	C-476 (Seminole Ave)	US 301/SR 35	C-48	2U	U	COUNTY	BUSHNELL	COLLECTOR	D	572	Y	N	0	332	533	572	572	4,272	402	150	0.26	B	252	0.44	B
3538000	C-476B	SR 93/I-75	SW 95TH AVE	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	533	N	N	0	332	533	572	572	1,576	173	91	0.17	B	82	0.15	B
35380001	C-476B	SW 95TH AVE	C-476 W	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	533	N	N	0	332	533	572	572	1,721	198	145	0.27	B	53	0.10	B
3535100	C-478 W	US 301/SR 35	CR 747	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	2,056	183	84	0.15	B	99	0.17	B
3535110	C-478 E	CR 747	SR 471	2U	U	COUNTY	WEBSTER	COLLECTOR	D	572	N	N	0	332	533	572	572	1,744	159	82	0.14	B	77	0.13	B
3534100	C-478 E	SR 471	CR 707	2U	U	COUNTY	CENTER HILL	COLLECTOR	D	572	N	N	0	332	533	572	572	1,793	177	83	0.15	B	94	0.16	B
3534110	C-478 E (Virginia Ave)	CR 707	C-48 E	2U	U	COUNTY	CENTER HILL	COLLECTOR	D	572	N	N	0	332	533	572	572	869	105	43	0.08	B	62	0.11	B
3529000	C-478A	SR 50	SR 471	2U	U	COUNTY	WEBSTER	COLLECTOR	D	572	N	N	0	332	533	572	572	612	62	24	0.04	B	38	0.07	B
3553130	CR 48 (Florida St)	US 301/SR 35 (Noble Ave)	C-476 W	2U	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	5,579	479	233	0.41	B	246	0.43	B
3553160	C-48	C-476 W	CR 557	2U	R	COUNTY	BUSHNELL	COLLECTOR	D	621	Y	N	0	0	468	621	666	5,579	479	233	0.38	C	246	0.40	C
3553170	C-48	CR 557	CR 747	2U	R	COUNTY	BUSHNELL	COLLECTOR	D	621	Y	N	0	0	468	621	666	5,579	479	233	0.38	C	246	0.40	C
3553180	C-48	CR 747	SR 471	2U	R	COUNTY	BUSHNELL	COLLECTOR	D	621	Y	N	0	0	468	621	666	5,077	436	205	0.44	C	231	0.49	C
3553190	C-48	SR 471	CR 567	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	621	N	N	0	0	468	621	666	4,575	392	177	0.38	C	215	0.46	C
3553200	C-48	CR 567	CR 569	2U	R	COUNTY	CENTER HILL	COLLECTOR	D	621	N	N	0	0	468	621	666	4,291	344	159	0.26	C	185	0.30	C
3553210	C-48	CR 569	C-478	2U	R	COUNTY	CENTER HILL	MAJOR COLLECTOR	D	621	N	N	0	0	468	621	666	4,291	344	159	0.26	C	185	0.30	C
3553100	C-48	C-478	C-469	2U	R	COUNTY	CENTER HILL	MAJOR COLLECTOR	D	621	N	N	0	0	468	621	666	2,437	223	84	0.14	C	139	0.22	C
3556100	C-48	C-469	CR 558	2U	R	COUNTY	CENTER HILL	MAJOR COLLECTOR	D	621	N	N	0	0	468	621	666	2,437	223	84	0.14	C	139	0.22	C
3556110	C-48	CR 558	LAKE COUNTY BOUNDARY	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	621	N	N	0	0	468	621	666	1,301	97	39	0.06	C	58	0.09	C
3555100	C-48	CITRUS COUNTY BOUNDARY	C-575	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	Y	N	0	0	468	621	666	3,277	317	125	0.27	C	192	0.41	C
3555110	C-48	C-575	CR 625	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	Y	N	0	0	468	621	666	4,016	374	138	0.29	C	236	0.50	C
3555120	C-48	CR 625	CR 616	2U	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	572	Y	N	0	332	533	572	572	4,754	430	151	0.26	B	279	0.49	B
3555130	C-48	CR 616	CR 313	4D	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	1,764	Y	N	0	1,404	1,701	1,764	1,764	7,004	630	243	0.14	B	387	0.22	B
35541001	C-48	CR 313	SR 93/I-75	4D	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	1,764	Y	N	0	1,404	1,701	1,764	1,764	8,174	701	274	0.16	B	427	0.24	B
35320001	C-575	C-476	CR 663	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	793	102	70	0.15	C	32	0.07	C
3532000	C-575	CR 663	C-48	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	643	92	59	0.13	C	33	0.07	C
6000055	CANAL ST	C-466A	ODELL CIR (S)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	2,292	197	119	0.21	B	78	0.14	B
6000060	CANAL ST	ODELL CIR (S)	BONITA BLVD	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	3,473	287	143	0.25	B	144	0.25	B
6000065	CANAL ST	BONITA BLVD	ODELL CIR (N)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	5,292	421	211	0.37	B	210	0.37	B
6000070	CANAL ST	ODELL CIR (N)	STILLWATER TRL	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	572	N	N	0	332	533	572	572	3,982	329	143	0.25	B	186	0.33	B
6000080	CHURCHILL DOWNS	BELEVEDERE BLVD	MORVEN PARKWAY	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	2,044	179	80	0.14	B	99	0.17	B
60000801	CHURCHILL DOWNS	MORVEN PARKWAY	LYNNHAVEN LN	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	1,366	105	49	0.09	B	56	0.10	B
3248000	CR 101	C-466	WOODRIDGE DR	4D	U	COUNTY	WILDWOOD	COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	5,650	500	276	0.22	B	224	0.18	B
4002000	CR 101	WOODRIDGE DR	CR 102	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	2,652	239	150	0.26	B	89	0.16	B
40010001	CR 103	C-466 E	WOODRIDGE DR	4D	U	COUNTY	WILDWOOD	COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	2,170	182	81	0.06	B	101	0.08	B
400100012	CR 103	WOODRIDGE DR	CR 102	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	1,577	152	76	0.13	B	76	0.13	B
6000145	CR 139 (Powell Rd)	SR 44	C-44A	4D	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	3,950	371	208	0.16	B	163	0.13	B
3290000	CR 139 (Powell Rd)	C-44A	C-466A	4D	U	COUNTY	WILDWOOD	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	3,950	371	208	0.16	B	163	0.13	B
5080	CR 209	CR 232	C-462 E	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	724	101	71	0.12	B	30	0.05	B
3248105	CR 209	C-462 E	CR 216	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	724	101	71	0.12	B	30	0.05	B
3248102	CR 209	CR 216	C-466	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	645	86	63	0.11	B	24	0.04	B
3248110	CR 209	C-466	CR 202	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	565	71	54	0.09	B	17	0.03	B
6000	CR 213 (Walker Rd)	SR 44	C-44A	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	406	40	16	0.03	B	24	0.04	B
3245100	CR 229	SR 44	C-462	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	2,138	193	112	0.24	C	81	0.17	C
3245110	CR 229	C-462	C-466	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	2,039	180	106	0.23	C	74	0.16	C
4008000	CR 237	CR 222	C-466	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	386	34	18	0.04	C	16	0.03	C
4009000	CR 501	C-470E	C-500	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	1,916	182	94	0.16	B	88	0.15	B
40090001	CR 501	C-500	C-468	2U	U	COUNTY	WILDWOOD	COLLECTOR	D	572	N	N	0	332	533	572	572	2,390	257	166	0.29	B	91	0.16	B
3301000	CR 616 (Hayes Rd)	C-476	C-48	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	3,163	301	140	0.30	C	161	0.34	C
3223000	CR 673	SR 93/I-75	CR 674	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	C	468	N	N	0	0	468	621	666	1,693	123	73	0.16	C	50	0.11	C
32230001	CR 673	CR 674	US 301/SR 35	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	C	468	N	N	0	0	468	621	666	1,301	104	54	0.12	C	50	0.11	C
3269100	CR 721	SR 471	CR 727	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	686	65	36	0.08	C	29	0.06	C
3229000	CR 727	SR 50	CR 721	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	177	21	13	0.03	C	8	0.02	C
3293100	CR 747	C-478 E	CR 730	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	683	71	24	0.05	C	47	0.10	C
3293110	CR 747	CR 730	C-48	2U	R	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	C	468	N	N	0	0	468	621	666	1,164	147	77	0.16	C	70	0.15	C
5000300	EL CAMINO REAL	BUENA VISTA BLVD	ENRIQUE DR	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	17,097	1,430	774	0.61	B	656	0.51	B
5000390	EL CAMINO REAL	ENRIQUE DR	BUENOS AIRES BLVD	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	15,801	1,254	507	0.40	B	747	0.59	B
5999990	EL CAMINO REAL	BUENOS AIRES BLVD	MORSE BLVD N	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	12,299	1,080	633	0.50	B	447	0.35	B
5000700	EL CAMINO REAL	MORSE BLVD N	LAKE COUNTY BOUNDARY	2D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	14,206	1,356	661	0.83	C	695	0.88	C
3539100	JASPER ST	C-476A (Seminole Ave)	C-476 E	2U	U	COUNTY	BUSHNELL	COLLECTOR	D	572	N	N	0	332	533	572	572	504	52	23	0.04	B	29	0.05	B
6000090	LYNNHAVEN LN	C-472	CHURCHILL DOWNS	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	2,389	201	89	0.11	B	117	0.15	B
6000095	LYNNHAVEN LN	CHURCHILL DOWNS	BELVEDERE BLVD	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	2,509	199	119	0.15	B	80	0.10	B
6000020	MARIPOSA WAY	C-466E	500 FT SOUTH MARIPOSA WAY	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	731	74	20	0.03	B	54	0.09	B
60000201	MARIPOSA WAY	500 FT SOUTH MARIPOSA WAY	MORSE BLVD N	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	1,017	93	66	0.12	B	27	0.05	B
59999951	MORSE BLVD N	C-466A	ODELL CIRCLE S. END	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	12,830	1,240	731	0.57	B	509	0.40	B
59999952	MORSE BLVD N	ODELL CIRCLE S. END	BONITA BLVD	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	7,622	680	349	0.27	B	331	0.26	B
59999953	MORSE BLVD N	BONITA BLVD	ODELL CIRCLE N. END	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	7,232	631	325	0.26	B	306	0.24	B
59999954	MORSE BLVD N	ODELL CIRCLE N. END	STILLWATER TRAIL	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	12,120	1,014	530	0.42	B	484	0.38	B
59999955	MORSE BLVD N	STILLWATER TRAIL	C-466	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	20,989	1,724	790	0.62	B	934	0.73	B
5000430	MORSE BLVD N	C-466	RIO GRANDE AVE	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	15,578	1,224	547	0.69	C	677	0.85	C
5000420	MORSE BLVD N	RIO GRANDE AVE	EL CAMINO REAL	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	10,704	915	388	0.49	B	527	0.67	C
6000085	NE 90TH ST (CR 100)	TERMINUS (Lake Ella Rd)	C-466	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	1,191	111	38	0.05	B	73	0.09	B
6000100	ODELL CIRCLE	BUENA VISTA BLVD (S)	BACKWATER WAY	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	3,914	315	167	0.21	B	148	0.19	B
60001001	ODELL CIRCLE	BACKWATER WAY	CANAL ST (S)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	4,719	395	195	0.25	B	200	0.25	B
6000105	ODELL CIRCLE	CANAL ST (S)	ARVIN LN	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	4,695	491	227	0.29	B	264	0.33	B
60001051	ODELL CIRCLE	ARVIN LN	MORSE BLVD N (S)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	4,309	366	210	0.27	B	156	0.20	B
6000110	ODELL CIRCLE	MORSE BLVD N (S)	STILLWATER TRL	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	4,468	453	279	0.35	B	174	0.22	B
6000115	ODELL CIRCLE	STILLWATER TRL	MORSE BLVD N (N)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	3,597	338	172	0.22	B	166	0.21	B
6000120	ODELL CIRCLE	MORSE BLVD N (N)	CANAL ST (N)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	2,725	223	65	0.08	B	158	0.20	B

TABLE 2-2 - COUNTY TRANSPORTATION MANAGEMENT SYSTEM

SUMTER COUNTY TMS SEGMENT REPORT - 2011 Level of Service

Posted on January 17, 2012

Segment ID	ROAD NAME	FROM	TO	NUMBER OF LANES	AREA TYPE	MAINTAINING AGENCY	JURISDICTION	FUNCTIONAL CLASSIFICATION	ADOPTED LOS STANDARD	LOS CAPACITY	EVACUATION ROUTE	SIS?	PEAK HOUR DIRECTION CAPACITIES					2011 LEVEL OF SERVICE							
													A	B	C	D	E	AADT	PM PEAK HOUR TOTAL	EB/NB	V/C RATIO	LOS	WB/SB	V/C RATIO	LOS
6000125	ODELL CIRCLE	CANAL ST (N)	BUENA VISTA BLVD (N)	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	792	N	N	0	459	738	792	792	3,261	281	142	0.18	B	139	0.18	B
5000500	RIO GRANDE AVE	MORSE BLVD N	LAKE COUNTY BOUNDARY	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	7,640	746	317	0.55	B	429	0.75	C
3552100	SR 44	CITRUS COUNTY BOUNDARY	C-470 N	4D	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	2,040	Y	H	0	1,300	2,040	2,630	3,000	8,742	751	261	0.13	B	490	0.24	B
3552110	SR 44	C-470 N	C-475	4D	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	2,040	Y	H	0	1,300	2,040	2,630	3,000	8,252	697	245	0.12	B	452	0.22	B
3552120	SR 44	C-475	SR 93/I-75	4D	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	2,040	Y	H	0	1,300	2,040	2,630	3,000	7,762	642	229	0.11	B	413	0.20	B
3552130	SR 44	SR 93/I-75	C-44A	4D	U	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,274	Y	N	0	1,014	1,229	1,274	1,274	12,611	1,063	441	0.35	B	622	0.49	B
3551130	SR 44	C-44A	US 301/SR 35	4D	U	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,274	Y	N	0	1,014	1,229	1,274	1,274	12,947	951	437	0.34	B	514	0.40	B
3551100	SR 44	US 301/SR 35	CR 139	4D	U	STATE	WILDWOOD	ARTERIAL 1	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	12,429	954	411	0.21	B	543	0.28	B
35511201	SR 44	CR 139	BUENA VISTA BLVD	4D	U	STATE	WILDWOOD	PRINCIPAL ARTERIAL	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	12,429	954	411	0.21	B	543	0.28	B
35511202	SR 44	BUENA VISTA BLVD	C-468	4D	U	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,960	N	N	0	1,560	1,890	1,960	1,960	13,188	1,037	456	0.23	B	581	0.30	B
355113021	SR 44	C-468	LAKE COUNTY BOUNDARY	4D	U	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	13,947	1,119	500	0.25	B	619	0.32	B
35480001	SR 471	POLK COUNTY BOUNDARY	SR 50	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	780	Y	N	0	420	780	1,100	1,400	1,918	131	55	0.07	B	76	0.10	B
3558170	SR 471	SR 50	CR 721	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	780	Y	N	0	420	780	1,100	1,400	3,900	277	121	0.16	B	156	0.20	B
3558180	SR 471	CR 721	C-478A	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,100	Y	N	0	420	780	1,100	1,400	3,807	307	137	0.12	B	170	0.15	B
3558190	SR 471	C-478A	C-478 E (S)	2U	R	STATE	WEBSTER	PRINCIPAL ARTERIAL	D	1,100	Y	N	0	420	780	1,100	1,400	3,807	307	137	0.12	B	170	0.15	B
3558110	SR 471	C-478 E (S)	C-478 E (N)	2U	R	STATE	WEBSTER	PRINCIPAL ARTERIAL	D	1,100	Y	N	0	420	780	1,100	1,400	3,807	307	137	0.12	B	170	0.15	B
3558120	SR 471	C-478 (N)	CR 722	2U	R	STATE	WEBSTER	PRINCIPAL ARTERIAL	D	1,100	Y	N	0	420	780	1,100	1,400	4,792	378	158	0.14	B	220	0.20	B
3558140	SR 471	CR 722	C-48 E	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,100	Y	N	0	420	780	1,100	1,400	4,792	378	158	0.14	B	220	0.20	B
3558150	SR 471	C-48 E	C-476	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,100	Y	N	0	420	780	1,100	1,400	4,178	327	127	0.12	B	200	0.18	B
35581601	SR 471	C-476	US 301/SR 35	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,100	Y	N	0	420	780	1,100	1,400	2,846	202	73	0.07	B	129	0.12	B
35541002	SR 48 (CR 48 W)	SR 93/I-75	CR 609	2D	U	STATE	BUSHNELL	PRINCIPAL ARTERIAL	D	880	Y	N	0	510	820	880	880	10,852	830	372	0.34	B	458	0.42	B
3554120	SR 48 (CR 48 W)	CR 609	CR 311 (N West St)	2U	U	STATE	BUSHNELL	PRINCIPAL ARTERIAL	D	880	Y	N	0	510	820	880	880	10,000	773	337	0.38	B	437	0.50	B
3554130	SR 48 (CR 48 W)	CR 311 (N West St)	C-475 S (Main St)	2U	U	STATE	BUSHNELL	PRINCIPAL ARTERIAL	D	880	Y	N	0	510	820	880	880	9,147	716	301	0.34	B	415	0.47	B
3554140	SR 48 (Main St N)	US 301/SR 35	SR 48	4U	U	COUNTY	BUSHNELL	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	10,111	823	383	0.30	B	440	0.35	B
3559100	SR 50	HERNANDO COUNTY BOUNDARY	C-478A	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	780	Y	N	0	420	780	1,100	1,400	4,457	311	137	0.18	B	174	0.22	B
3559110	SR 50	C-478A	SR 471	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	780	Y	N	0	420	780	1,100	1,400	5,336	367	163	0.21	B	204	0.26	B
3560110	SR 50	SR 471	C-469	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	780	Y	N	0	420	780	1,100	1,400	5,104	368	154	0.20	B	214	0.27	B
3560120	SR 50	C-469	LAKE COUNTY BOUNDARY	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	780	Y	N	0	420	780	1,100	1,400	6,112	430	191	0.24	B	239	0.31	B
3545100	SR 91/FLORIDAS TURNPIKE	SR 93/I-75	US 301/SR 35	4F	R	STATE	WILDWOOD	FREEWAY	C	2,820	Y	H	0	2,100	2,820	3,360	3,600	18,753	1,534	738	0.26	B	796	0.28	B
3545110	SR 91/FLORIDAS TURNPIKE	US 301/SR 35	LAKE COUNTY BOUNDARY	4F	R	STATE	WILDWOOD	FREEWAY	C	2,820	Y	H	0	2,100	2,820	3,360	3,600	30,086	2,251	1,062	0.38	B	1,189	0.42	B
3546100	SR 93/I-75	HERNANDO COUNTY BOUNDARY	CR 673	4F	R	STATE	UNINCORPORATED SUMTER COUNTY	FREEWAY	C	2,820	Y	H	0	2,100	2,820	3,360	3,600	30,456	2,092	987	0.35	B	1,105	0.39	B
3546120	SR 93/I-75	CR 673	C-48	4F	R	STATE	BUSHNELL	FREEWAY	C	2,820	Y	H	0	2,100	2,820	3,360	3,600	27,740	1,847	881	0.31	B	966	0.34	B
3546130	SR 93/I-75	C-48	C-470 E	4F	R	STATE	BUSHNELL	FREEWAY	C	2,820	Y	H	0	2,100	2,820	3,360	3,600	28,103	2,112	1,118	0.40	B	994	0.35	B
3546140	SR 93/I-75	C-470 E	SR 91/FLORIDAS TURNPIKE	4F	R	STATE	UNINCORPORATED SUMTER COUNTY	FREEWAY	C	2,820	Y	H	0	2,100	2,820	3,360	3,600	28,501	2,150	1,135	0.40	B	1,015	0.36	B
3546150	SR 93/I-75	SR 91/FLORIDAS TURNPIKE	SR 44	6F	R	STATE	UNINCORPORATED SUMTER COUNTY	FREEWAY	C	4,220	Y	H	0	3,100	4,220	5,040	5,560	49,799	3,432	1,376	0.44	B	2,056	0.66	B
3546180	SR 93/I-75	SR 44	MARION COUNTY BOUNDARY	6F	R	STATE	UNINCORPORATED SUMTER COUNTY	FREEWAY	C	4,220	Y	H	0	3,100	4,220	5,040	5,560	52,879	3,656	1,597	0.52	B	2,059	0.66	B
6000135	STILLWATER TRL	BUENA VISTA BLVD	CANAL ST	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	7,892	628	291	0.23	B	337	0.26	B
6000130	STILLWATER TRL	CANAL ST	MORSE BLVD	4D	U	COUNTY	UNINCORPORATED SUMTER COUNTY	MAJOR COLLECTOR	D	1,274	N	N	0	1,014	1,229	1,274	1,274	8,113	640	265	0.21	B	375	0.29	B
4060	STILLWATER TRL	MORSE BLVD	LOCKHART AVE	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	4,714	397	226	0.40	B	171	0.30	B
4070	STILLWATER TRL	LOCKHART AVE	ODELL CIRCLE	2U	U	COUNTY	UNINCORPORATED SUMTER COUNTY	COLLECTOR	D	572	N	N	0	332	533	572	572	2,697	230	114	0.20	B	116	0.20	B
3547105	US 27/US 441/SR 500	MARION COUNTY BOUNDARY	BUENOS AIRES BLVD	4D	U	STATE	UNINCORPORATED SUMTER COUNTY	ARTERIAL 1	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	36,331	2,579	1,410	0.72	B	1,169	0.60	B
3547120	US 27/US 441/SR 500	BUENOS AIRES BLVD	MORSE BLVD	6D	U	STATE	UNINCORPORATED SUMTER COUNTY	ARTERIAL 1	D	2,940	Y	N	0	2,400	2,860	2,940	2,940	36,331	2,579	1,410	0.48	B	1,169	0.40	B
3253100	US 301/SR 35	HERNANDO COUNTY BOUNDARY	CR 656	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	780	Y	N	0	420	780	1,100	1,400	3,442	284	115	0.15	B	169	0.22	B
325310	US 301/SR 35	CR 656	C-478	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	C	780	Y	N	0	420	780	1,100	1,400	4,790	377	136	0.17	B	241	0.31	B
3253140	US 301/SR 35	C-478	C-476 (Seminole Av)	2U	R	STATE	BUSHNELL	PRINCIPAL ARTERIAL	D	690	Y	N	0	0	520	690	740	5,588	466	162	0.23	C	304	0.44	C
3253150	US 301/SR 35 (Main St)	C-476 (Seminole Ave)	SR 48 (Main St)	4U	R	STATE	BUSHNELL	PRINCIPAL ARTERIAL	D	1,490	Y	N	0	0	1,240	1,490	1,590	8,734	714	278	0.19	C	436	0.29	C
3253130	US 301/SR 35 (Noble Av)	SR 48 (Main St)	C-48 (Florida St)	2U	R	STATE	BUSHNELL	PRINCIPAL ARTERIAL	D	690	Y	N	0	0	520	690	740	8,734	714	278	0.40	C	436	0.63	C
3253110	US 301/SR 35 (Noble Av)	C-48 (Florida St)	C-476 (Noble Av)	2U	R	STATE	BUSHNELL	PRINCIPAL ARTERIAL	D	690	Y	N	0	0	520	690	740	4,062	343	154	0.22	C	189	0.27	C
32531602	US 301/SR 35	C-476 (Noble Av)	C-542	2U	R	STATE	BUSHNELL	PRINCIPAL ARTERIAL	D	690	Y	N	0	0	520	690	740	4,357	370	158	0.23	C	212	0.31	C
32531601	US 301/SR 35	C-542	C-470 E (S)	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	690	Y	N	0	0	520	690	740	7,423	598	258	0.37	C	340	0.49	C
3253170	US 301/SR 35	C-470 E (S)	SR 471	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	690	Y	N	0	0	520	690	740	7,423	598	258	0.37	C	340	0.49	C
3253180	US 301/SR 35	SR 471	C-470 E (N)	2U	R	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	690	Y	N	0	0	520	690	740	10,831	915	378	0.59	C	537	0.77	D
3253190	US 301/SR 35	C-470 E (N)	CR 514 (Warm Springs Ave)	2U	R	STATE	COLEMAN	ARTERIAL 1	D	690	Y	N	0	0	520	690	740	5,795	497	242	0.35	C	255	0.37	C
3253200	US 301/SR 35 (Warm Springs Ave)	CR 514 (Warm Springs Ave)	C-468	2U	U	STATE	COLEMAN	ARTERIAL 1	D	880	Y	N	0	510	820	880	880	7,443	625	305	0.35	B	320	0.36	B
3253210	US 301/SR 35	C-468	SR 91/FLORIDAS TURNPIKE	2U	U	STATE	WILDWOOD	ARTERIAL 1	D	880	Y	N	0	510	820	880	880	9,091	752	368	0.42	B	384	0.44	B
3253220	US 301/SR 35 (Main St)	SR 91/FLORIDAS TURNPIKE	CR 156 (Clay Drain Rd)	4D	U	STATE	WILDWOOD	PRINCIPAL ARTERIAL	D	3,320	Y	N	0	1,770	2,560	3,320	3,760	11,171	901	447	0.13	B	454	0.14	B
3253230	US 301/SR 35 (Main St)	CR 156 (Clay Drain Rd)	SR 44	4D	U	STATE	WILDWOOD	ARTERIAL 1	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	13,250	1,049	526	0.27	B	523	0.27	B
3253240	US 301/SR 35 (Main St)	SR 44	C-44A	4D	U	STATE	WILDWOOD	ARTERIAL 1	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	18,333	1,328	684	0.35	B	644	0.33	B
3253250	US 301/SR 35 (Main St)	C-44A	C-466A (Cleveland Ave)	4D	U	STATE	WILDWOOD	ARTERIAL 1	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	16,684	1,208	637	0.33	B	571	0.29	B
32532601	US 301/SR 35	C-466A (Cleveland Ave)	C-462 (S)	4D	U	STATE	WILDWOOD	ARTERIAL 1	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	12,995	963	524	0.27	B	439	0.22	B
3253270	US 301/SR 35	C-462 (S)	C-462 (N)	4D	U	STATE	UNINCORPORATED SUMTER COUNTY	PRINCIPAL ARTERIAL	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	14,229	1,103	643	0.33	B	460	0.23	B
3253280	US 301/SR 35	C-462 (N)	CR 222	4D	U	STATE	WILDWOOD	PRINCIPAL ARTERIAL	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	14,807	1,171	699	0.36	B	472	0.24	B
3253290	US 301/SR 35	CR 222	C-472	4D	U	STATE	WILDWOOD	PRINCIPAL ARTERIAL	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	15,384	1,238	755	0.39	B	483	0.25	B
32533001	US 301/SR 35	C-472	C-466	4D	U	STATE	WILDWOOD	PRINCIPAL ARTERIAL	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	16,302	1,330	783	0.40	B	547	0.28	B
32533101	US 301/SR 35	C-466	CR 204	4D	U	STATE	WILDWOOD	ARTERIAL 1	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	14,229	1,141	729	0.37	B	412	0.21	B
32533102	US 301/SR 35	CR 204	MARION COUNTY BOUNDARY	4D	U	STATE	WILDWOOD	PRINCIPAL ARTERIAL	D	1,960	Y	N	0	1,560	1,890	1,960	1,960	14,229	1,141	729	0.37	B	412	0.21	B

Source: Sumter County 2011 Traffic Counts Program and FDOT 2010 Traffic Information DVD

Lake-Sumter MPO
Metropolitan Planning Organization

Lake County
Sumter County
Town of Astatula
City of Bushnell
City of Center Hill
City of Clermont
City of Coleman
City of Eustis
City of Fruitland Park
City of Groveland
Town of Howey-in-the-Hills
Town of Lady Lake
City of Leesburg
City of Mascotte
City of Minneola
Town of Montverde
City of Mount Dora
City of Tavares
City of Umatilla
City of Webster
City of Wildwood
Florida Central Railroad
Lake County Schools
Sumter County Schools

August 24, 2012

Heather S. Garcia
Growth Management Administrator FDOT District 5
719 S. Woodland Blvd.
Deland, FL 32720

RE: *TRANSPORTATION 2035* Consistency with the Unified Sumter County, Center Hill, and Webster Comprehensive Plan Amendments and City of Wildwood Comprehensive Plan Future Land Use Maps

Dear ~~Ms. Garcia~~, Heather

The Lake~Sumter MPO has been asked to provide verification that *TRANSPORTATION 2035*, the MPOs adopted long range transportation plan, was developed in coordination with Sumter County and the municipalities in Sumter County. This request was made by Sumter County and the City of Wildwood in response to comments received from the Florida Department of Transportation on the Unified Sumter County, Center Hill, and Webster Comprehensive Plan Amendments.

The MPO worked very closely with its member governments when forecasting land use as a part of the long range transportation plan development process. A Land Use Subcommittee was formed made up of members from the Technical Advisory Committee (TAC) and/or other local government staff that assist in land use decision making and interested parties from the Citizens Advisory Committee (CAC) and Bicycle Pedestrian Advisory Committee (BPAC). Additionally, an extensive two-year public involvement process was implemented to guarantee the public's opinion was the driving force behind the decisions made for the region's transportation future.

Two distinct land use forecasting approaches were presented during the plan development process. The first scenario, or "Trend" as it is referred to, is the traditional method which applies the currently adopted comprehensive plans for all our member governments (future land use maps) to project future population and employment. The second approach, the Land Use Conflict Identification Strategy (LUCIS) represented an alternative growth condition if the region followed a growth pattern that reflected the Centers, Corridors, Countryside, and Conservation principles.

Member governments chose to endorse the LUCIS model. The resultant land use assumptions are not an advancement of the locally adopted comprehensive plans but the population and employment forecasts are consistent with the forecasts are made by the Bureau of Business and economic research (BEBR). Sumter County and the City of Wildwood worked with the MPO to modify the results and felt comfortable using the BEBR medium-high population projections as opposed to the medium projections adopted by Lake County.

We are confident the future land uses in the Unified Sumter County, Center Hill, and Webster Comprehensive Plan Amendments and the City of Wildwood Comprehensive Plans are consistent with the land use assumptions used in the development of *TRANSPORTATION 2035*, the regional vision and the land use forecast generated by the LUCIS model.

If you need additional information or have questions, please contact me at your convenience.

Sincerely,

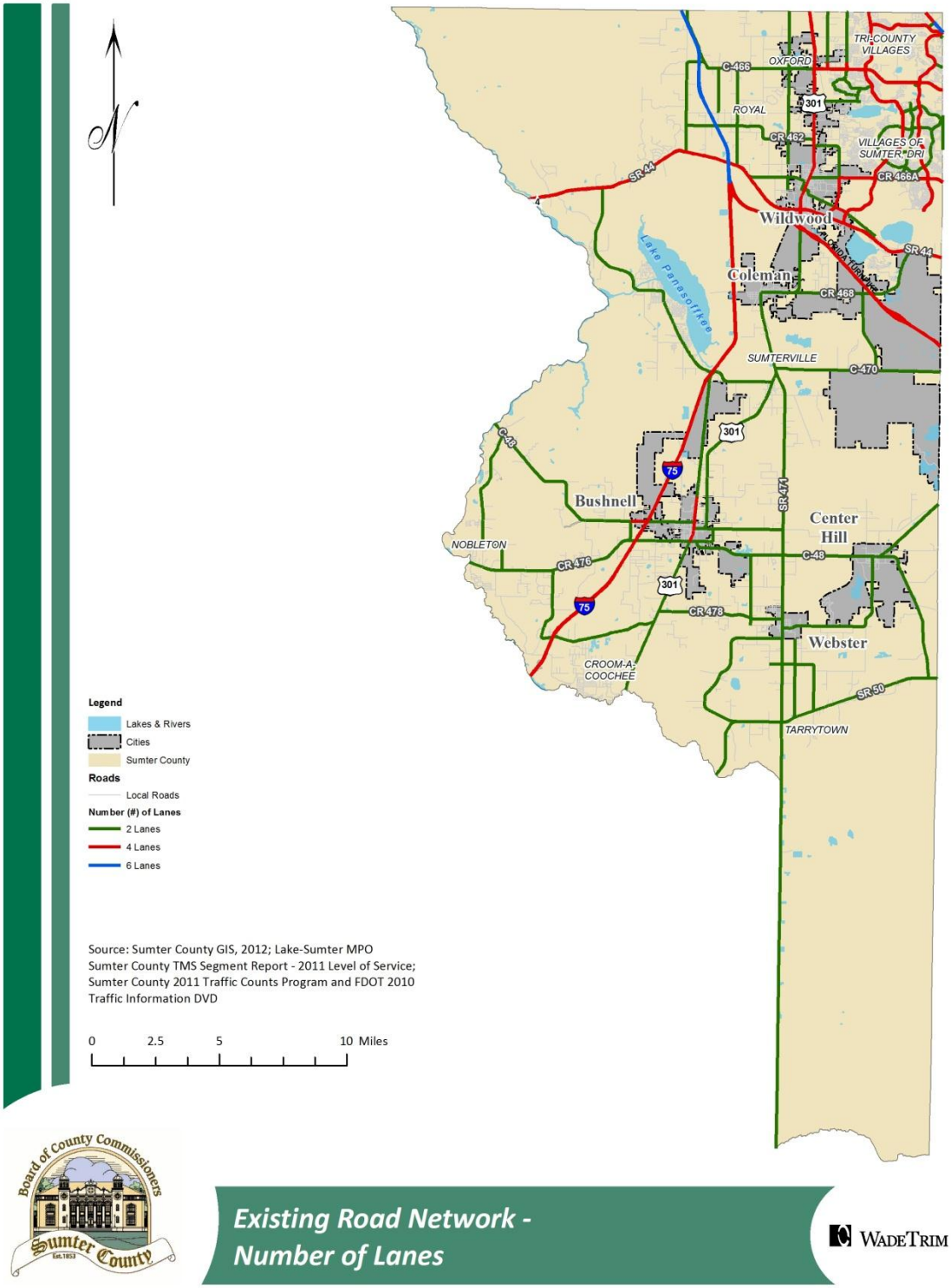
P. Richmond

Pamela Richmond, AICP
MPO Project Manager

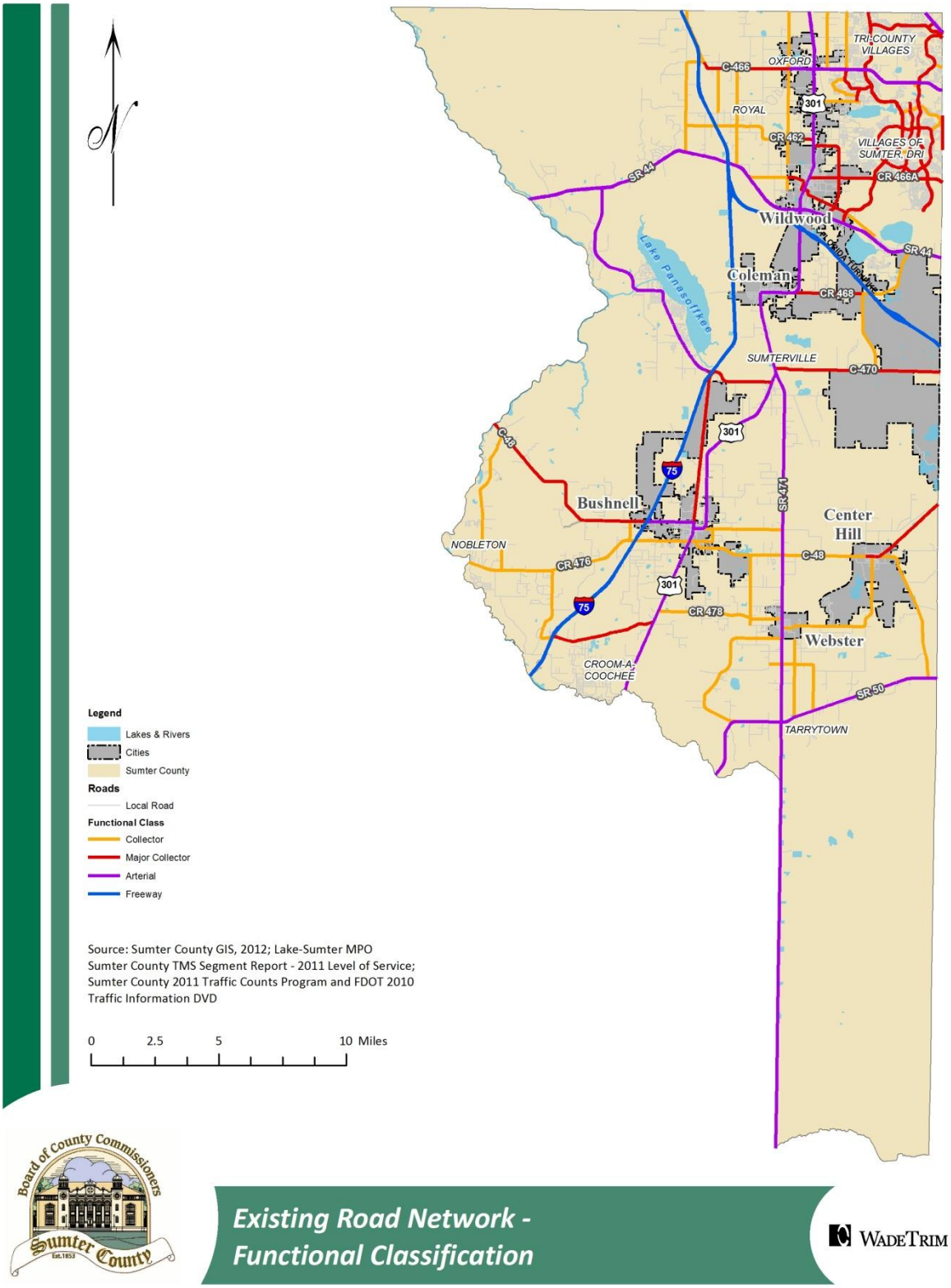
cc: Sue Farnsworth, Sumter County

Maps for Transportation Element

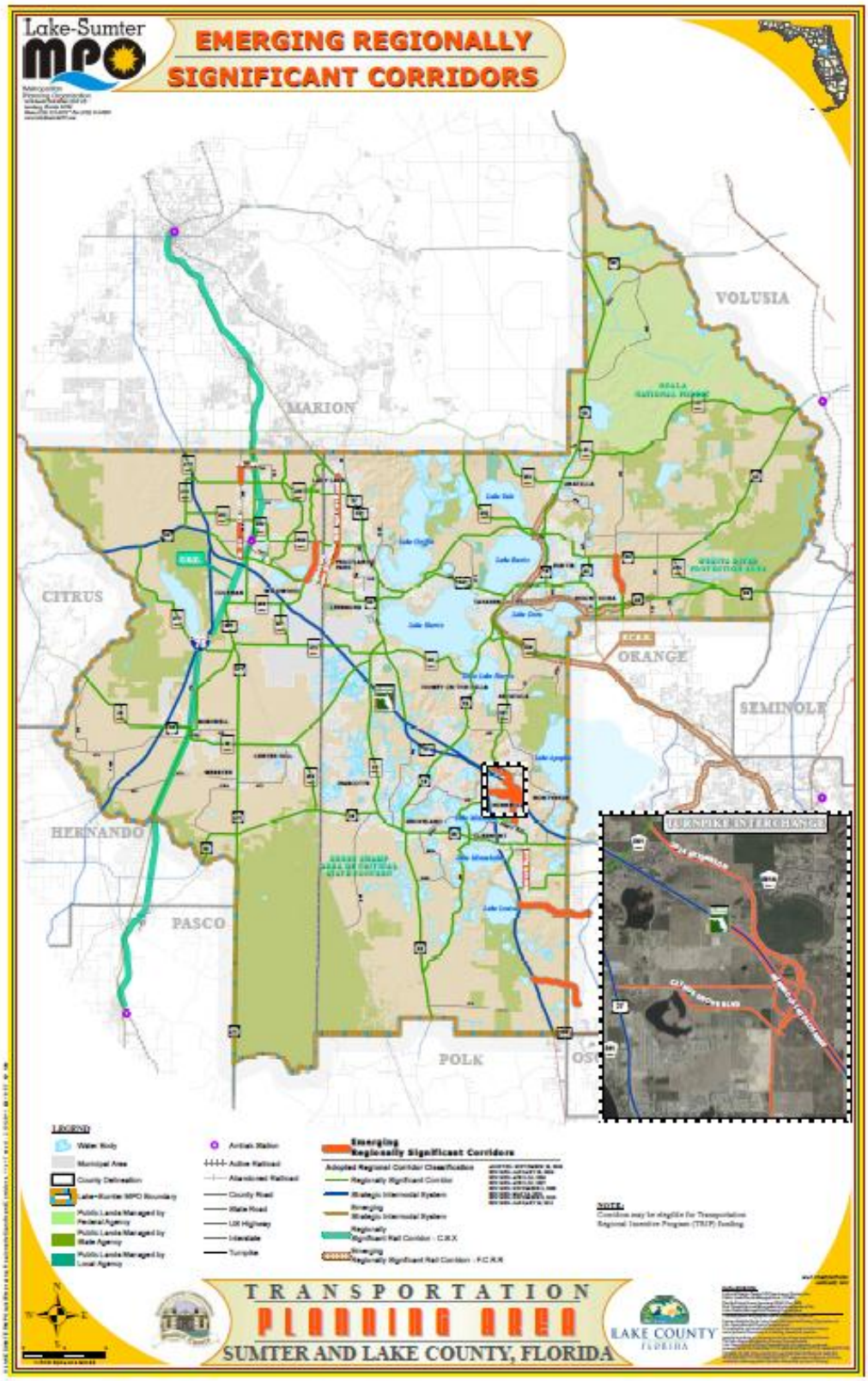
Map 2-1 – Existing Road Network – Number of Lanes



Map 2-2 – Existing Road Network – Functional Classification



Map 2-3 – Regionally and Emerging Regionally Significant Roads



Attachments

- Sumter County Transit Operational Characteristics
- Sumter County Transit Fixed Route Circulator Schedule
- 2035 Long Range Transportation Plan – Lake Sumter Metropolitan Planning Organization
- Letter dated August 24, 2012, from Pam Richmond of the Lake-Sumter Metropolitan Planning Organization to Heather Garcia of the Florida Department of Transportation verifying consistency between the future land uses of the Unified Comprehensive Plan and the 2035 Long Range Transportation Plan.

Chapter 3
Infrastructure Element
Data and Analysis

Unified Sumter County/Center Hill/Webster
Comprehensive Plan

Insert following pages

Community Planning Pages

The intent of these pages is to assist counties and municipalities as they amend their comprehensive plans to update the 10-Year Water Supply Facilities Work Plans (Work Plans) required by subsection 163.3177(6)(c), F.S. The pages provide data in a concise format that may be used by a local government to complete an updated Work Plan. Communities are not obligated by statute or rule to use these data; however, these pages reflect an effort to bridge two distinct but complimentary programs, the first being the Department of Economic Opportunity requirement for local governments to complete Work Plans and the second being the Department of Environmental Protection requirement for water management districts to complete Regional Water Supply Plans. The data included in these pages are collected and compiled by the District for use in a variety of District programs, including the review of community water supply planning documents. The explanation below describes the nature, source and intended use of the data provided in the community planning pages.

DEFINITION OF TERMS

Demand Analysis	
Municipal Population Served	That portion of the utility service area population that is within the municipal boundary.
Municipal Demand (MGD)	The above population multiplied by the utility's Average Unadjusted Gross Per Capita Water Use. *(Municipal Population Served x Utility Gross Per Capita Water Use)*
Total Utility Service Area Population	The total population within the utility service area
Total Utility Service Area Demand (MGD)	The above population multiplied by the utility's Average Unadjusted Gross Per Capita Water Use. *(Utility Population Served x Utility Gross Per Capita Water Use)*
County Population Served	That portion of the utility service area population that is within the unincorporated county boundary.
County Demand (MGD)	The above population multiplied by the utilities Average Unadjusted Gross Per Capita Water Use. *(Unincorporated County Population Served x Utility Gross Per Capita Water Use)*
Domestic Self Supply Population	The community population not served by a utility.
Domestic Self Supply Demand (MGD)	The above population multiplied by the estimated Unadjusted Gross Per Capita Water Use. *(DSS Population x Gross Per Capita Water Use)*
Municipal Population	Total population within the municipal boundary.
Municipal Per Capita Water Use	The population weighted mean per capita of utilities serving within the municipality. Could be used as a jurisdictional potable water LOS.
County Population	Total population within the unincorporated county boundary.
County Per Capita Water Use	The population weighted mean per capita of utilities serving within the unincorporated county. Could be used as a jurisdictional potable water LOS.
Total Demand (Municipal)	Total water use demands of the municipal population.
Total Demand (County)	Total water use demands of the unincorporated county population.
Total Demand (Utilities)	Total water use demands of all total utility service area populations.
Supply Analysis	
Total Utility WUP Quantities	The total water use permit quantities for the utilities serving the community.
Total Domestic Self Supply	Current estimated Domestic Self Supply withdrawals within the community boundary.
Water Supply Authority WUP Quantities	The total permitted capacity of the serving water supply authority.

Population data is derived from a District geographic information system (GIS) based model which projects population fluctuation at the census block level, distributes the projections to parcels within each block, then normalizes the projections to BEBR medium county level data. Demands are calculated using a five year average of Per Capita Water Use statistics as published in the 2010 – 2030 Regional Water Supply Plan. The Water Use Permit (WUP) information comes from the District's Water Management Information System (WMIS) database which is available at *WaterMatters.org*. Information regarding future source options is derived from the 2010 – 2030 Regional Water Supply Plan. "Multiple" entries indicated those source options that could be developed by more than one government or agency. For additional information about these Community Planning Pages, please contact *planning@watermatters.org* or *1-800-423-1476 extension 4400.*

NORTHERN PLANNING REGION

SUMTER COUNTY (UNINCORPORATED)

DEMAND ANALYSIS

UTILITY NAME	2010	2015	2020	2025	2030	WUP (MGD)	PER CAPITA WATER USE (2003-2007)
CEDAR ACRES INC.							
County Population Served	693	727	729	729	729		
Demand (MGD)	0.049	0.051	0.051	0.051	0.051	0.126	70
Total Utility Service Area Population	693	727	729	729	729		
Demand (MGD)	0.049	0.051	0.051	0.051	0.051		
SUMTER WCA / VILLAGES WCA / N SUMTER							
County Population Served	62,132	78,519	97,164	107,035	107,652		
Demand (MGD)	13.483	17.039	21.085	23.227	23.360	23.066	217
Total Utility Service Area Population	62,132	78,519	97,164	107,035	107,652		
Demand (MGD)	13.483	17.039	21.085	23.227	23.360		
CITY OF BUSHNELL							
County Population Served	632	650	756	908	1,164		
Demand (MGD)	0.118	0.121	0.141	0.169	0.216	1.367	186
Total Utility Service Area Population	2,676	2,710	3,134	3,873	5,151		
Demand (MGD)	0.498	0.504	0.583	0.720	0.958		
CITY OF WILDWOOD							
County Population Served	10,617	11,118	11,912	14,699	19,381		
Demand (MGD)	1.773	1.857	1.989	2.455	3.237	4.980	167
Total Utility Service Area Population	17,573	19,830	22,975	29,763	40,028		
Demand (MGD)	2.935	3.312	3.837	4.970	6.685		
CONTINENTAL COUNTRY CLUB							
County Population Served	1,388	1,388	1,405	1,423	1,456		
Demand (MGD)	0.204	0.204	0.206	0.209	0.214	0.451	147
Total Utility Service Area Population	1,388	1,388	1,405	1,423	1,456		
Demand (MGD)	0.204	0.204	0.206	0.209	0.214		
LAKE PANASOFFKEE WATER ASSOCIATION							
County Population Served	5,023	5,225	6,447	7,999	10,459		
Demand (MGD)	0.387	0.402	0.496	0.616	0.805	0.410	77
Total Utility Service Area Population	5,023	5,225	6,447	7,999	10,459		
Demand (MGD)	0.387	0.402	0.496	0.616	0.805		
DOMESTIC SELF SUPPLY							
Population Served	13,775	15,323	16,390	21,025	28,602		145
Demand (MGD)	1.997	2.222	2.377	3.049	4.147		
COUNTY POPULATION	94,261	112,950	134,802	153,819	169,443		191 *
TOTAL DEMAND (COUNTY)	18.010	21.895	26.345	29.775	32.031		
TOTAL DEMAND (UTILITIES)	17.554	21.512	26.258	29.794	32.074		

** Weighted mean per capita of utilities serving within community jurisdiction*

SOURCE ANALYSIS

EXISTING SOURCES

	CURRENT YIELD (MGD)
Total Permitted Quantities	30.399
Total Current Yield	*30.399*

TOTAL UTILITIES SERVING COMMUNITY 2030 SURPLUS/(DEFICIT) ***(1.674) MGD***

FUTURE SOURCE OPTIONS

	2030 POTENTIAL YIELD (MGD)	RESPONSIBLE ENTITY
Groundwater	10.000	WRWSA
Surface Water	60.000	WRWSA

NORTHERN PLANNING REGION

CITY OF CENTER HILL

DEMAND ANALYSIS

UTILITY NAME	2010	2015	2020	2025	2030	WUP (MGD)	PER CAPITA WATER USE (2003-2007)
CITY OF CENTER HILL							
Municipal Population Served	752	752	781	1,011	1,423		
Demand (MGD)	0.053	0.053	0.055	0.071	0.100	0.087	70
Total Utility Service Area Population	752	752	781	1,011	1,423		
Demand (MGD)	0.053	0.053	0.055	0.071	0.100		
DOMESTIC SELF SUPPLY							
Population Served	0	0	10	38	88		145
Demand (MGD)	0	0	0.001	0.006	0.013		
MUNICIPAL POPULATION	752	752	791	1,050	1,511		70 *
TOTAL DEMAND (MUNICIPAL)	0.053	0.053	0.056	0.076	0.112		
TOTAL DEMAND (UTILITIES)	0.053	0.053	0.055	0.071	0.100		

** Weighted mean per capita of utilities serving within community jurisdiction*

SUPPLY ANALYSIS

EXISTING SOURCES	CURRENT YIELD (MGD)
Total Permitted Quantities	0.087
Total Current Yield	*0.087*

TOTAL UTILITIES SERVING COMMUNITY 2030 SURPLUS/(DEFICIT) ***(0.012) MGD***

FUTURE SOURCE OPTIONS	2030 POTENTIAL YIELD (MGD)	RESPONSIBLE ENTITY
Conservation**		
Indoor	0.004	City of Center Hill
Outdoor	0.004	City of Center Hill
Surface Water	50.000	WRWSA

*** See RWSP Appendix 4 for complete listing of indoor and outdoor conservation options*

NORTHERN PLANNING REGION

CITY OF WEBSTER

DEMAND ANALYSIS

UTILITY NAME	2010	2015	2020	2025	2030	WUP (MGD)	PER CAPITA WATER USE (2003-2007)
CITY OF WEBSTER							
Municipal Population Served	679	681	684	912	1,312		
Demand (MGD)	0.077	0.078	0.078	0.104	0.150	0.234	114
Total Utility Service Area Population	679	681	684	913	1,315		
Demand (MGD)	0.077	0.078	0.078	0.104	0.150		
DOMESTIC SELF SUPPLY							
Population Served	87	87	87	114	160		145
Demand (MGD)	0.013	0.013	0.013	0.016	0.023		
MUNICIPAL POPULATION	766	769	772	1,025	1,472		118 *
TOTAL DEMAND (MUNICIPAL)	0.090	0.090	0.091	0.120	0.173		
TOTAL DEMAND (UTILITIES)	0.077	0.078	0.078	0.104	0.150		

** Weighted mean per capita of utilities serving within community jurisdiction*

SUPPLY ANALYSIS

EXISTING SOURCES	CURRENT YIELD (MGD)
Total Permitted Quantities	0.234
Total Current Yield	*0.234*

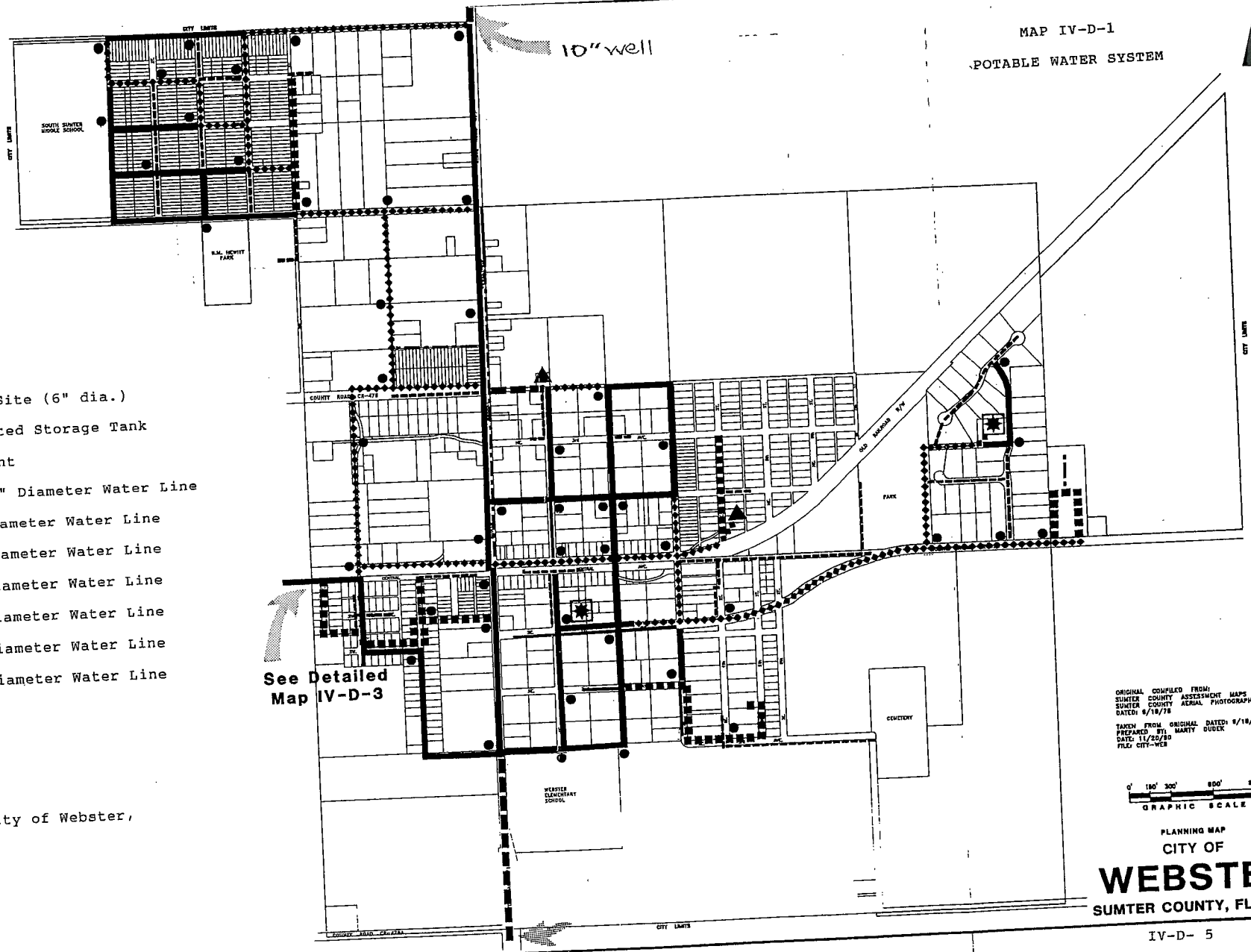
TOTAL UTILITIES SERVING COMMUNITY 2030 SURPLUS/(DEFICIT) ***0.084 MGD***

FUTURE SOURCE OPTIONS	2030 POTENTIAL YIELD (MGD)	RESPONSIBLE ENTITY
Conservation**		
Indoor	0.005	City of Webster
Outdoor	0.002	City of Webster
Surface Water	50.000	WRWSA

*** See RWSP Appendix 4 for complete listing of indoor and outdoor conservation options*

MAP IV-D-1

POTABLE WATER SYSTEM



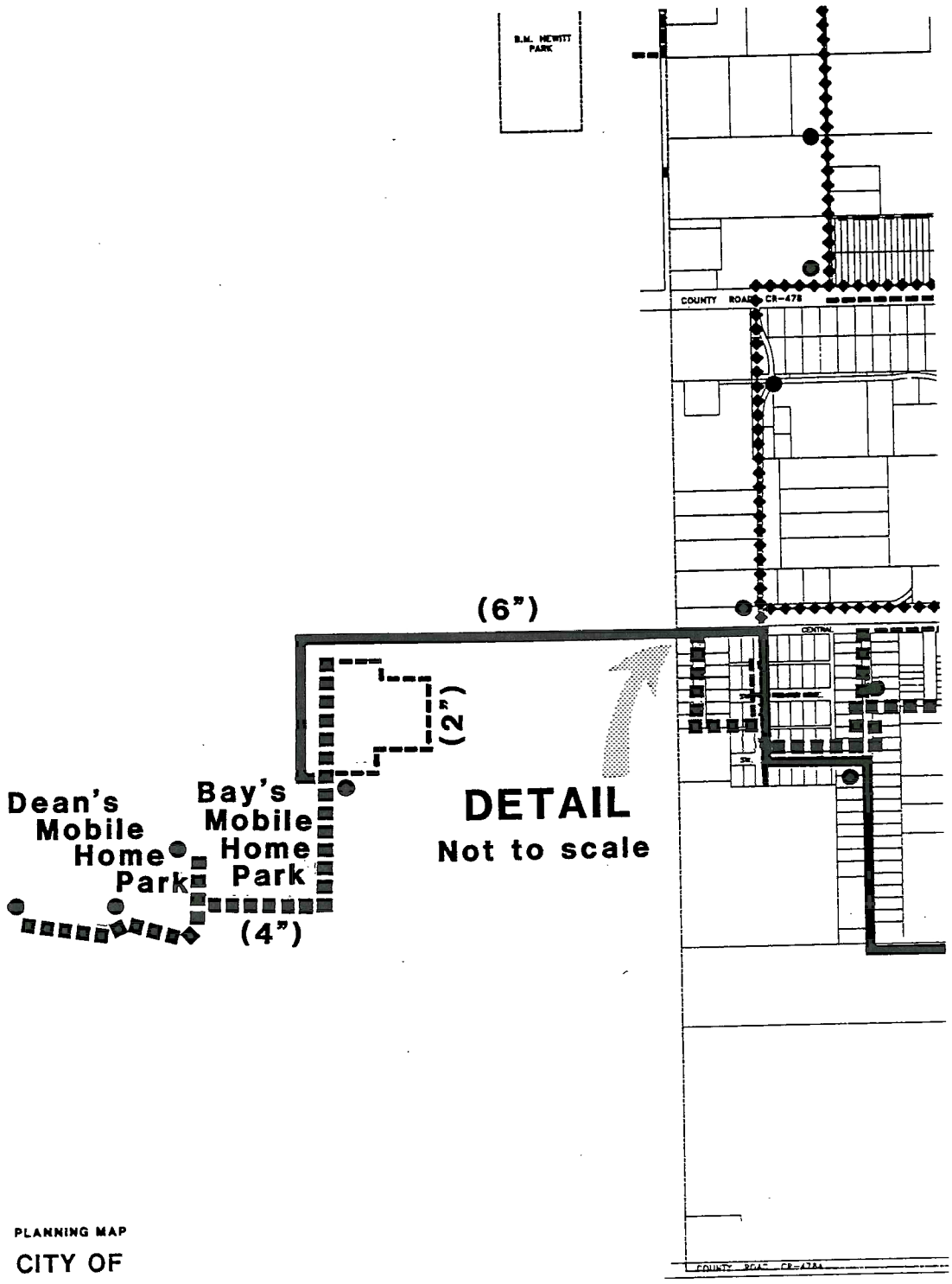
Key:

- Well Site (6" dia.)
- Elevated Storage Tank
- Hydrant
- 1 1/2" Diameter Water Line
- 2" Diameter Water Line
- 3" Diameter Water Line
- 4" Diameter Water Line
- 6" Diameter Water Line
- 8" Diameter Water Line
- 10" Diameter Water Line

Source: City of Webster,

MAP IV-D-3

POTABLE WATER SYSTEM
DETAILED MAP IV-D-3



PLANNING MAP

CITY OF

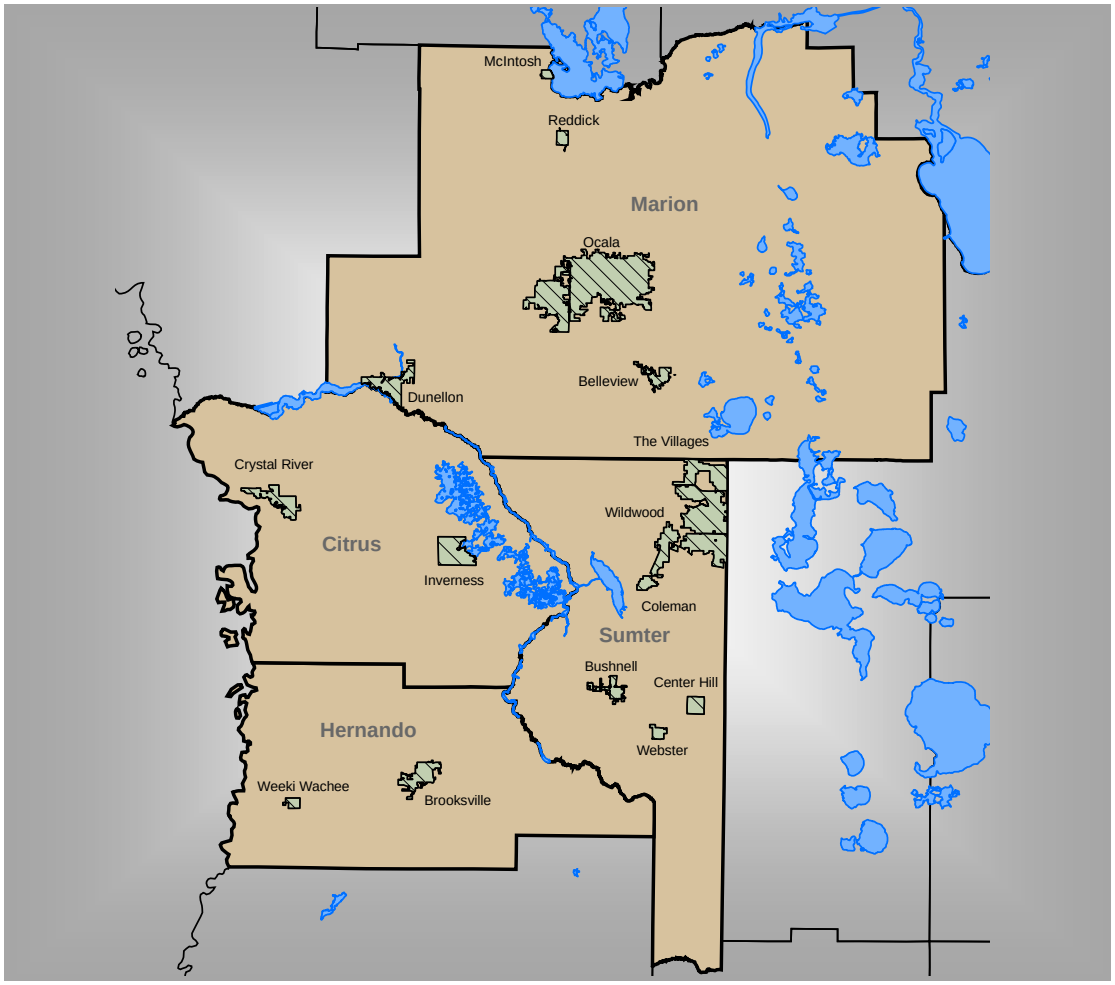
WEBSTER

SUMTER COUNTY, FLORIDA

FINAL

Withlacoochee Regional Water Supply Authority

Phase II - Detailed Water Supply Feasibility Analyses



April 2010

Prepared for

Prepared by

Executive Summary

A. Introduction

In 2005 the Withlacoochee Regional Water Supply Authority (WRWSA) established the WRWSA – Master Water Supply Planning and Implementation Program (WRWSA – MWSP&IP) which is a comprehensive process to plan for the region's water supply future. The WRWSA – MWSP&IP is a multi-year, multi-phase program that was follow-on to the WRWSA Regional Water Supply Plan Update (RWSPU). It contains phases for water supply planning. Identification and prioritization of water supply projects, the design of selected projects and implementation the projects and initiatives.

This report, the WRWSA – Detailed Water Supply Feasibility, was initiated in 2007 to follow-on to the WRWSA RWSPU and is considered Phase II of the WRWSA – MWSP&IP process. Its purpose is to update regional population and water demands and determine potential water supply projects to supply these needs. As the study progressed Marion County decided to rejoin the WRWSA. The inclusion of Marion County into the WRWSA added challenges and opportunities with respect to regionally sustainable water supply development. Geographically, the WRWSA has increased by approximately 86% from 1,892 square miles to 3,516 square miles. The existing population of the WRWSA has increased by approximately 68% from 494,931 to 732,681 (2005 estimate). It was decided to suspend work on the WRWSA – Detailed Water Supply Feasibility until Marion County was integrated into the planning process..

The inclusion of Marion County to the WRWSA required that the RWSPU be appended to consider existing and projected water demands in Marion County, and that the appended RWSPU outline the basis for future water supply development in the WRWSA region including Marion County. This was completed in December of 2009 with the publication of the RWSPU - Marion County Compendium.

B. WRWSA Detailed Water Supply Feasibility Study

As stated the WRWSA Detailed Water Supply Feasibility purpose is to update regional population and water demands and determine potential water supply projects to supply these needs. The projects are conceptualized, evaluated, ranked and prioritized according to short-term (0-20 years), medium-term (15-35 years), and long-term (30-50 years) planning horizons within this report.

C. Population and Water Demands within the WRWSA

Existing water demand and projections of future demand within the WRWSA were generated using 2005 as a base year. Water demand projections were evaluated based on a planning horizon of twenty (20) years from 2010-2030. The projections provide critical input to capital improvement plans and long-range water supply policy.

The vast majority of the current water demand within the WRWSA is from water withdrawn from groundwater sources. Public supply; domestic self-supply; industrial/commercial; mining/dewatering; power generation; agricultural; and recreational/aesthetic water use demands are considered in the report because these uses provide a comprehensive picture of

the total current and future water demands in the region. All water use categories are projected to increase over the planning horizon.

Public supply demands dominate, and will continue to be the largest water use within the WRWSA representing 70% of the increase. The total WRWSA public supply water demand was approximately 81.40 million gallons per day (mgd) in 2005 and is expected to increase to 147.77 mgd in 2030. The domestic self-supply water demand for the WRWSA was approximately 30.22 mgd in 2005, and expected to be 47.85 mgd in 2030. The total WRWSA industrial/commercial, mining/dewatering and power generation water demand was approximately 26.03 mgd in 2005, and estimated to decrease to 21.10 mgd in 2030. The total WRWSA recreational water demand was approximately 20.59 mgd in 2005, and anticipated to increase to 33.76 mgd in 2030. The total WRWSA agricultural water demand was approximately 16.12 mgd in 2005, and is expected to be about 18.59 mgd in 2030. The total WRWSA current demand is approximately 174.36 mgd. This total water demand is expected to increase to approximately 269.07 mgd in 2030. This demand equates to an approximate increase of 94.71 mgd (54%) in 2030.[1]

D. Water Resource Minimum Flows and Levels (MFLs)

MFLs for priority water bodies are required by Florida Statutes to be established by Florida's Water Management Districts to protect water resources and ecology from significant harm due to water withdrawals. Established MFLs can be constraints to water supply development. MFL priority water bodies are identified and scheduled based on the importance of the water resource and the existence of or potential for significant harm to the water resources or ecology of region. MFL priority lists are updated by the Districts annually.

The Southwest Florida Water Management District (SWFWMD) and the St. Johns River Water Management District (SJRWMD) have adopted 23 MFLs located in the WRWSA region. MFLs have been established for 21 lakes, one (1) wetland and one (1) spring. MFLs have been established in every county within the WRWSA.

The SWFWMD and SJRWMD have scheduled 14 MFLs located in the WRWSA for establishment. MFLs are scheduled for five (5) lakes, two (2) rivers, and seven (7) springs. These MFLs are also located throughout the WRWSA.

MFLs are scheduled, but have not been adopted for the Withlacoochee or Ocklawaha River systems and most of the springs within the WRWSA. These MFLs may have a significant impact on future groundwater and/or surface water development within the region.

As part of this report, the WRWSA has developed proxy thresholds on water systems that are yet to be completed. These proxy thresholds will ensure that proposed water supply projects recognize potential MFL withdrawal constraints. Proxy MFLs are developed for the Withlacoochee River and springs in Citrus, Sumter, and Hernando Counties

[1] Actual water demand in the future will vary based on a variety of factors, including the actual rate of population growth.

E. Regional Groundwater Assessment

The groundwater resource assessment completed in this report is a planning-level evaluation that identifies areas in the WRWSA where groundwater will be generally available or where further investigation into aquifer supplies is needed. The evaluation uses regional groundwater flow modeling to simulate declines in aquifer levels due to projected groundwater withdrawals in 2030, based on current population growth projections. The evaluation determined that existing permitted allocations, available local groundwater resources, conservation and reclaimed water will be generally sufficient to serve the projected 2030 groundwater demand in the WRWSA. However, localized resource constraints have the potential to materialize in certain areas prior to 2030.

The SWFWMD Northern District (ND) groundwater flow model is utilized for the groundwater assessment in the SWFWMD jurisdiction in Marion, Citrus, Sumter, and Hernando Counties. The SJRWMD North-Central Florida (NCF) groundwater flow model is utilized for the SJRWMD jurisdiction of Marion County. The projected groundwater withdrawals used for the 2030 evaluation assume continued reliance on groundwater extracted from existing withdrawal locations at current levels of water conservation, using current population growth projections for 2030. The assessment does not simulate increases in supplies of beneficial reuse, alternative water supply development, or reductions in future water demand (conservation or diminished growth). Simulated declines in aquifer levels are evaluated to determine the potential to affect lakes and wetlands, spring flows, and MFL priority water bodies due to increased groundwater withdrawals. Water resource criteria are used to identify potential adverse impacts to groundwater resources due to the simulated declines in aquifer levels. SWFWMD and SJRWMD resource assessment methodologies are used in the respective jurisdictions to determine potential adverse impacts to groundwater resources due to model simulated declines in aquifer levels. The presence (or absence) of potential adverse impacts is used to interpret the viability of fresh groundwater to serve future water demands to 2030.

Based on ND Model results within its domain and SWFWMD resource assessment methodologies, groundwater appears to be viable to serve projected water demand in 2030 in Citrus County and the SWFWMD jurisdiction in Marion County.

Based on NCF model results within its domain and SJRWMD resource assessment methodologies, groundwater does not appear to be viable to serve all projected water demand in 2030 in the SJRWMD jurisdiction in Marion County.

The potential effects of projected 2030 groundwater withdrawals in northern Sumter County and southern Marion County are difficult to interpret, but suggest a need for additional supplies or reductions in demand from conservation. Additional hydrogeologic data collection, monitoring, and analysis are warranted in this area.

In Hernando County, projected water demand in 2030 could lead to restrictions on groundwater withdrawals in the Spring Hill area, potentially requiring additional supplies or demand reduction from conservation. Dispersed groundwater withdrawals in Hernando County located to the north or east of the Weekiwachee springshed appear to be viable.

The SWFWMD and SJRWMD are developing an accelerated data collection and monitoring program in southern Marion, northwest Lake, and northern Sumter County over the next two

years (SWFWMD, 2008). Information gained from this program will provide important data for refinement of the groundwater flow models used in this assessment. The information used for this groundwater resource assessment will be updated by the SWFWMD and SJRWMD at minimum 5 year intervals.

F. Water Conservation

This report considers water conservation as an essential, cost-effective water supply management tool, with many potential means of implementation, ranging from the utilization of Florida Friendly Landscaping techniques to conservation rate structures. A variety of ad-hoc conservation efforts are currently in place among WRWSA members. Water conservation is considered first of the potential water planning and water supply options to handle future water demands in the region.

SWFWMD is in the process of implementing, and the SJRWMD is considering mandatory per capita requirements for the water users in their respective districts. SWFWMD has proposed rules to standardize and enhance water conservation and water use permitting requirements district-wide. Enhanced requirements include: compliance per capita rates, conservation rate structures, water billing requirements, water audits, wholesale permits and annual reports for public supply utilities. The WRWSA has directly funded water conservation programs in Hernando, Citrus, Marion and Sumter Counties.

This report includes an updated inventory of conservation measures, but also discusses and includes recent modeling completed by the SWFWMD that quantifies the potential savings and benefits of new water conservation devices. Optimized SWFWMD Model results indicate that significant conservation savings can be achieved in each county of the WRWSA. Water conservation efforts are categorized in three categories, as was done in the RWSP: Regulation, Education and Incentives. The report concludes that additional water conservation measures must be implemented to reduce the future water demands projected for the WRWSA.

G. Reclaimed Water

Reclaimed water systems are an important piece of a water supply strategy reducing the dependence on potable supplies for irrigation and industrial use and lowing per capita rates throughout the WRWSA. Some utilities in the WRWSA region now have special conditions in their water use permits that focus on reclaimed water and lower quality source expansions of their current water supply systems. Based on this many WRWSA member governments now recognize the benefits of reuse systems and are in the process of wastewater treatment plant (WWTP) upgrades to public supply standards and/or increasing the size of existing beneficial reuse facilities. Reclaimed water systems in the WRWSA are mostly in the early stages of development, except for a few larger population centers.

For water supply purposes, beneficial reuse is defined as that which replaces traditional groundwater or surfacewater uses. Fourteen domestic WWTPs in the WRWSA currently provide beneficial reuse or have funded expansions to do so. This is an increase of three WWTPs from the analysis completed as part of Phase I – WRWSA – Regional Water Supply Plan Update. Twenty-four domestic WWTPs in the WRWSA currently provide beneficial reuse or have identified projects and customers that will add or expand their reuse supply for beneficial use.

The reclaimed water chapter of this report identifies three additional reuse projects and prepares cost estimates for each project. Unit production costs range from $ 0.85 to $ 2.17 per 1,000 gallons; a large percentage of the cost is due to transmission to potential end users. Users identified for the three projects were golf courses due to their proximity, estimated potential groundwater offset and high efficiency of use. The cost and complexity of offsetting potable use with reuse water remains higher than that of traditional groundwater. Site-specific combinations of regulatory requirements and other factors will drive the implementation of specific reuse projects. The relationship of groundwater availability to beneficial reuse implementation suggests that regional coordination could benefit reclaimed water planning in the WRWSA.

H. Water Supply Project Ranking

This analysis evaluates and ranks potential regional water supply project options and conservation within the WRWSA. The intent of this analysis is to provide a menu of alternatives to the WRWSA and its members as they plan to meet future water demands within their jurisdictions. The potable water source projects were graded relative to their general feasibility for supply development, using a qualitative evaluation matrix.

These projects include: Northeast Sumter Regional Wellfield; Southern Citrus Regional Wellfield; Northwestern Marion Regional Wellfield; Eastern Marion Regional Wellfield; Lake Rousseau; Withlacoochee River near Holder – Reservoir; North Sumter "Conjunctive Use" Supply; Withlacoochee River Aquifer Recharge near Trilby; and Crystal River Power Plant Desalination. For comparison with projects involving water supply development, water conservation was also evaluated as a potential project, utilizing the results of the SWFWMD Model. The evaluation provides input to the WRWSA's prioritization process where the potential groundwater and AWS projects will be compared to the expected needs of member governments.

The water supply evaluation criteria include seven (7) categories which contain some of the key elements important to determining the viability of proposed water supply projects. The evaluation criteria include: Environmental Impacts: Ability to Permit; Public Perception; Long-Term Viability of Source; Costs; Ability to Serve Multiple Users; and Estimated Time to Implement.

Water conservation is the highest graded alternative of those considered for the project ranking. The option receives high grades in six of the seven evaluation categories. According to the SWFWMD Model results, the optimized cost of water conservation in each county of the WRWSA is below benchmark costs for dispersed groundwater and potable AWS development.

I. Water Supply Project Options

1. Potable Traditional Water Supply Development

Many utilities in the WRWSA region now have special conditions in their water use permits that require additional conservation measures and the development of alternative or non-local water supplies if unacceptable adverse impacts to natural resources are observed.

The dispersal of groundwater supplies helps to minimize adverse impacts from withdrawals, because aquifer declines resulting from withdrawals are dispersed rather than concentrated. Dispersed wellfields provide an option for member utilities facing local groundwater resource limitations to continue to rely on fresh groundwater for supply. Dispersed wellfield projects will need to comply with all water use permitting criteria, including requirement for participating members to utilize feasible lower quality sources and reduce demand through conservation.

Within the WRWSA – Detailed Water Supply Feasibility Analyses the following projects have been the focus of the analyses of the WRWSA region: **Fresh Groundwater:** Sumter Wellfield; Citrus Wellfield; Northwestern Marion Wellfield; and the Northeastern Marion Wellfield. Conceptual water production cost estimates for the groundwater projects range from $ 0.63 per thousand gallons to $ 0.81 per thousand gallons. Each of these projects reflects the cost-competitiveness of utilizing dispersed groundwater versus potable alternative water supplies.

Based on the water supply project ranking, the Sumter and Northwestern Marion Wellfields are recommended for possible implementation in the Short-Term (0-20 years). The Citrus and Northeastern Marion Wellfields are recommended for possible implementation in the Mid-Term or Long-Term (15-35 or 30-50 years).

Each project could serve to transmit future conjunctive or alternative water supplies through a project hub. Transmission pipelines for the groundwater projects could be part of an incremental approach towards potable alternative water supply. Additional study should occur to identify potential sites and easement routes for acquisition. Each of the project options will require more detailed analysis to fine tune the design elements in accordance with water use permitting criteria and the needs of utilities that choose to participate. A dispersed wellfield typically requires 3 to 5 years to implement.

2. Potable Alternative Water Supply Planning

Within the WRWSA – Detailed Water Supply Feasibility Analyses the following projects have been the focus of the long range AWS analyses of the WRWSA region: **Surface Water:** Lake Rousseau; Withlacoochee River near Holder – Reservoir; and the North Sumter “Conjunctive Use” Supply. **Aquifer Recharge:** the Withlacoochee River Aquifer Recharge near Trilby, and **Seawater:** Crystal River Power Plant Seawater Desalination. Each of these projects reflects the higher costs of utilizing potable alternative water supplies versus traditional groundwater supplies.

The conceptual water production costs for the Withlacoochee River project options range from $2.38 to $3.15 per thousand gallons. The conceptual water production cost for the seawater desalination project is $4.27 per thousand gallons. For the aquifer recharge option, depending on the amount of recharge, the unit production cost of the project may range from $0.76 to $6.85 per thousand gallons of recharge. Transmission costs range from about 25% to 50% of the water production costs for the Withlacoochee River options. Operating and transmission costs account for over 75% of the water production cost for the seawater desalination option.

Existing permitted allocations, available local groundwater resources, conservation and reclaimed water will be generally sufficient to serve the projected 2030 groundwater demand in the WRWSA. Therefore, none of the potable AWS projects are recommended for possible implementation in the Short-Term (0-20 years), and further updates will be needed to refine these complex and challenging projects as growth occurs over time.

Based on the water supply project ranking, the **Surface Water:** Lake Rousseau and North Sumter "Conjunctive Use" Supply projects are recommended for possible implementation in the Mid-Term or Long-Term (15-35 or 30-50 years). The **Seawater:** Crystal River Power Plant Seawater Desalination is recommended for possible implementation in the Mid-Term or Long-Term (15-35 or 30-50 years). The **Surface Water:** Withlacoochee River near Holder – Reservoir project is not recommended for possible implementation due to the high cost of the reservoir. The **Aquifer Recharge:** the Withlacoochee River Aquifer Recharge near Trilby project is not recommended for WRWSA implementation, but may be pursued by other entities.

Additional study is underway by the SJRWMD on the Lower Ocklawaha River and desalination from the east coast of Florida (Coquina Coast Desalination Plant). These projects could potentially provide alternative water supply to WRWSA members, but are not evaluated by the WRWSA.

Flexible strategies are needed to ensure that suitable supplies are available when groundwater is depleted and AWS is required to meet future water demands in the WRWSA region. Long-range planning for surface water development should consider dispersed groundwater development in the vicinity of the river systems. Dispersed groundwater projects could transmit future river supplies through their transmission systems.

J. Proposed Regional Framework for Future Water Supply

Water supply planning within the WRWSA is based on the knowledge that regionalization of water sources and alternative water supplies will be necessary at some point in the future. The challenge for the Authority is how to facilitate their introduction into the region. The economic slowdown has reduced the projected water demand in the region giving the WRWSA and its members an opportunity to comprehensively plan for the long-term water needs. A regional framework for a long-term water supply strategy that will manage the technical, economic, environmental and political issues associated with timely development of long-term, sustainable water supplies has been proposed by the WRWSA.

The regional framework is based on a number of critical assumptions including:

- Fresh groundwater is the preferred water source in the WRWSA;
- Water supply development should be based on short-, mid-, and long-term planning terms;
- Both centralized and decentralized water systems are appropriate within the WRWSA;
- Location of these systems are critical for future interconnections and the introduction of AWS; and

- Interconnected water systems have multiple benefits including the eventual introduction of AWS.

The regional framework contemplates that within the short-term timeframe, water conservation, reclaimed water projects and developing groundwater will provide the needed water to meet demands. Mid-term projects will include the interconnections of strategic water supplies throughout the WRWSA region. Long-term water supply projects will be the introduction of AWS into the interconnected regional system. The WRWSA has conceptually approved the regional framework concept and will continue working on its implementation.

K. Recommendations

A series of recommendations have been developed based on the WRWSA – Detailed Water Feasibility Analysis. These recommendations are an attempt to develop and raise a series of suggestions and options for consideration by the WRWSA. These recommendations are not necessarily prioritized or set in a sequential order but are important to consider as the WRWSA moves forward in these relatively uncertain times with respect to sustainable water supply for its members. The recommendations set the stage for considerable discussion and deliberation with the WRWSA Board as they consider the existing and future role of the Authority and how it will encompass its members.

The recommendations are organized by the following categories:

- Population and Water Demand;
- Hydrogeologic Data Collection and Resource Monitoring;
- Regional Groundwater Assessment;
- Water Conservation;
- Reclaimed Water;
- Water Supply Project Options;
- Water Supply Partnership Options;
- WRWSA - Water Supply Regional Framework;
- SWFWMD/SJRWMD Coordination and Consistency; and
- Coordination with Water Management District Program Initiative.

I. – Introduction

A. The Withlacoochee Regional Water Supply Authority

The WRWSA is one of three water supply authorities within the SWFWMD. A portion of the WRWSA in Marion County is within the SJRWMD. Water supply authorities are multi-jurisdictional in membership and formed to jointly develop water resources for the mutual benefit of their members.[1] More specifically, water supply authorities are " … for the purpose of developing, recovering, storing, and supplying water for county or municipal purposes in such a manner as will give priority to reducing adverse environmental effects of excessive or improper withdrawals of water from concentrated areas" (Chapter 373, F.S.). The authorities have other important duties, responsibilities, and operational options including:

a. Levying ad valorem taxes;
b. Developing water supplies for county and municipal users;
c. Collecting, treating and recovering wastewater;
d. Wholesaling (not retailing) water supplies to customers;
e. Exercising the right of Eminent Domain;
f. Issuing revenue bonds;
g. Developing alternative water supplies; and
h. Ensuring consistency with the SWFWMD and SJRWMD with respect to water supply planning.

The WRWSA was founded in 1977 by Hernando, Citrus, Sumter, Marion and Levy Counties. An amendment to the WRWSA's inter-local agreement in 1984 provided for municipal membership, which allowed cities within each County to become members. In 1982, Levy County formally withdrew from the WRWSA. In 1991, Marion County became an inactive member, but the City of Ocala, an active municipal member, maintained its membership by separately paying its annual assessment.

Marion County petitioned and the WRWSA approved their request to be reinstated as an active member in 2008. The cities of Belleview, Dunnellon, McIntosh and Reddick located in Marion County also became active members of the WRWSA by provision of the WRWSA's inter-local agreement. Therefore, the current WRWSA membership includes Citrus, Hernando, Sumter, and Marion Counties and their associated municipalities. These include Belleview, Brooksville, Bushnell, Center Hill, Coleman, Crystal River, Dunnellon, Inverness, McIntosh, Ocala, Reddick, Webster, and Wildwood.

The apportionment of representatives on the WRWSA Board considers two city categories – "large city" and "small city", and County population. Large cities are those of 25,000 populations or more, which includes the City of Ocala. Large cities receive representation equal to that of the counties. The small cities category, or cities with less than 25,000 people, make up the remaining cities in the WRWSA. All of these cities must caucus and select one member to

[1] Authorized by Florida Statutes under Chapter 373.1962, F.S.

represent all small cities in each county. Therefore, in Hernando County, there are four (4) representatives from the Board of County Commissioners (BCC) and one small city representative. Citrus County qualifies for three (3) representatives from the BCC and one small city representative. Sumter County qualifies for two (2) representatives from the BCC and one small city representative. Marion County qualifies for three (3) representatives from the BCC and one small city representative. Finally, the City of Ocala, as a large city, has two representatives. Figure I-1 shows the WRWSA service area and its member governments.

B. Planning History

Since the WRWSA is mandated to develop and supply water, the Authority has historically completed water supply planning studies, constructed a regional water supply facility in Citrus County, and developed a cooperative funding program to assist member local governments in developing adequate water supply facilities and water conservation (WRWSA Website).

A water supply planning effort by the WRWSA was completed in 1996 and was entitled "Withlacoochee Regional Water Supply Authority Master Plan for Water Supply". This report followed two previous efforts that included the "Water Sources and Demand Study" (1982) and the "WRWSA Master Plan for Water Supply" (1987).

Almost ten years elapsed from the completion of the 1996 WRWSA Master Plan, when the WRWSA determined it was necessary to update the regional water supply planning process. In 2007 the WRWSA, in cooperation with the SWFWMD, completed an update of the 1996 study. This report was entitled "Withlacoochee Regional Water Supply Authority Regional Water Supply Plan Update - 2005" (WRWSA RWSPU).

In 2005 the WRWSA established the WRWSA – MWSP&IP which is a comprehensive process to plan for the region's water supply future. The WRWSA – MWSP&IP is a multi-year, multi-phase program that was follow-on to the WRWSA RWSPU. It contains phases for water supply planning. Identification and prioritization of water supply projects, the design of selected projects and implementation the projects and initiatives.

This report, the WRWSA – Detailed Water Supply Feasibility, was initiated in 2007 to follow-on to the WRWSA RWSPU and is considered Phase II of the WRWSA – MWSP&IP process. Its purpose is to update regional population and water demands and determine potential water supply projects to supply these needs. As the study progressed Marion County decided to rejoin the WRWSA. The inclusion of Marion County into the WRWSA added challenges and opportunities with respect to regionally sustainable water supply development. Geographically, the WRWSA has increased by approximately 86% from 1,892 square miles to 3,516 square miles. The existing population of the WRWSA has increased by approximately 68% from 494,931 to 732,681 (2005 estimate). It was decided to suspend work on the WRWSA – Detailed Water Supply Feasibility until the Compendium was completed.

The inclusion of Marion County to the WRWSA required that the RWSPU be appended to consider existing and projected water demands in Marion County, and that the appended RWSPU outline the basis for future water supply development in the WRWSA region including Marion County. This Compendium was completed in December of 2009.

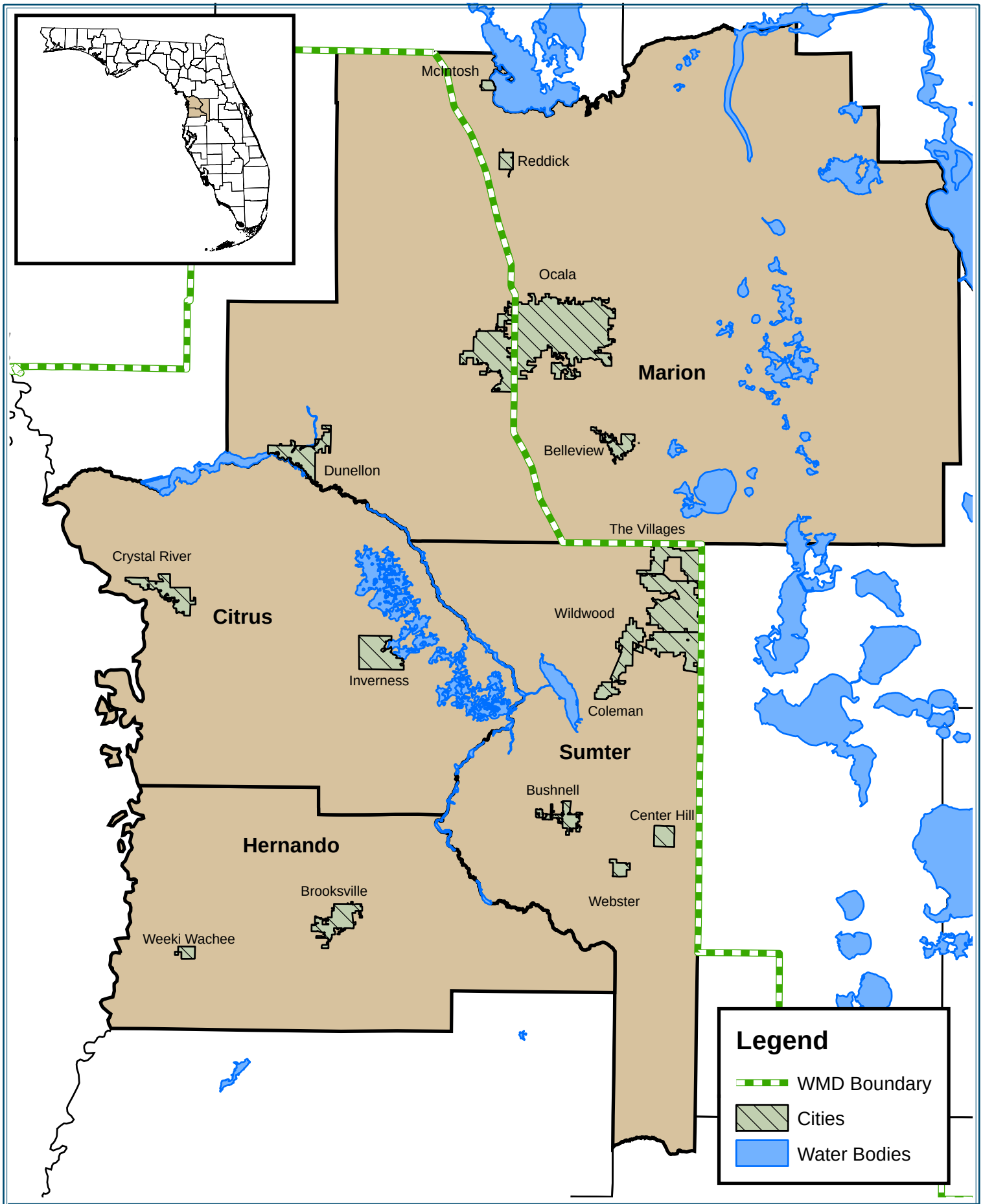
C. WRWSA Detailed Water Supply Feasibility Study

As stated the WRWSA Detailed Water Supply Feasibility purpose is to update regional population and water demands and determine potential water supply projects to supply these needs. The projects are conceptualized, evaluated, ranked and prioritized according to short-term, medium-term, and long-term planning horizons within this report.

D. Document Structure

The WRWSA – Detailed Water Supply Feasibility is organized into Chapters as follows:

- Chapter 1 – Population and Water Demand
- Chapter 2 – Water Resource Minimum Flows and Levels
- Chapter 3 – Groundwater Resource Assessment
- Chapter 4 – The Role of Water Conservation within the WRWSA
- Chapter 5 – Reclaimed Water Projects
- Chapter 6 – Groundwater Project Options
- Chapter 7 – Aquifer Recharge Project Option
- Chapter 8 – Surfacewater Project Options
- Chapter 9 – Seawater Desalination Project Option
- Chapter 10 – Evaluation and Ranking of Water Supply Projects
- Chapter 11 – Water Resources, Supplies and Demand
- Chapter 12 – WRWSA Regional Water Supply Framework
- Chapter 13 – Recommendations



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PROJECT: 0468 - Withlacoochee - Phase II

Figure I-1
WRWSA Location Map

ORIGINAL DATE: 04-20-09
REVISION DATE: 04-09-10
JOB NUMBER: 0468
FILE NAME: Figure I-1.mxd
GIS OPERATOR: DR

N W E S

1 inch equals 250 miles

Chapter 1 – Population and Water Demand

1.0 Key Points

Key Points

- This chapter analyzes and characterizes existing water demand and projections of future demand within the WRWSA. Existing water demand and projections use 2005 as a base year.
- Water demand projections are evaluated on a planning horizon of twenty (20) years from 2010-2030. The projections provide critical input to capital improvement plans and long-range water supply policy.
- The majority of the water withdrawn in the WRWSA is from groundwater sources.
- Public supply; domestic self-supply; industrial/commercial; mining/dewatering; power generation; agricultural; and recreational/aesthetic water use demands are considered. These provide a comprehensive picture of current and future water demands in the region.
- Public supply demands dominate, and will continue to dominate, water use within the WRWSA representing 70% of the increase.
- The total WRWSA public supply water demand was approximately 81.40 mgd in 2005 and is expected to increase to 147.77 mgd in 2030. This demand equates to an approximate increase of 66.37 mgd (82%) in 2030.
- The total WRWSA domestic self-supply water demand was approximately 30.22 mgd in 2005, and expected to be 47.85 mgd in 2030. This demand equates to an approximate increase of 17.63 mgd (58%) in 2030.
- The total WRWSA industrial/commercial, mining/dewatering and power generation water demand was approximately 26.03 mgd in 2005, and estimated to decrease to 21.10 mgd in 2030. This demand equates to an approximate decrease of 4.93 mgd (19%) in 2030.
- The total WRWSA recreational water demand was approximately 20.59 mgd in 2005, and anticipated to increase to 33.76 mgd in 2030. This demand equates to an approximate increase of 13.17 mgd (64%) in 2030.
- The total WRWSA agricultural water demand was approximately 16.12 mgd in 2005, and is expected to be about 18.59 mgd in 2030. This demand equates to an approximate decrease of 2.47 mgd (15%) in 2030.
- The total WRWSA current demand is approximately 174.36 mgd. This total water demand is expected to increase to approximately 269.07 mgd in 2030. This demand equates to an approximate increase of 94.71 mgd (54%) in 2030.

1.1 Introduction

This chapter analyzes, characterizes and projects population and water demand within the WRWSA. This includes existing population and water demand and projected population and water demand for the designated planning horizon. A critical component of the WRWSA – RWSPU was existing (2005) and projected water demands (2025) which were used for determining the availability of water resources in the region. Population and water demand have been updated for this report and a base year of 2005 is used. The planning horizon has been extended from 2025 to 2030 for use in this analysis.

Existing and projected water demands were determined for all water use categories. These demands were determined on a county-by-county basis and were projected over the planning horizon. Although the WRWSA is mainly concerned with public water supply, the analysis also reviews water demands from other users in the area. This is important to gain a better understanding of overall water demand in the region and where this use will take place. Competition for traditional water and alternative water supply (AWS) development is not just between municipalities but will occur between all water users in the region. This includes the following water uses:

- Public Supply;
- Domestic Self-Supply;
- Industrial/Commercial;
- Recreation/Aesthetic; and
- Agricultural.

Based on the limitations of groundwater modeling in the WRWSA – RWSPU the water supply availability analysis has been refined and updated in this report. Part of this refinement involves updating demands as inputs to the Northern District Groundwater Model (NDGM). The District's demand projection methodology has not changed since WRWSA – RWSPU demands were published. However, changes in the base year, updated population projections and new data from water use permits (WUPs) have required revisions from the WRWSA – RWSPU data.

Also, since the WRWSA – RWSPU demands were published, Marion County has also been reinstated as an active member of the WRWSA. The inclusion of Marion County into the WRWSA has added challenges and opportunities with respect to regionally sustainable water supply development. Geographically, the WRWSA has increased in size by approximately 86% from 1,892 square miles to 3,516 square miles. The existing population of the WRWSA has increased by approximately 68% from 494,931 to 732,681 (2005 estimate).

This section relies primarily on data developed and published by the SWFWMD for the Citrus, Hernando, and Sumter Counties. The water demand and population projections for Marion County were provided by the SWFWMD and the SJRWMD and published in the RWSPU – Water Supply Planning Compendium for the Inclusion of Marion County (WRA, 2009).

1.2 General Assumptions

The following are the general assumptions for the analyses of population and water demand for this report.

- For the WRWSA – RWSPU, 2000 was used as the base year from which future population and water demand projections were projected. The base year used for future population and water demands projections for WRWSA – Detailed Water Supply Feasibility Analyses is 2005.
- Water demand projections are evaluated through a planning horizon of twenty 20 years from 2010-2030. These values were provided by the SWFWMD and the SJRWMD in technical memorandae were used for the district's individual water supply assessments.

2005 was used as the base year by the water management districts in projecting future water demands.

- Marion County is now an active member of the WRWSA. Since the publication of the WRWSA – RWSPU, Marion County has re-joined the WRWSA and the demands for Marion County were provided by the SWFWMD and the SJRWMD.
- Water demands are reported in this document for the average annual effective rainfall conditions. The analysis of a one-in-ten (1-in-10) drought-year scenario (an event that results in an increase in water demand of a magnitude that would have a 10 percent probability of occurring during a given year) for Phase II was not considered.
- The majority of the water withdrawn in the WRWSA is from groundwater sources, with minimal surface water withdrawals or other AWS sources. Therefore, no analysis of the difference between groundwater and surface water demands is provided in this section. Potential future surface water sources are assessed in later sections.

1.3 Public Supply Water Demand

1.3.1 Introduction

Existing public supply water use accounts for the greatest share of water demand in the WRWSA region. Public supply accounts for 47% of the total water demand in the WRWSA. The Public Supply category includes water distributed by public water systems and private water utilities. Some non-residential use (such as commercial and industrial operations) is also included in this category, as they are not self-supplied and do not report their individual water use to the districts. Table 1-1A depicts the methodologies and assumptions employed to determine public supply water demand values.

SWFWMD and SJRWMD calculated water demand projections for the years 2005, 2010, 2015, 2020, 2025, and 2030 based on population projections and average per capita rates for each utility. SWFMWD used a 5-year average per capita rate (2003-2007), and the SJRWMD used an 11-year average per capita rate (1995-2005) to calculate public supply water demand projections.

1.3.2 Base Year Populations

The base year utilized for the population projections is 2005. Population information was obtained from historical data provided as part of the SWFWMD RWSP, and SJRWMD WSA process to determine the Public Supply water use projections through the year 2030 or from previously reported data collected and analyzed by the districts.

1.3.3 Base Year Water Use

A base year of 2005 was used for the WRWSA – Detailed Water Supply Feasibility Analyses. In the SWFWMD, the base year water use was derived by multiplying the average 2003 – 2007 unadjusted gross per capita rates by the 2005 estimated population for each individual utility.[1]

[1] Public supply base year water use methodology is taken from Bader (2009).

Within the SJRWMD, base year water use was derived by multiplying the utilities 11-year average per capita water use (1995-2005) by the 2005 estimated population.[2]

1.3.4 Population Projections

Within SWFWMD, small-area population projections were developed and apportioned using a parcel based methodology (GIS Associates, 2009).

The population projections developed by University of Florida Bureau of Economic & Business Research (BEBR) are generally accepted as the standard throughout the state of Florida. However, these BEBR projections are made at the county-level only. Accurately projecting future water demand requires more spatially precise data than the county-level BEBR projections. SWFWMD projections are based on census block-level data, which is developed using the smallest level of census geography. They are then disaggregated to land parcel data, which is the smallest area of geography possible for population studies.[3]

Within the SJRWMD, the 2006 projections of population growth published by BEBR were used as its control for population projections within each county. BEBR projections were then applied to a parcel based methodology (GIS Associates, 2009).[4]

1.3.5 Public Supply Water Demand Projections

The following sections describe the methodology used to develop public supply water projections for the planning horizon and the reference projection period, and the subsequent results.

1.3.5.1 Planning Horizon (2005 – 2030)

Water demand projections are calculated for the years 2010, 2015, 2020, 2025, and 2030. As mentioned, SWFWMD derived public supply water demands by multiplying 2003-2007 average per capita rates by the projected populations on a county-wide basis to develop these projections. SJRWMD used the 11-year per capita average (1995-2005) multiplied by the projected population to calculate the water demand projections in 5 year increments.

1.3.6 Results

The total WRWSA public supply water demand was approximately 81.40 mgd in 2005. Using the methods described, the demand is expected to increase to 147.77 mgd in 2030. These demands equate to approximate increases of 66.37 mgd (82%) for the planning horizon. Refer to Table 1-2 for the incremental public supply water demand increases.

[2] Public supply base year water use methodology is taken from SJRWMD (2008).
[3] Population projections methodology taken from Bader (2009).
[4] Population projections methodology taken from SJRWMD (2008).

Citrus County

The public supply water demand in Citrus County in 2005 is approximately 16.12 mgd, which is anticipated to increase by 14.58 mgd (90%) to 30.70 mgd over the planning horizon. (Table 1-3A and Figures 1-1A and 1-1B.)

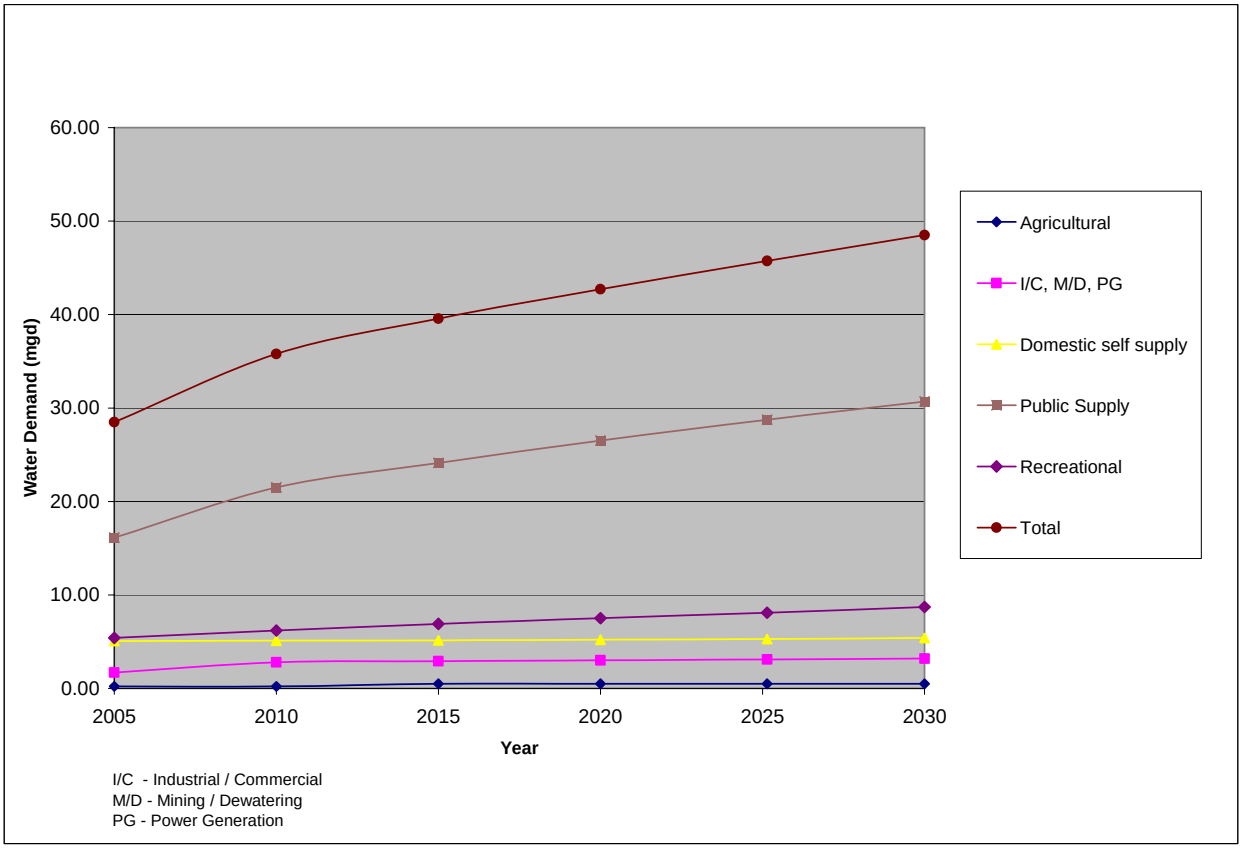

Figure 1-1A. Incorporated / Unincorporated Citrus County Projected Water Demand.

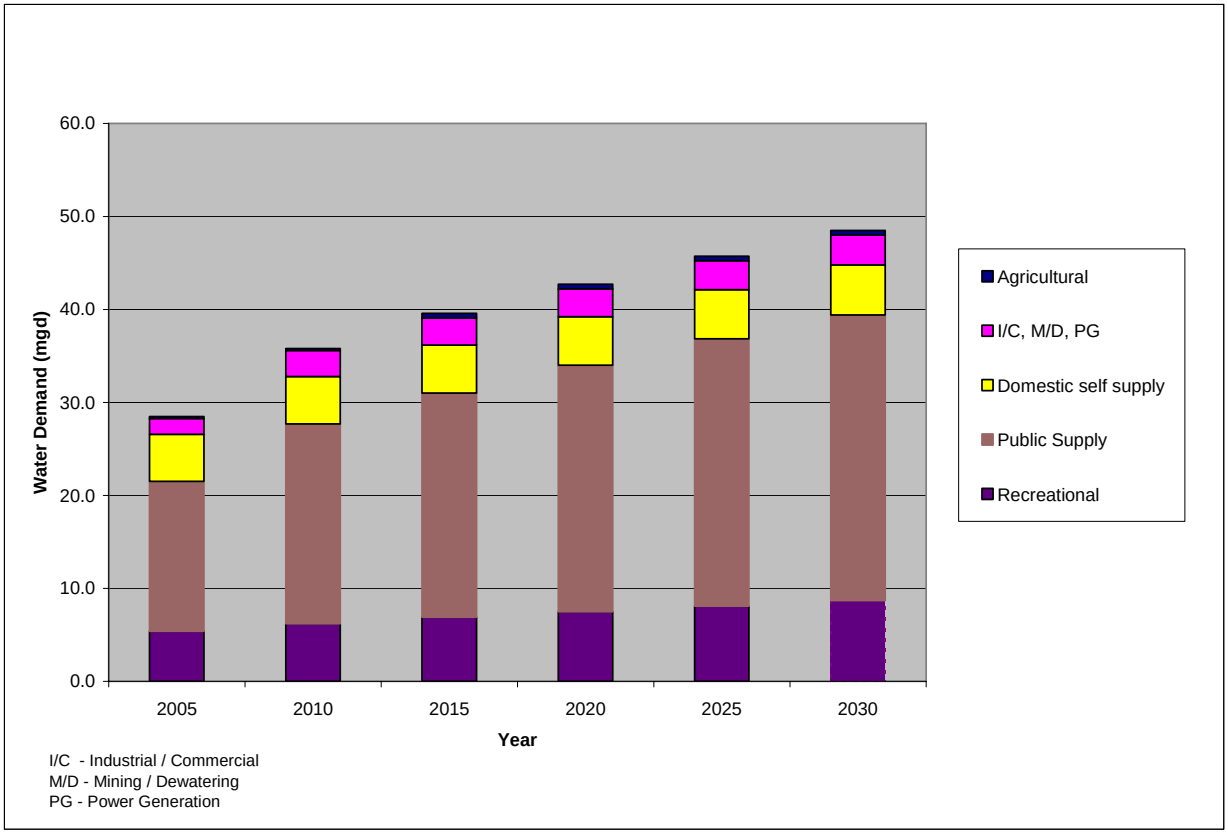

Figure 1-1B. Incorporated / Unincorporated Citrus County Projected Water Demand.

Hernando County

The public supply water demand in Hernando County in 2005 is approximately 24.09 mgd, which is anticipated to increase by 9.17 mgd (38%) to 33.26 mgd over the planning horizon. (Table 1-3B and Figures 1-2A and 1-2B).

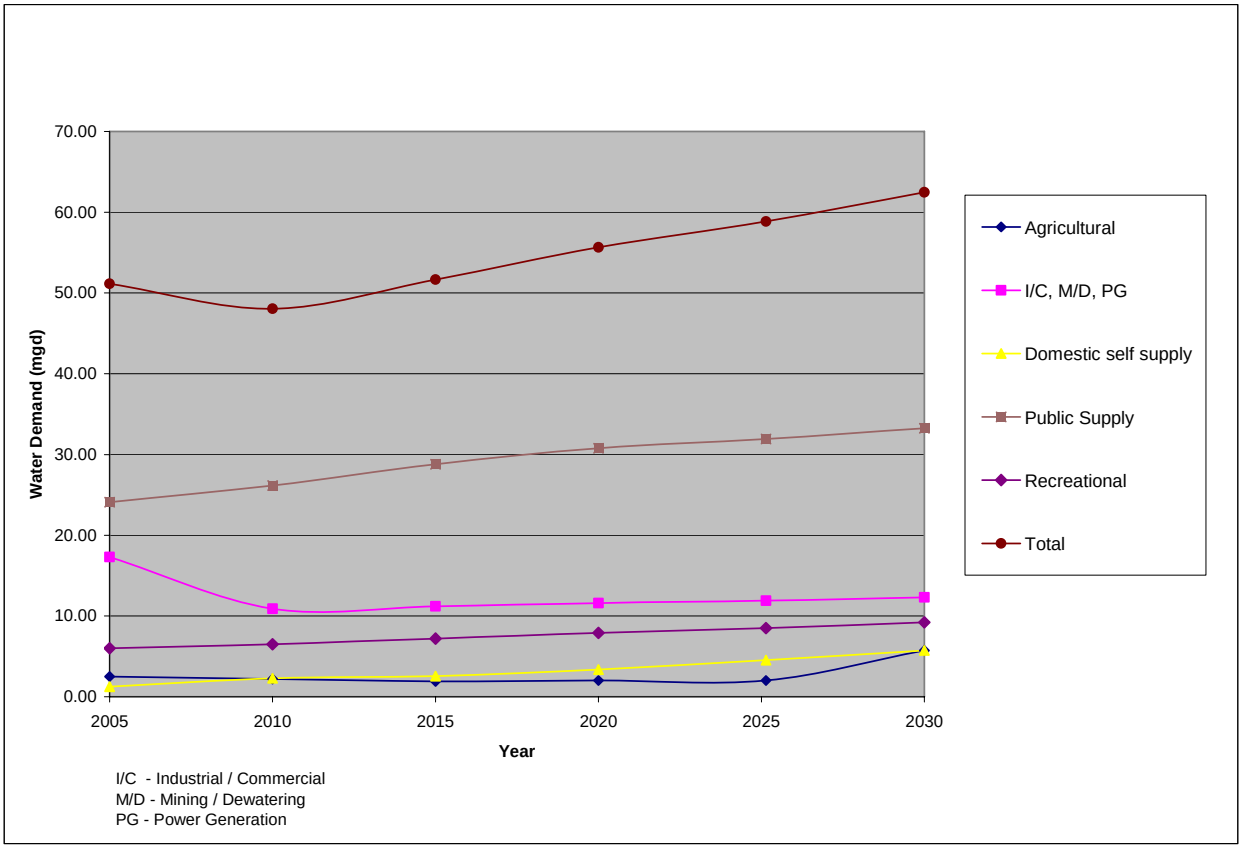

Figure 1-2A. Incorporated / Unincorporated Hernando County Projected Water Demand.

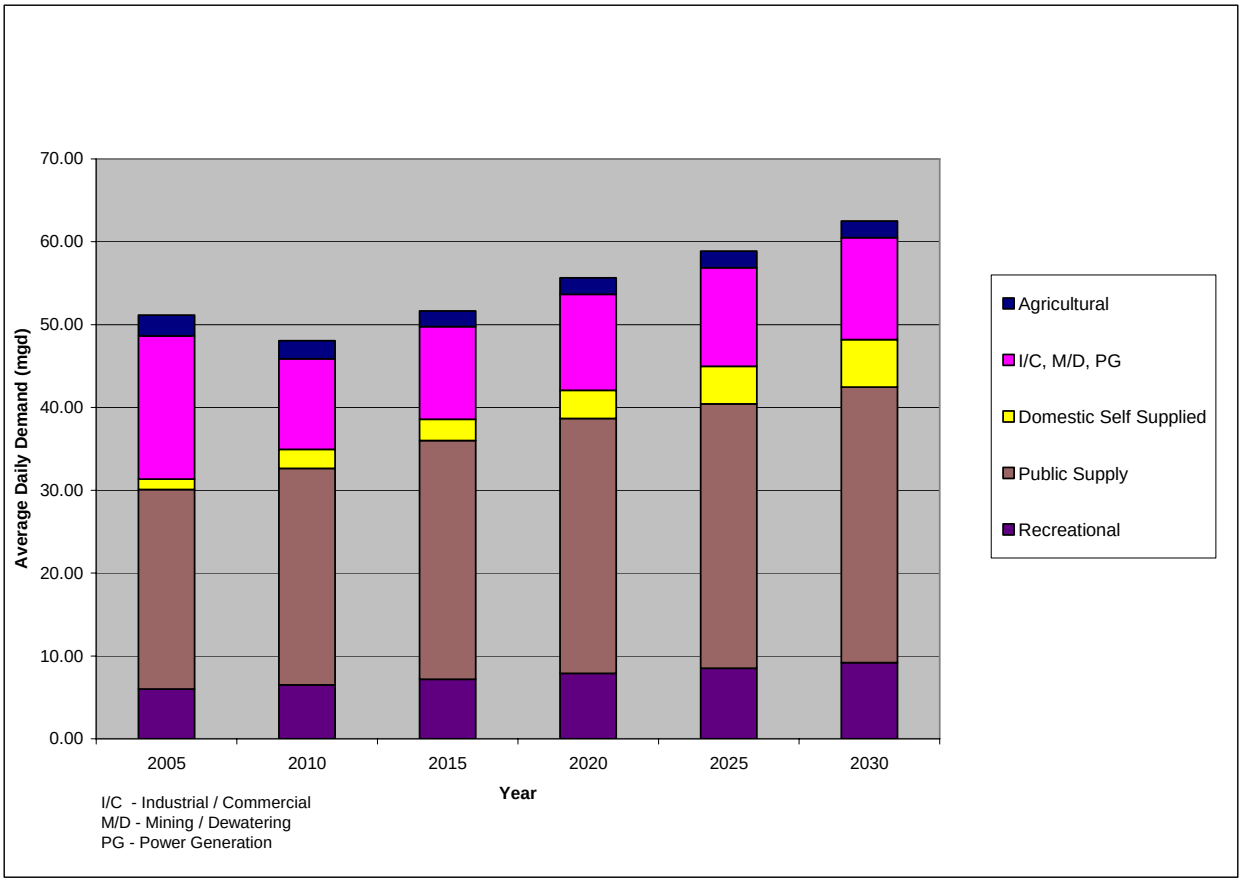

Figure 1-2B. Incorporated / Unincorporated Hernando County Projected Water Demand.

Sumter County

The public supply water demand in Sumter County in 2005 is approximately 11.06 mgd, which is anticipated to increase by 16.71 mgd (151%) to 27.77 mgd over the planning horizon. (Table 1-3C and Figures 1-3A and 1-3B).

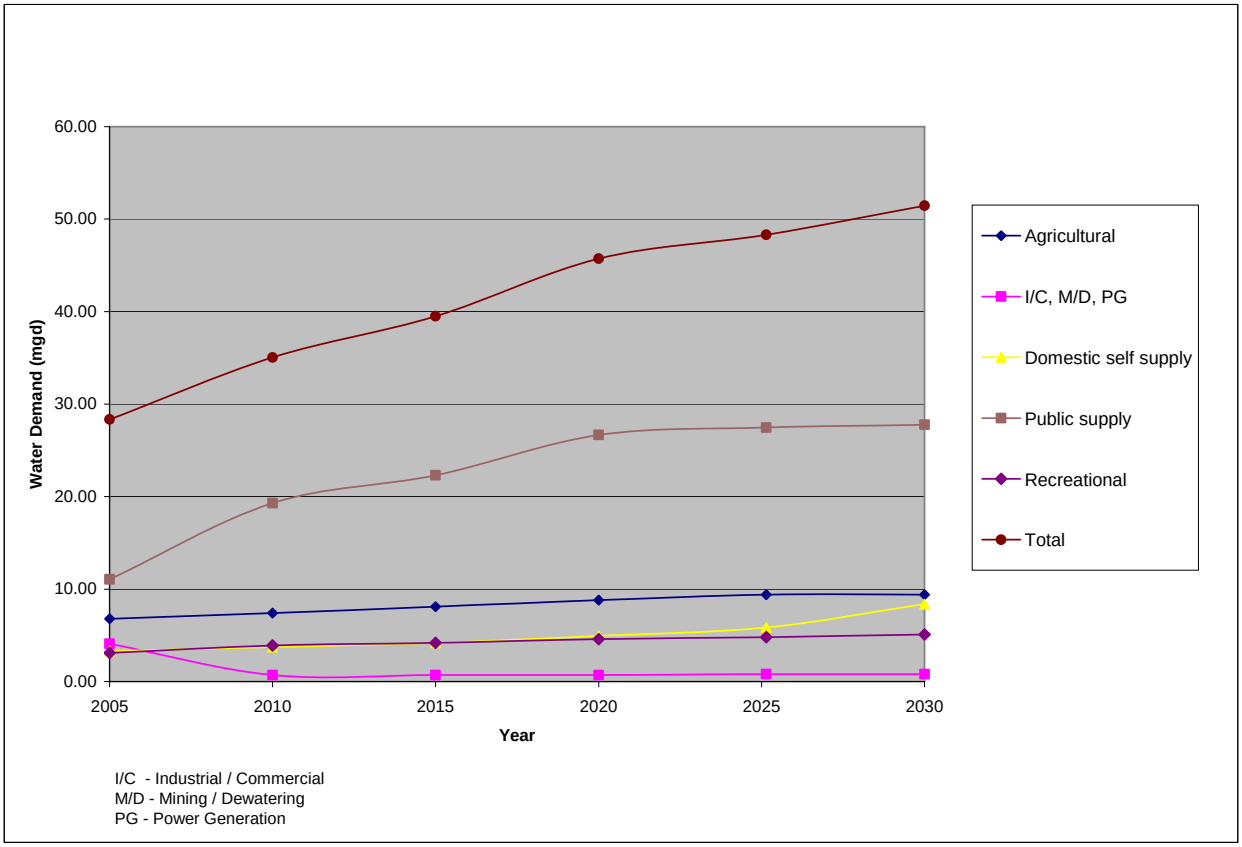

Figure 1-3A. Incorporated / Unincorporated Sumter County Projected Water Demand.

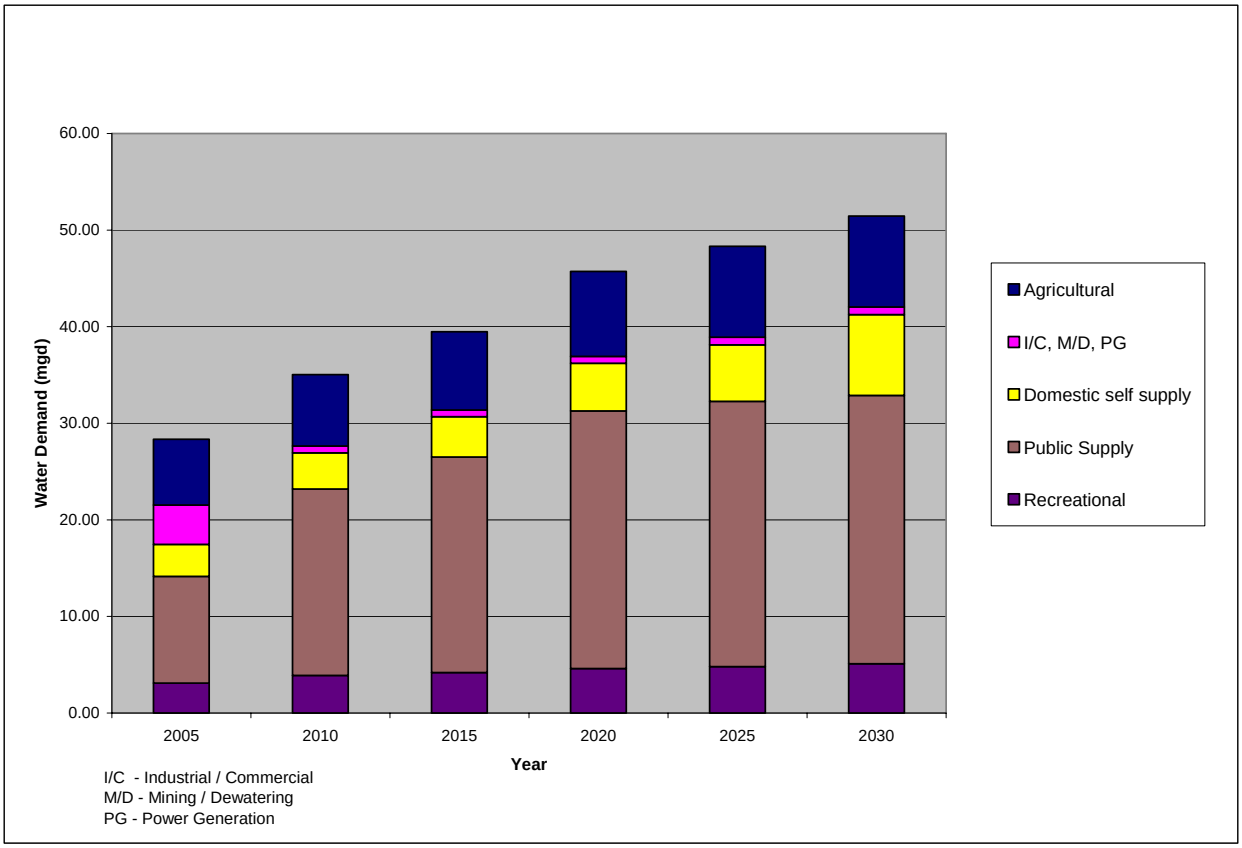

Figure 1-3B. Incorporated / Unincorporated Sumter County Projected Water Demand.

Marion County

The public supply water demand in Marion County in 2005 is approximately 30.13 mgd, which is anticipated to increase by 25.91 mgd (86%) to 56.04 mgd over the planning horizon. (Table 1-3D and Figures 1-4A and 1-4B).

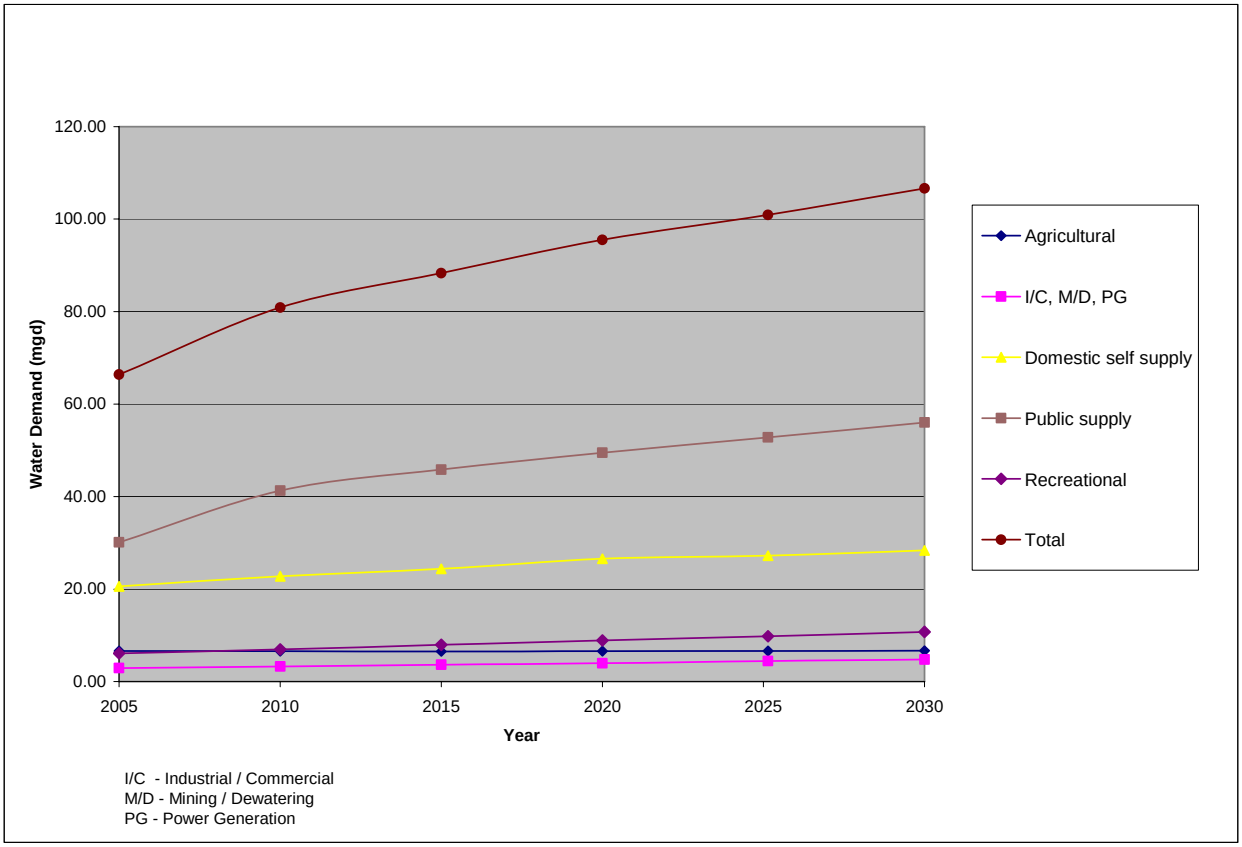

Figure 1-4A. Incorporated / Unincorporated Marion County Projected Water Demand.

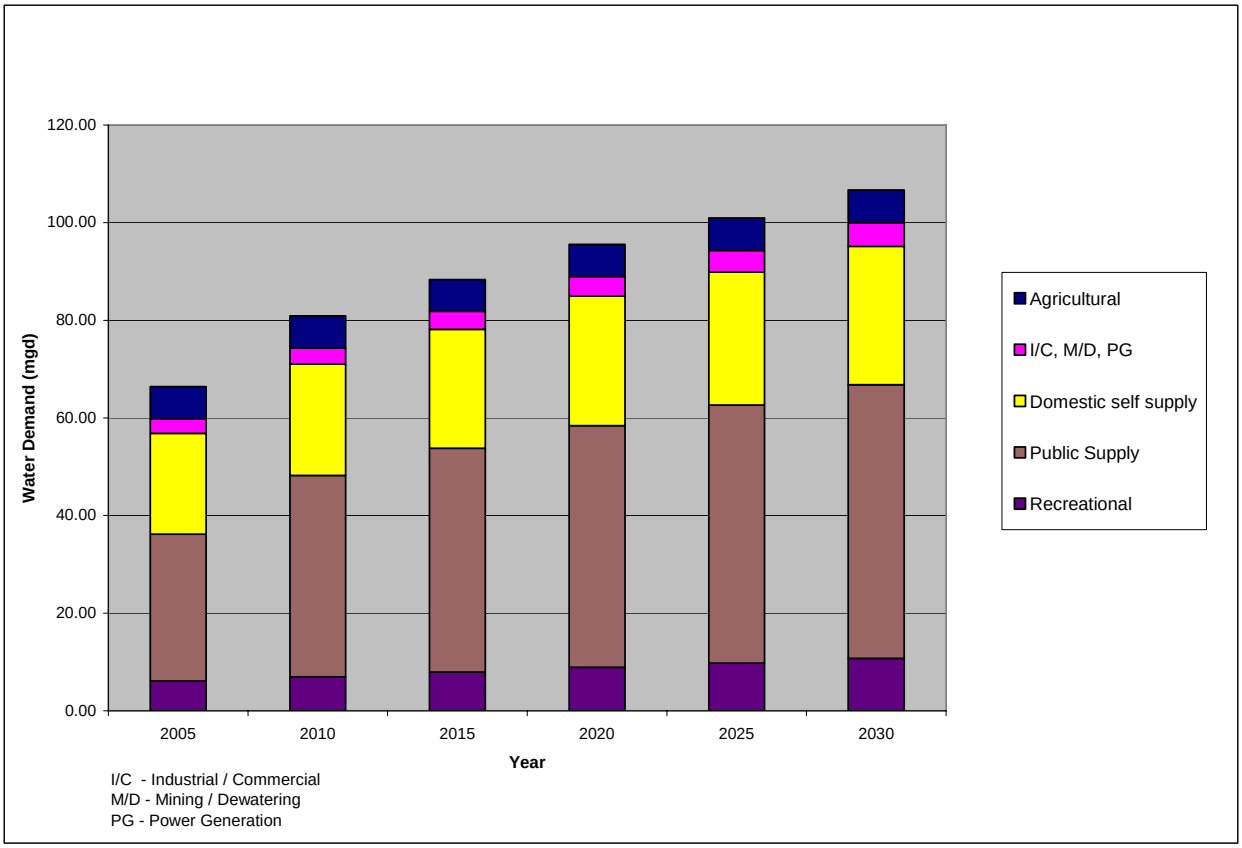

Figure 1-4B. Incorporated / Unincorporated Marion County Projected Water Demand.

1.3.7 Summary

In summary, public supply water demand projections were analyzed over the planning horizon and were determined to have the greatest expected water demand increase over the planning horizon of all the water use categories. These demand numbers were reached based on SWFWMD, and SJRWMD methodologies, including per capita determination and population projections. Public supply contributes 70% of the total WRWSA increase in water use over the planning horizon.

1.4 Domestic Self-Supply Water Demand

1.4.1 Introduction

Domestic self-supply is defined as that portion of the county population not serviced by municipal systems, but from residential wells. Domestic self-supply water use was broken out into a separate category for Phase II in order to depict those users that are not served by a municipal system.

As with public supply water use, domestic self-supply water use projections were based on 2005 base year population estimates, 2005 base year water use, and average per capita rate estimations (SWFWMD 5-year average per capita 2003-2007, and SJRWMD 6-year average

per capita 1995-2000). A description of the methodologies and assumptions employed to determine domestic self-supply water use follows and is outlined in Table 1-1B.

1.4.2 Base Year Populations

County domestic self-supply populations are calculated as the difference between the 2005 baseline total county population and the combined 2005 large and small utility service area populations.

1.4.3 Base Year Water Use

Base year water use for domestic self-supply is calculated by multiplying the domestic self-supply population for each county by the residential average per capita water use as described above. For the SWFWMD, the 5-year (2003-2007) average per capita rate was used to determine base year water use.[5] In the SJRWMD, the 6-year (1995-2000) average per capita rate was used.[6]

1.4.4 Population Projections

As with the population projections mentioned above for public supply, the domestic self-supply population was projected using a parcel based model.

1.4.5 Domestic Self-Supply Water Demand Projections

1.4.5.1 Planning Horizon (2005 – 2030)

As mentioned, SWFWMD derived domestic self-supply water demands by multiplying 2003-2007 average per capita rates by the projected populations on a county-wide basis to develop these projections. SJRWMD used the 6-year per capita average (1995-2000) multiplied by the projected population to calculate the water demand projections in 5 year increments.

1.4.6 Results

The domestic self-supply water demand for the WRWSA was approximately 30.22 mgd in 2005. The estimated projected demand is expected to be 47.85 mgd in 2030. These demands equate to approximate increase of 17.63 mgd (58%) over the planning horizon. Refer to Table 1-2 for 5-year incremental increases of domestic self-supply water demand.

Citrus County

The 2005 domestic self-supply water demand in Citrus County is approximately 5.06 mgd, and is projected to increase by 0.34 mgd (6%) to 5.396 mgd over the planning horizon. (Shown in Figures 1-1A and 1-1B).

[5] Domestic self-supply base year water use methodology is taken from Bader (2009).
[6] Domestic self-supply base year water use methodology is taken from SJRWMD (2008).

Hernando County

The 2005 domestic self-supply water demand in the County is approximately 1.25 mgd, and is projected to increase by 4.47 mgd (357%) to 5.72 mgd over the planning horizon. (Shown in Figures 1-2A and 1-2B).

Sumter County

The 2005 domestic self-supply water demand in the County is approximately 3.29 mgd, and is projected to increase by 5.08 mgd (154%) to 8.37 mgd over the planning horizon. (Shown in Figures 1-3A and 1-3B).

Marion County

The 2005 domestic self-supply water demand in the County is approximately 20.62 mgd, and is projected to increase by 7.75 mgd (38%) to 28.37 mgd over the planning horizon. (Shown in Figures 1-3A and 1-3B).

1.4.7 Summary

Domestic self-supply projections over the planning horizon and reference projection period were determined by analyzing increases in populations not served by a municipal or private utility and applying each of the districts average per capita rates. These water use projections account for 8% of the total water use increase over the planning horizon in the WRWSA.

1.5 Commercial, Industrial, Mining/Dewatering and Power Water Demand

1.5.1 Introduction

This water demand category is associated with commercial, industrial, mining and other uses. Within SWFWMD, this water demand is calculated as follows:

I/C uses include chemical manufacturing, food processing, power generation, and miscellaneous I/C uses. While diversified, much of the water used in food processing can be attributed to agricultural crops. For the most part, chemical manufacturing is closely associated with mining and consists mainly of mine processing. A number of different products are mined within the SWFWMD's boundaries, including phosphate, limestone, shell, and sand. For the purposes of the water supply planning process, thermoelectric power generation (PG) is separated out as an individual use category. While the Water Demand Projection Subcommittee (FDEP, 2001) identified 0.1 mgd as the mandatory reporting threshold for the I/C and M/D categories, the SWFWMD examined and included all permitted or reported uses, regardless of the quantity in projecting demand. The decision to include all WUPs, regardless of size, resulted from a belief that projection accuracy would be improved by capturing all available water use data.[7]

[7] Description taken from Wright (2009).

Within SJRWMD, this demand is calculated as follows: All permitted commercial /industrial/ institutional self-suppliers listed in the SJRWMD CUP database having an average daily use of at least 0.10 mgd in 2005 were included in the projection calculations.[8]

The sections below describe the methodology and projections of water use for commercial, industrial, and mining water demand. They also describe the methodologies the SWFWMD and SJRWMD developed for estimating water use under this category.

1.5.2 Base Year

Within SWFWMD jurisdiction, the base year for the purpose of developing and reporting water demand projections is 2005. This is consistent with the methodology agreed upon by the Water Planning Coordination Group (FDEP, 2001). The data for the baseline year consist of reported and estimated usage for 2005, whereas data for the years 2010 through 2030 are projected demands (estimated needs).[9]

Within SJRWMD jurisdiction, the base period used for the projections was 1995–2005, and the historic water use values were calculated by averaging data over this base period. The use of average values compensated for variations in rainfall and missing or anomalous annual flow values.[10]

1.5.3 Water Demand Projections

Demand projections within the SWFWMD were developed by multiplying permitted quantity data extracted from the District's Water Management Information System (WMIS) in October 2008 by the percentage of actual use for the I/C and M/D categories on a county-by-county basis. The percentage of permitted quantity used in each county was calculated by dividing total estimated county use by the county's permitted quantity in each category for the years 2001 through 2006, using data extracted from the District's yearly Estimated Water Use reports. During this six year period, 38.2 percent of M/D permitted quantities, and 42.1 percent of I/C permitted quantities were actually reported as used District-wide. However, the percentage of permitted quantity actually used in the I/C and M/D categories varies significantly from county-to-county. When data was available, the percentage of permitted quantity actually used by each PG WUP holder was calculated and used to project water demand on a permit-by-permit basis. When individual power plant data was not available, the District-wide average use for PG was used to project water demand.[11]

Demand projections within the SJRWMD for commercial/industrial/institutional self-supply were divided into two groups—those that are likely to increase in the future (e.g., educational) and those that are not (e.g., military). Historical water use for those that are likely to increase in the future were summarized at the county level, and that total was multiplied by the population growth rate from 2005 to 2030. Historical water use for those that are not likely to increase in the future was also summarized at the county level. Because water use for those entities is not

[8] Description taken from SJRWMD (2008).
[9] Description taken from Wright (2009).
[10] Description taken from SJRWMD (2008).
[11] Description taken from Wright (2009).

expected to increase in the future, the 2030 projections were held at the historic levels. The 2030 projection summaries for both types were then summarized by county.[12]

1.5.4 Results

The total WRWSA I/C, M/D and P/G water demand was approximately 26.03 mgd in 2005. Using the methods described, the demand is expected to be about 21.1 mgd in 2030. This demand equates to an approximate decrease of 4.93 mgd (19%) over the planning horizon. (Shown in Figures 1-1A through 1-3A and 1-1B through 1-3B). Refer to Table 1-2 for water demands given over five (5)-year increments.

1.5.5 Summary

It is recognized that the growth in these operations is difficult to predict, due to market "volatility" and the fact that existing operations are constantly in flux. Thus water use projections are also difficult to project. These water use projections account for -5% of the total water use increase over the planning horizon in the WRWSA.

1.6 Recreational/Aesthetics Water Demand

1.6.1 Introduction

SWFWMD includes in the recreational/aesthetic water demand the self-supplied freshwater used for the irrigation of golf courses, cemeteries, parks, and other large-scale landscapes. Golf courses are the major users within this category. The Water Demand Projection Subcommittee (FDEP, 2001) identified 0.5 mgd as the reporting threshold for all golf courses and others in the category. The threshold for the recreational/aesthetic category includes all permitted, reported, or otherwise identified uses because most golf courses and others in this category are below the identified 0.5 mgd threshold.[13]

The SJRWMD includes in the recreational/aesthetic water demand only of golf course irrigation, because SJRWMD does not have reliable estimates for other recreational uses and these other, recreational water uses (i.e., athletic field irrigation and swimming pools) are generally not significant in comparison to golf course irrigation. These other uses are often captured either in the public supply category or the commercial/industrial/institutional self-supply category.[14]

A description of the methodology and projections of water use for recreation and aesthetic is detailed as follows.

1.6.2 Base Year

The base year used for the recreational/aesthetic water use in SWFWMD jurisdiction is as follows: 2005 is the starting point, or baseline year, for the purpose of developing and reporting water demand projections. This is consistent with the methodology agreed upon by the Water Planning Coordination Group (FDEP, 2001). The data for the baseline year consist of reported

[12] Description taken from SJRWMD (2008).
[13] Description taken from McGookey (2009).
[14] Description taken from SJRWMD (2008).

and estimated usage for 2005, whereas data for the years 2010 through 2030 are projected demands (estimated needs).[15]

Within SJRWMD jurisdiction, water use values for each year between 1995 and 2005, where available for individual golf courses, were used as the basis of calculating an average water use per acre by individual golf course. For courses where water use data was incomplete, an estimation of the course's water use was calculated by multiplying the course acreage by the associated county-wide average.[16]

1.6.3 Water Demand Projections

Within the SWFWMD, the methodology for recreation/aesthetic demand is as follows:

Golf Courses

Golf course demands are based on the average water use per golf course hole by county and a projection of golf course growth. The demands include the average golf course pumpage from 2003 through 2007, for permitted golf courses in the SWFWMD, to calculate the average gallons per day per golf course hole. The pumpage was derived from the SWFWMD's Regulatory Database. The average annual pumpage per golf course hole is shown by golf course and by county. The county average was used to estimate future demand.

A minimum of three years of pumpage data was required to include the data from each golf course. Only surface water and ground water pumpage was used to determine the average use per golf course hole for those golf courses that utilized reclaimed water.

The historical number of golf course holes was derived from the National Golf Foundation (NGF) database (National Golf Foundation, 2007), the internet and data in the SWFWMD permit file of record (WMIS, 2006). Some golf courses were contacted to verify information such as the year the course opened and number of golf course holes. From this data, the historical growth of the number of existing golf course holes was used to forecast future growth. In order to forecast the average growth of golf course holes, a linear regression was performed using the historical golf course data in each county and that trend was used to project their growth to the year 2030. Although there are variations from year to year and from county to county, there is a general upward trend in the growth of golf course holes. The average annual use per hole by county was multiplied times the future growth in golf course holes to project future demands.

Aesthetic

Aesthetic water use includes landscape irrigation for parks, medians, attractions, cemeteries and other large self-supply green areas. For each county, per capita water use (expressed in gallons per day per person) is obtained from a five year average (2003 to 2007) of the published estimated landscape water use from the SWFWMD Estimated Water Use Report (EWUR). Estimates of population growth from 2005 to 2030 were obtained from the 2010 RWSP (Bader, 2009) and based on BEBR. These population projections were then multiplied times the per capita landscape water use to estimate aesthetic demand by county. The District's average per

[15] Description taken from McGookey (2009).
[16] Description taken from SJRWMD (2008).

capita water use for green space irrigation is 6.7 gpd per person. Projections were made in five-year increments to the year 2030.

1-in-10 Drought

The 1-in-10 drought event is an event that results in an increase in water demand of a magnitude that would have a 10 percent probability of occurring during any given year. The 1-in-10 year Drought Subcommittee of the Water Planning Coordination Group (SWPCG), as stated in their final report to the Florida Department of Environment Protection (FDEP, 2001), determined that, methodologies for estimating the 1-in-10 year demand high for recreational self supply are similar to methodologies used to estimate agricultural demand. The optimum irrigation requirements for the 1-in-10 year event, as opposed to the average year event, were 30 percent for golf courses and 26 percent for landscape irrigation. The projected water use for an average year was multiplied by this percentage value to produce a projected water use for a 1-in-10 year rainfall.[17]

Within SJRWMD jurisdiction, the methodology for recreation/aesthetic demand is as follows:

Golf Courses

SJRWMD digitized a district wide golf course polygon GIS layer by using aerial imagery to delineate the irrigated portions of golf courses. During the digitization process, only those areas that appeared irrigated were included in defining each course's boundary. For instance, surface water bodies, forested and shrub areas, and large paved areas were excluded from irrigated acreage.

Water use projections (i.e., projected golf course development) for each county were calculated by multiplying the irrigated acreage in each county in 1995 by the respective county population growth rates between 1995 and 2030. The 2005 golf course acreage and water use data were interpolated from the acreage and water use values from the projected increase between 1995 and 2030.

It is expected that a significant portion of the projected water use will be supplied by reclaimed water and storm water. SJRWMD, through its CUP program, routinely requires the use of reclaimed water and storm water when such use is technically, environmentally, and economically feasible.

Aesthetic

SJRWMD does not calculate aesthetic water use, as it does not have reliable estimates for its recreational/aesthetic water use demands as mentioned above.

1-in-10 Drought

Water use for a 1-in-10-year drought was calculated by multiplying the projected 2030 water use by the county change ratio reported in WSA 2003 for 2025 water use (see WSA 2003).[18]

[17] Description taken from McGookey (2009).
[18] Description taken from SJRWMD (2008).

1.6.4 Results

The total WRWSA recreational water demand was approximately 20.59 mgd in 2005. Using the methods described, the demand is expected to be about 33.76 mgd in 2030. This demand equates to an approximate increase of 13.17 mgd (64%) during the planning horizon timeframe. (Shown in Figures 1-1A through 1-3A and 1-1B through 1-3B). Table 1-2 shows demand projections incrementally for this water use category.

1.6.5 Summary

Recreational water use for the SWFWMD was projected based on the 2003-2007 average gallons per day per hole calculation and a linear regression analysis of increasing golf course holes. For the SJRWMD, only golf course irrigation was taken into account, because the district does not have reliable estimates for aesthetic water use. These water use projections account for 14% of the total water use increase over the planning horizon in the WRWSA.

1.7 Agricultural Water Demand

1.7.1 Introduction

In SWFWMD, agricultural water use demand projections were generated "for thirteen crop categories." These crops include: "citrus, cucumbers, field crops, nursery, melons, other vegetables and row crops, and pasture, potatoes, sod, strawberries, tomatoes and blueberries" (SWFWMD, 2009). Water use projections for permitted irrigated crop categories were determined by multiplying projected irrigated crop acreage by crop irrigation requirements (AGMOD).[19]

Within SJRWMD, agricultural water demand is assessed by different crops due to specific consumption requirements. Corresponding estimates are based on a modified Blaney-Criddle model and Benchmark Farms Program data that is supplemented by U.S. Department of Agriculture-NRCS Conservation Service (USDA-NRCS CS) and National Oceanic and Atmospheric Administration (NOAA) information. Crop type and acreage data are provided through FAAS and a SJRWMD survey of county agricultural extension agents.[20]

The sections below describe the methodology and projections of water use for this category.

1.7.2 Base Year

Within SWFWMD, "The data for the baseline year consist of reported and estimated usage for 2005" (SWFWMD, 2009).

Within SJRWMD the base year was 2005, and this data was taken from the 2005 Annual Water Use Data Fact Sheet. Monthly agricultural water use data was calculated using a modified Blaney-Criddle model and data from SJRWMD's Benchmark Farms Program (BMF).[21]

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[19] AGMOD is a computer program developed and used by the SWFWMD in their water use permitting process to calculate supplemental irrigation, crop establishment, cold protection and other irrigation water uses.
[20] Description taken from SJRWMD (2008).
[21] Description taken from SJRWMD (2008).

1.7.3 Water Demand Projections

Within SWFWMD, the methodology for computing agricultural demand is as follows:

Several assumptions were made, including: 1) agricultural land use conversion to residential/industrial/commercial use is irreversible; 2) water use/land use change analysis determines future agricultural land and water quantities; and 3) for purposes of the RWSP (2010), major agricultural types include citrus, cucumbers, field crops, nursery, melons, other vegetables and row crops, and pasture, potatoes, sod, strawberries, tomatoes and blueberries (added in 2008 for 2010 Plan).

The GIS model retrieved and compared the agricultural water use permitting information and land use/land cover county property appraiser's parcel data and recorded the future land use for each parcel and permitted area. The acreage increases were limited by the total available and remaining land and total water use permitted quantities. The GIS model accounted for land use transition from agriculture to residential/commercial/industrial use and a land use conversion trend was determined. Blueberry acreage was added to forecast the potential growth of this emerging crop type in the District. Aerial photography provided another layer of information for land use/land cover analysis and crop category determination.

Projected water uses associated with 'Miscellaneous' (*i.e.*, non- irrigated) agricultural operations include aquaculture, dairy, cattle, poultry, and others. The projected water use demands are presented under these two identified water use scenarios:

- Average annual effective rainfall conditions (5-in-10 year scenario); and
- A 1-in-10 drought year scenario (an event that results in an increase in water demand of a magnitude that would have a 10 percent probability of occurring during any given year)

Water use projections for permitted irrigated crop categories were determined by AGMOD. Acreage projections through the year 2030 were formulated based on a cumulative review of the information through GIS/permitting analysis and by other identified sources using a base year of 2005. For those counties that are not located wholly within the District (*i.e.,* Levy, Lake, Marion, Charlotte, Highlands, and Polk), only the portion of the crop acreage located within the District was considered.

Crop irrigation requirements were derived using AGMOD. Irrigation allocations were developed for each reporting category by using AGMOD and incorporating typical site-specific conditions for each crop, including location, climatology, soil type, irrigation system, and growing season(s). Planning level water use projections were developed through the year 2030 for average annual effective rainfall conditions and for a 1-in-10-drought year scenario.

For purposes of this analysis, the following assumptions were made with regard to crops included in the 'Vegetables, Melons, and Berries' category:

- All crops in the 'Vegetables, Melons, and Berries' category except for potatoes were assumed to be grown on plastic mulch. Although it is recognized that this is not entirely true for all operations in the planning regions (*e.g.*, some melon

acreage), the impact of this assumption on the overall water use projections is not believed to be significant;

- Irrigation allocations for all crops grown on plastic mulch were calculated assuming zero effective rainfall. The result of this assumption is that projected water use needs for mulched crops are the same under both the 5-in-10 (average annual) and 1-in-10 drought year scenarios; and
- Irrigation allocations for all crops grown on plastic mulch include quantities for crop establishment.

All of the foregoing assumptions are believed to be reasonable in the context of mulched crop operations.[22]

For the demand projections of agricultural water use within SJRWMD, the district created a spatial database of 1995 and 2005 irrigated agricultural acreage for its entire jurisdictional area. Based on the information in this database, between 1995 and 2005 agricultural acreage declined by 13% and this trend is expected to continue.

This 2005 agricultural spatial database was intersected with all parcels projected to grow in population between 2005 and 2030. The population model also determines the maximum carrying capacity, in population, for a parcel that is at build-out (fully developed). A build-out percentage (ratio) can be calculated by dividing a parcel's projected population by its build-out population, which is shown:

[Parcel growth build-out ratio] = ([2030 population] – [2005 population]) / [build-out population]

As stated above, parcels projected to grow in population were intersected with the database for agricultural lands. Agricultural acreage loss was calculated by multiplying the intersecting (area common to both growth parcels and agricultural acreage) area acreage by the growth- to build-out ratio for each growth parcel, that is:

[AG acres lost] = acres ([AG intersect growth parcel]) × [growth build-out ratio]

For each county (or portion thereof) in SJRWMD, the percentage change in irrigated agricultural acreage between 2005 and 2030 was calculated, as follows:

[County AG 2030 acres] = [2005 county AG acres] – [county AG acres lost]

Projected 2030 agricultural irrigation self-supply water use was calculated by multiplying the percentage change in acreage by the 2005 agricultural irrigation self-supply water use (see SJRWMD Technical Fact Sheet SJ2006-FS2 for 2005 water use).

Data from the consumptive use permitting process regarding future agricultural irrigation was taken into account in situations where agricultural irrigation was increasing significantly, but the typical assumption was that agricultural acreage will decline in the future. Therefore, it is assumed that agricultural irrigation self-supply water use will decline in the future. Water use for a 1-in-10-year drought was calculated by multiplying the projected 2030 water use by the county

[22] Description taken from Nourani (2009).

change ratio reported in *WSA 2003* for 2025 water use (see WSA 2003).[23]

1.7.4 Results

The total WRWSA agricultural water demand was approximately 16.12 mgd in 2005. Using the methods described, the demand is expected to increase to 18.59 mgd in 2030. These demands equate to approximate increases of 2.47 mgd (15%) over the planning horizon. (Shown in Figures 1-1A through 1-3A and 1-1B through 1-3B). Table 1-2 depicts the incremental water demand estimates for this use category.

1.7.5 Summary

Agricultural water use for irrigated and non-irrigated uses was projected from multiple sources by the SWFWMD. Water use increases in this category account for 3% of the total increase in WRWSA.

1.8 Total WRWSA Water Demand

1.8.1 Summary

In summary, existing and future water demands in the WRWSA region were analyzed for each of the following categories:

1. Public supply;
2. Domestic self-supply;
3. Commercial/Industrial, Mining/Dewatering and Power Generation;
4. Recreational/Aesthetic; and
5. Agricultural.

The total WRWSA water demand for all water use categories was approximately 174.36 mgd in 2005. Using the methods described, the demand is expected to increase to 269.07 mgd in 2030. These demands equate to an approximate increase of 94.71 mgd (54%) during the planning horizon timeframe. (Figures 1-5A and 1-5B).

[23] Agricultural water demand methodology taken from SJRWMD (2008).

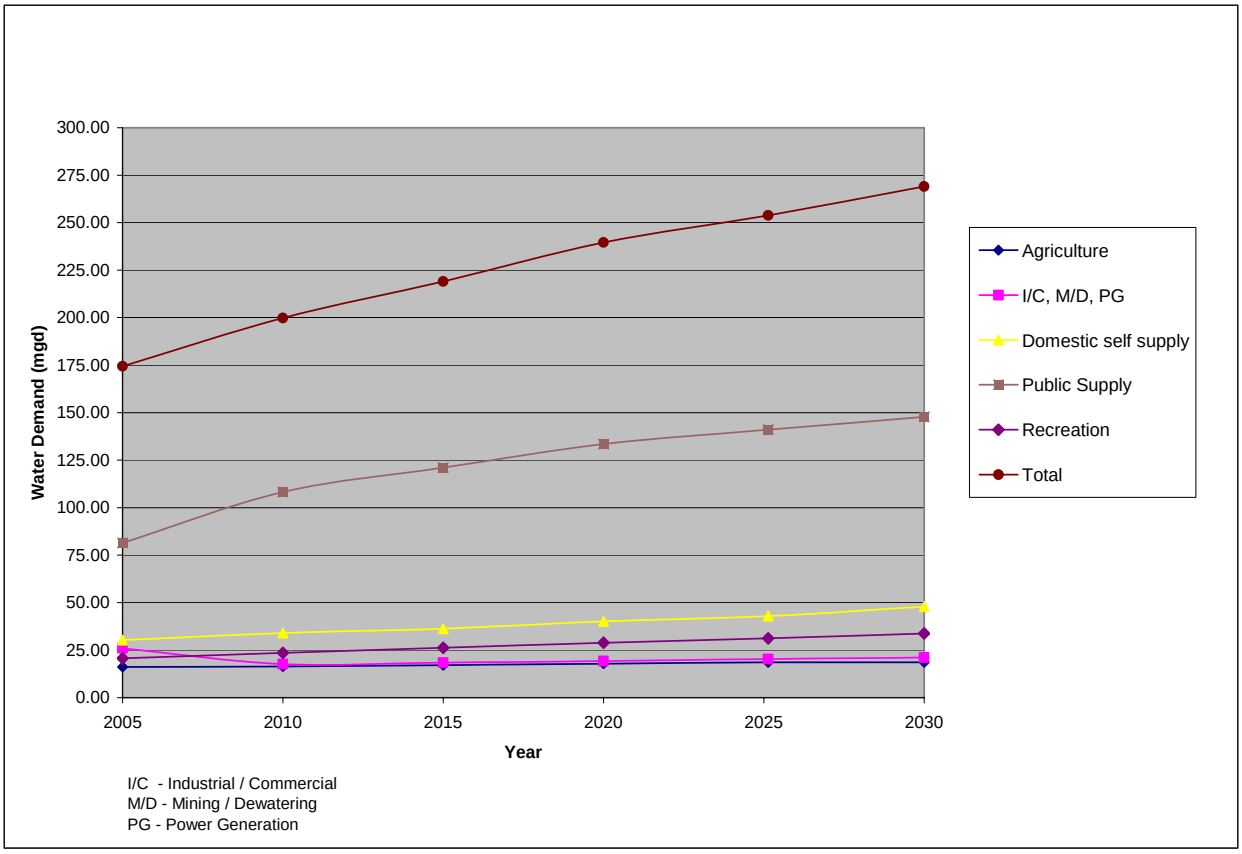

Figure 1-5A. Total Existing and Projected Water Demand for the WRWSA.

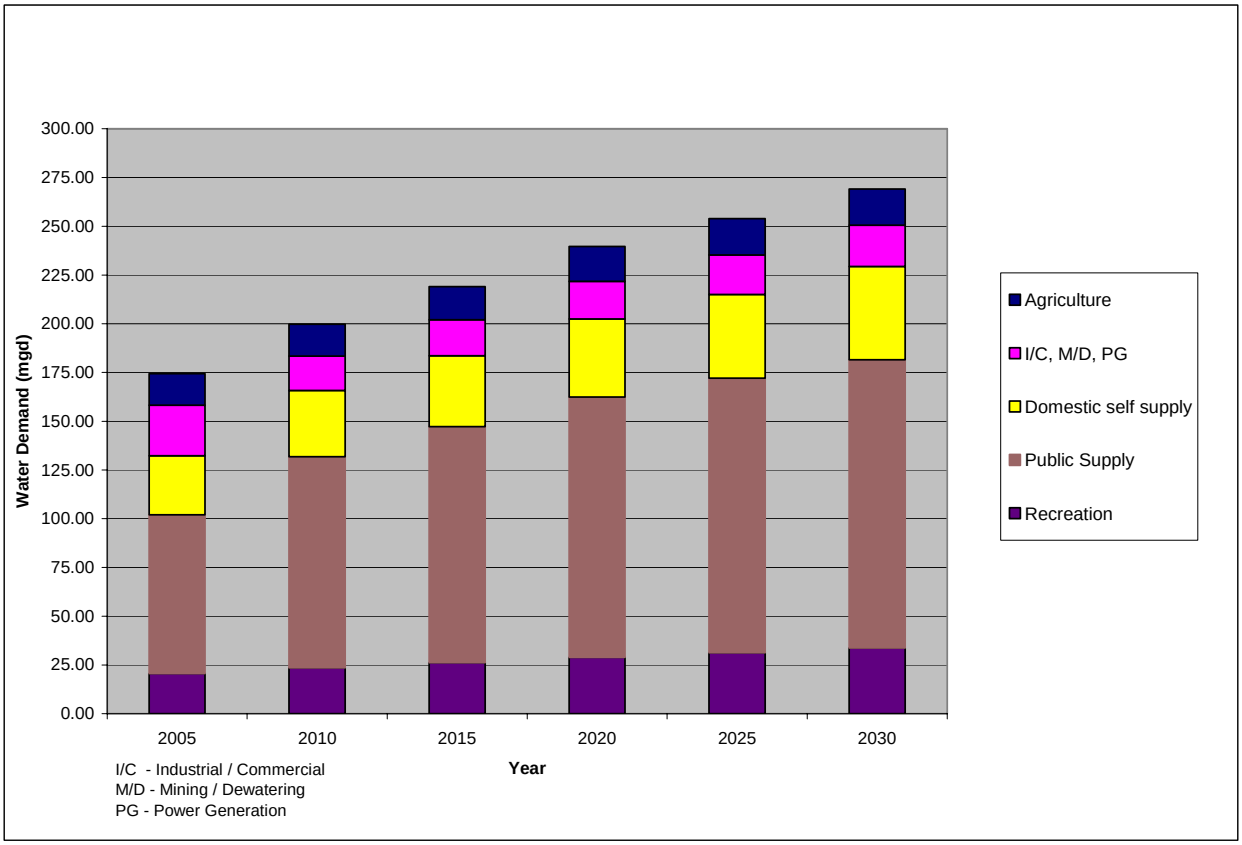

Figure 1-5B. Total Existing and Projected Water Demand for the WRWSA.

Marion County

Marion County had the highest water use increase during the planning horizon, of all the members of the WRWSA. This demand increases 40.27 mgd (61%) over the planning horizon to about 106.66 mgd. Public supply is the water use projected to increase the most for Marion County and is 64% of the total water demand increase. Domestic self supply is the second highest water use for Marion County. Domestic self supply in Marion County is much greater than any other county within the WRWSA. Domestic self supply in Marion County is 68% of the total domestic self supply for the entire WRWSA in 2005 and will increase to 28.37 mgd in 2030.

Sumter County

Sumter County was the second county with the highest water use increase during the planning horizon, of all the members of the WRWSA. Sumter County water demand in 2005 was 28.35 mgd. This demand increases 23.09 mgd (81%) over the planning horizon to about 51.44 mgd. Public supply is the water use with the greatest increase, making up 73% of the total increase in water for Sumter County. Industrial/Commercial water use in Sumter County, unlike most categories in the WRWSA, actually decreased in water demand. In 2005 the industrial/commercial water use for Sumter County was 4.10 mgd, and is projected to decrease to 0.80 mgd in 2030.

Citrus County

Citrus County's water demand in 2005 was 28.48 mgd. This demand increases approximately 20.02 mgd (72%) over the planning horizon to 48.50 mgd. Public supply water use was the highest increase for Citrus County nearly doubling during the planning horizon. Unlike other counties in the WRWSA, domestic self supply for Citrus County had a minimal increase. During the planning horizon domestic self supply increased 0.34 mgd, or a 6% increase.

Hernando County

Hernando County has the lowest total projected demand increase of any county in the WRWSA. Hernando County water demand in 2005 was 51.14 mgd, and is expected to increase by 11.34 mgd (22%) over the planning horizon to about 62.48 mgd. Domestic Self supply in Hernando County has the second highest rate of increase, when compared to all other counties in the WRWSA. Domestic self supply is expected to increase from 1.25 mgd to 5.72 mgd in 2030. This is a 4.47 mgd (358%) increase over the planning horizon.

1.9 Uncertainties and Issues with Projecting Public Supply Water Demand in the WRWSA

Overview

As discussed in the WRWSA – RWSPU, uncertainty is inherent in projections of population and water demand, because the rate and distribution of future population growth is not known. The recent economic downturn has clearly illustrated the limitations of population forecasting, as an unprecedented population decline occurred which was not foreseen by any of BEBR's low, medium or high-range projections.

The WMDs processes to project water demand have evolved over the course of the RWSPU - Phase I and Detailed Water Supply Feasibility - Phase II efforts. Small-area GIS forecasting is now being used by both the SWFWMD and SJRWMD to apportion BEBR population growth rates within counties, reducing inaccuracies in these rapidly developing areas. The WMDs are updating their projections at more frequent intervals. Nevertheless, the fundamental volatility associated with growth in Florida is an uncertainty that is impossible to eliminate in the planning process.

This fundamental volatility has been evident in the WRWSA. There have been dramatic swings in projected 20-year member water demands over the course of the Phase I and Phase II efforts. The most notable of these include regulatory acceptance of The Villages demand projections at the end of Phase I, which dramatically increased the projections for northeastern Sumter County; the 2010 SWFWMD RWSP update during Phase II which greatly reduced the demand projections for Hernando County; and the draft 2010 SJRWMD DWSP update at the end of Phase II which significantly reduced the demand projected for Ocala. Each of these events were significant enough to influence portions of the resource assessment and water supply development components of the WRWSA planning process, as presented in subsequent chapters. For any individual service area in the WRWSA, the 2030 demand projections should be viewed with a potentially large margin of uncertainty.

Proposed Levy County Power Complex

Industrial activity in and around the WRWSA region also has the potential to affect public supply demand, by generating economic development that supports population growth. The region is home to one of the largest power generating complexes in Florida, Progress Energy's Crystal River Power Plant. Enhancements to this Crystal River complex are under construction and Progress Energy has proposed a second large power generating complex to the north of the existing plant in Levy County. While the BEBR forecasts consider the effect of industrial activities on population growth on a county-wide basis, the new generating complex in Levy County could affect the distribution of projected growth within Counties in the WRWSA. [24] It is notable that the current population projections indicate very high rates of population growth for the northern Citrus County service areas, with much lower rates for the southern Citrus County service areas.

Progress Energy's Combined License Application was reviewed to obtain data relevant to the projected distribution of population growth associated with the proposed Levy County complex (Progress Energy, 2008). The application indicates that growth effects of the complex will be felt in Citrus, Sumter, Levy, Marion, Alachua, Gilchrist, Dixie, and Hernando Counties during both construction and operations. An estimated 35% of the incoming workforce for the complex is projected to reside in Marion County and 17% is projected to reside in Citrus County. Less than 5% of the incoming workforce is projected to reside in Sumter and Hernando Counties. Each incoming worker is considered to be a head of household. A multiplier is used to estimate the indirect workforce resulting from development of supporting industries.

Using the state-average value for persons per household, the permanent incoming population projected for the complex and its indirect activity totals 558 persons for the four-county WRWSA. The permanent increase in population equates to a public supply demand of 83,700 gpd assuming a per capita of 150 gpcd. With these values projected to be dispersed across the four counties of the WRWSA, the permanent effects on public supply demand should be minimal.

Using the state-average value for persons per household, the peak temporary incoming population projected for the complex and its indirect activity totals 1,882 persons for the four-county WRWSA (e.g., during the construction peak). The peak temporary increase in population equates to a public supply demand of 282,300 gpd assuming a per capita of 150 gpcd. With these projected values projected to be dispersed across the four-counties of the WRWSA, the temporary effects on public supply demand should be modest. Appendix LEVY provides a detailed tabular summary of the permanent analysis.

As discussed above, uncertainty is inherent in projections of population and water demand. The temporary growth associated with the Levy County complex could have a more significant affect on member service areas if population increases vary or are not dispersed as projected. Perhaps the most significant issue is for member utilities that currently exceed the proposed SWFWMD 150 compliance per capita requirement. For these systems, temporary population influxes could distort estimates of per capita consumption and affect compliance with their water use permits.

[24] The upgrades to the Crystal River Power Plant are not expected to result in significant increases in public supply water demand.

Conclusions

While uncertainty is inherent in projections of population and water demand, the fundamental volatility associated with growth in Florida is a significant issue in the WRWSA that is impossible to eliminate. In this largely rural area, updates and variations in demand projections have influenced, and will continue to influence, resource assessment and water supply development activities. Since water demand is the basis for the water supply planning process, this uncertainty indicates that flexible planning strategies are needed in the WRWSA.

Category	Year(s)	Reporting Category	Methodology	Sources
Population SWFWMD	2005 (base year)	-	Utility populations were taken from the Estimated Water Use report (2005).	"Estimated Water Use, 2005", Southwest Florida Water Management District, and Utility-submitted information
	2010-2030	-	2008 BEBR Medium population projections applied to a GIS Population Projection Model. The model projects future permanent population growth at the census block level, distributes that growth to parcels within each block, and normalizes those projections to BEBR county projections.	"Projections of Florida Population by County, 2007 – 2035", Bureau of Economic and Business Research, March 2008, and "The Small-Area Population Projection Methodology of The Southwest Florida Water Management District", September 29, 2008.
Population SJRWMD	2005 (base year)	-	Populations were taken from the 2006 BEBR population projections.	"Projections of Florida Population by County, 2006", Bureau of Economic and Business Research.
	2010-2030	-	2006 BEBR Medium population projections applied to a GIS Population Projection Model. The model projects future permanent population growth at the census block level, distributes that growth to parcels within each block, and normalizes those projections to BEBR county projections.	"Projections of Florida Population by County, 2006", Bureau of Economic and Business Research, March 2008, and "The small area population projection and distribution methodology of the St. Johns River Water Management District for the 2008 District Water Supply Assessment and the 2010 District Water Supply Plan", GIS Associates, 2009.
Water Demand SWFWMD	2005	Large Utilities	Water use is defined as the utilities' (with greater than 0.1 mgd withdrawal) permitted withdrawals, plus imports, minus exports. Individually reported base year water use for large utilities. "Estimated Water Use 2005," Table A-1.	"Estimated Water Use, 2005", Southwest Florida Water Management District, 2006.
Water Demand SJRWMD	2005	Large Utilities	Water demand from publicly and privately owned public water supply utilities that had a 2005 annual average daily flow of at least 0.1 mgd. Public supply water use includes any uses of water from a public supply system.	"2008 Draft Water Supply Assessment", St. Johns River Water Management District, 2008.
Water Demand SWFWMD	2005	Small Utilities	Water use for small utilities is the sum of all small utilities' water use in the county identified in "Estimated Water Use 2005," plus the additional estimated water use associated with those non-reporting utilities.	"Estimated Water Use, 2005", Southwest Florida Water Management District, 2006.
	2010-2030	N/A	The District used the 2003-2007 average per capita water use rate and multiplied it by projected populations for each entity.	"2003-2007 Estimated Water Use Reports", Southwest Florida Water Management District.
Water Demand SJRWMD	2010-2030	N/A	The District used the 1995-2005 per capita water use rate and multiplied it by projected populations for each entity.	"2008 Draft Water Supply Assessment", St. Johns River Water Management District, 2008.

TABLE 1-1A - Public Supply Methodology and Assumptions

Category	Year(s)	Methodology	Sources
Population SWFWMD	2005 (base year)	County domestic self-supply populations are calculated as the difference in 2005 baseline total county population and the combined 2005 large and small utility service area populations	"Estimated Water Use, 2005", Southwest Florida Water Management District, and Utility-submitted information.
	2010-2030	2008 BEBR Medium population projections applied to a GIS Population Projection Model. The model projects future permanent population growth at the census block level, distributes that growth to parcels within each block, and normalizes those projections to BEBR county projections.	"Projections of Florida Population by County, 2007 – 2035", Bureau of Economic and Business Research, March 2008, and "The Small-Area Population Projection Methodology of The Southwest Florida Water Management District", September 29, 2008.
Population SJRWMD	2005 (base year)	Population for the domestic self-supply and small public supply systems category was calculated by subtracting the publicly supplied population (not including small public supply systems) from the SJRWMD portion of the total county population.	"Projections of Florida Population by County, 2006", Bureau of Economic and Business Research.
	2010-2030	2006 BEBR population projections applied to a GIS Population Projection Model. The model projects future permanent population growth at the census block level, distributes that growth to parcels within each block, and normalizes those projections to BEBR county projections.	"Projections of Florida Population by County, 2006", Bureau of Economic and Business Research, March 2008, and "The small area population projection and distribution methodology of the St. Johns River Water Management District for the 2008 District Water Supply Assessment and the 2010 District Water Supply Plan", GIS Associates, 2009.
Average Per Capita Rate SWFWMD	2003-2007	Average of 2003-2007 residential public supply water use divided by population.	2003-2007 Estimated Water Use Reports, Southwest Florida Water Management District.
Average Per Capita Rate SJRWMD	1995-2000	Average of 1995-2000 residential public supply water use divided by population.	"Draft 2008 Water Supply Assessment", SJRWMD, 2008.
Water Use SWFWMD	2005	Base year water use for domestic self-supply is calculated by multiplying the domestic self-supply population for each county by the residential per capita water use.	"Estimated Water Use, 2005", Southwest Florida Water Management District, 2006.
	2010-2030	Multiplied 2003-2007 average per capita rate by the projected self-supplied population.	N/A
Water Use SJRWMD	2005	Base year water use for domestic self-supply is calculated by multiplying the domestic self-supply population for each county by the residential per capita water use.	"Draft 2008 Water Supply Assessment", SJRWMD, 2008.
	2010-2030	Multiplied 1995-2000 average per capita rate by the projected self-supplied population.	"Draft 2008 Water Supply Assessment", SJRWMD, 2008.

TABLE 1-1B - Domestic Self-Supply Methodology and Assumptions

Table 1-2 - Existing and Projected Water Demand for Phase II

			2005			
	Public Supply	Domestic Self Supply	Agricultural MGD	I/C, M/D MGD	Recreational MGD	Yearly Total MGD
Citrus	16.12	5.06	0.20	1.70	5.40	**28.48**
Hernando	24.09	1.25	2.50	17.30	6.00	**51.14**
Sumter	11.06	3.29	6.80	4.10	3.10	**28.35**
Marion	30.13	20.62	6.62	2.93	6.09	**66.39**
TOTAL	**81.40**	**30.22**	**16.12**	**26.03**	**20.59**	**174.36**

			2010			
	Public Supply	Domestic Self Supply	Agricultural MGD	I/C, M/D MGD	Recreational MGD	Yearly Total MGD
Citrus	21.49	5.10	0.20	2.80	6.20	**35.79**
Hernando	26.16	2.29	2.20	10.90	6.50	**48.05**
Sumter	19.29	3.75	7.40	0.70	3.90	**35.04**
Marion	41.28	22.79	6.57	3.28	6.96	**80.88**
TOTAL	**108.22**	**33.93**	**16.37**	**17.68**	**23.56**	**199.77**

			2015			
	Public Supply	Domestic Self Supply	Agricultural MGD	I/C, M/D MGD	Recreational MGD	Yearly Total MGD
Citrus	24.12	5.15	0.50	2.90	6.90	**39.57**
Hernando	28.80	2.56	1.90	11.20	7.20	**51.66**
Sumter	22.30	4.19	8.10	0.70	4.20	**39.49**
Marion	45.83	24.40	6.53	3.64	7.94	**88.33**
TOTAL	**121.05**	**36.29**	**17.03**	**18.44**	**26.24**	**219.05**

			2020			
	Public Supply	Domestic Self Supply	Agricultural MGD	I/C, M/D MGD	Recreational MGD	Yearly Total MGD
Citrus	26.52	5.20	0.50	3.00	7.50	**42.72**
Hernando	30.78	3.37	2.00	11.60	7.90	**55.65**
Sumter	26.67	4.95	8.80	0.70	4.60	**45.72**
Marion	49.50	26.56	6.58	3.99	8.91	**95.54**
TOTAL	**133.47**	**40.08**	**17.88**	**19.29**	**28.91**	**239.62**

			2025			
	Public Supply	Domestic Self Supply	Agricultural MGD	I/C, M/D MGD	Recreational MGD	Yearly Total MGD
Citrus	28.75	5.28	0.50	3.10	8.10	**45.73**
Hernando	31.93	4.54	2.00	11.90	8.50	**58.87**
Sumter	27.46	5.85	9.40	0.80	4.80	**48.31**
Marion	52.82	27.23	6.63	4.45	9.79	**100.92**
TOTAL	**140.96**	**42.90**	**18.53**	**20.25**	**31.19**	**253.83**

			2030			
	Public Supply	Domestic Self Supply	Agricultural MGD	I/C, M/D MGD	Recreational MGD	Yearly Total MGD
Citrus	30.70	5.40	0.50	3.20	8.70	**48.50**
Hernando	33.26	5.72	2.00	12.30	9.20	**62.48**
Sumter	27.77	8.37	9.40	0.80	5.10	**51.44**
Marion	56.04	28.37	6.69	4.80	10.76	**106.66**
TOTAL	**147.77**	**47.85**	**18.59**	**21.10**	**33.76**	**269.07**

All Values shown are mgd
I/C - Industrial/Mining
M/D - Mining/Dewatering

Table 1-3A Citrus County Public Supply Water Demand and Population

Utility	Population Projections							Demand Projections [1,2]					
	2005	2010	2015	2020	2025	2030	Gross GPCD	2005	2010	2015	2020	2025	2030
CITRUS COUNTY													
City of Crystal River (207)	3,685	12,132	12,582	12,915	13,332	13,773	177	0.65	2.15	2.23	2.29	2.36	2.44
City of Inverness (419)	9,300	24,457	26,126	27,628	29,324	31,368	165	1.54	4.04	4.31	4.56	4.84	5.18
Floral City Water Assoc. Inc. (1118)	5,668	6,876	7,169	7,371	7,574	7,850	56	0.32	0.39	0.40	0.41	0.42	0.44
Citrus County Utilities													
Citrus County & WRWSA (7121)	23,917	27,851	33,977	38,126	41,608	44,462	197	4.71	5.49	6.69	7.51	8.20	8.76
Citrus Springs / Pine Ridge (2842)	13,080	14,894	17,567	21,036	25,031	29,119	181	2.37	2.70	3.18	3.81	4.53	5.27
Oak Forest (7879)	415	424	426	426	430	440	119	0.05	0.05	0.05	0.05	0.05	0.05
Sugarmill Woods (9791)	9,659	9,743	11,552	13,769	15,373	15,903	226	2.18	2.20	2.61	3.11	3.47	3.59
Lakeside Estate (13219)	574	619	623	623	624	624	130	0.08	0.08	0.08	0.08	0.08	0.08
Rolling Oaks Utilities Inc. (4153)	12,242	12,653	12,700	12,704	12,726	12,777	178	2.18	2.25	2.26	2.26	2.27	2.27
Homasassa Special Water District (4406)	6,075	6,488	7,013	7,588	7,972	8,353	130	0.79	0.84	0.91	0.99	1.04	1.09
Gulf Highway Land Corporation (6691)	578	590	646	760	816	819	143	0.08	0.08	0.09	0.11	0.12	0.12
Walden Woods LTD (11839)	752	832	945	1,058	11,711	1,284	189	0.14	0.16	0.18	0.20	0.22	0.24
Small Utiltities	5,842	6,035	6,317	6,441	6,547	6,665	177	1.03	1.07	1.12	1.14	1.16	1.18
County Total	**91,787**	**123,594**	**137,643**	**150,445**	**173,068**	**173,437**		**16.12**	**21.49**	**24.12**	**26.52**	**28.75**	**30.71**

1. Demands developed by the SWFWMD.
2. Demand projections based on methodology described in the text, not compliance per capita of 150 gpcpd.

Table 1-3B Hernando County Public Supply Water Demand and Population

Utility	Population Projections							Demand Projections [1,2]					
	2005	2010	2015	2020	2025	2030	Gross GPCD	2005	2010	2015	2020	2025	2030
HERNANDO COUNTY													
Hernando County Water and Sewer [3]	129,476	138,820	153,193	163,548	169,451	176,076	171	22.14	23.74	26.20	27.97	28.98	30.11
West Hernando Service Area (2983)													
East Hernando Service Area (5789)													
Hernando County Water and Sewer (2179)													
Cedar Lane Water Plant (5817)													
Seville Water System (12011)													
Royal Oaks Subdivision (13286)													
City of Brooksville (7627)	12,590	16,240	17,200	18,074	19,234	20,528	111	1.40	1.80	1.91	2.06	2.14	2.28
Small Utilities	3,405	3,819	4,241	4,632	5,011	5,365	163	0.56	0.62	0.69	0.76	0.82	0.87
County Total	**145,471**	**158,879**	**174,634**	**186,254**	**193,696**	**201,969**		**24.09**	**26.16**	**28.80**	**30.78**	**31.93**	**33.26**

1. Demands developed by the SWFWMD.
2. Demand projections based on methodology described in the text, not compliance per capita of 150 gpcpd.
3. Water Demands aggreggated by the SWFWMD.

Table 1-3C Sumter County Public Supply Water Demand and Population

Utility	Population Projections							Demand Projections [1,2]					
	2005	2010	2015	2020	2025	2030	Gross GPCD	2005	2010	2015	2020	2025	2030
SUMTER COUNTY													
Lake Panasoffkee Water Assoc. Inc. (1368)	4,380	5,008	5,202	5,770	6,570	6,816	77	0.34	0.39	0.40	0.44	0.51	0.53
Continental Country Club RO Inc. (2622)	2,906	2,906	2,921	2,961	3,122	3,204	147	0.43	0.43	0.43	0.44	0.46	0.47
City of Bushnell (6519)	2,119	4,639	4,790	5,182	6,218	6,828	186	0.39	0.86	0.89	0.96	1.16	1.27
City of Webster (7185)	819	1,364	1,431	1,627	1,702	1,800	114	0.09	0.16	0.16	0.19	0.19	0.21
Cedar Acres, Inc. (7799)	637	649	707	915	1,203	1,293	70	0.05	0.05	0.05	0.06	0.08	0.09
City of Wildwood (8135)	12,450	16,764	21,027	29,781	32,545	33,274	167	2.08	2.80	3.51	4.97	5.44	5.56
City of Center Hill (8193)	983	1,621	1,666	1,816	2,081	2,526	70	0.07	0.11	0.12	0.13	0.15	0.18
The Villages (13005, 12236, 11404)	33,420	65,145	75,443	88,069	88,069	88,069	217	7.25	14.14	16.37	19.11	19.11	19.11
Small Utilities	1,962	1,997	1,997	1,997	1,997	1,997	184	0.36	0.37	0.37	0.37	0.37	0.37
County Total	**59,676**	**100,093**	**115,184**	**138,118**	**143,507**	**145,807**		**11.06**	**19.29**	**22.30**	**26.67**	**27.46**	**27.77**

1. Demands developed by the SWFWMD.
2. Demand projections based on methodology described in the text, not compliance per capita of 150 gpcpd.

Table 1-3D Marion County Public Supply Water Demand and Population

Utility	Population Projections							Demand Projections [1,2]					
	2005	2010	2015	2020	2025	2030	Gross GPCD	2005	2010	2015	2020	2025	2030
MARION COUNTY SWFWMD													
Marion County Utilities Department													
Summerglen (377)	9,248	16,883	24,124	29,103	34,399	39,787	128	1.18	2.16	3.09	3.73	4.40	5.09
Marion County Utilities (6151)	9,093	12,603	13,718	14,506	15,264	15,870	179	1.63	2.26	2.46	2.60	2.73	2.84
Quail Meadow (8165)	500	1,009	1,051	1,107	1,189	1,295	217	0.11	0.22	0.23	0.24	0.26	0.28
Marion County Utilities (11752)	80	1,833	1,886	1,950	2,038	2,149	536	0.04	0.98	1.01	1.05	1.09	1.15
Spruce Creek (12218)	1,200	1,430	1,530	1,662	1,802	1,914	487	0.58	0.70	0.75	0.81	0.88	0.93
Marion Utilities Inc (Private Utility)													
Marion Utilities Inc (2999)	681	681	681	681	681	681	187	0.13	0.13	0.13	0.13	0.13	0.13
Marion Utilities Inc (7849)	807	954	1,055	1,109	1,138	1,166	185	0.15	0.18	0.20	0.21	0.21	0.22
Spruce Creek (8481)	3,000	5,533	6,469	6,903	7,100	7,246	241	0.72	1.33	1.56	1.66	1.71	1.75
On Top of The World Communities Inc (1156)	5,824	8,443	9,100	9,603	10,023	10,645	277	1.61	2.34	2.52	2.66	2.78	2.95
Rainbow Springs Utilities LC (4257)	2,774	3,013	3,448	3,807	4,107	4,424	221	0.61	0.67	0.76	0.84	0.91	0.98
Utilities Inc of Florida - Golden Hills (5643)	1,785	1,841	1,945	2,063	2,217	2,449	97	0.17	0.18	0.19	0.20	0.22	0.24
Sateke Village Utilities Hoa (6290)	76	87	87	87	88	88	124	0.01	0.01	0.01	0.01	0.01	0.01
Sun Communities Operating LP (6792)	845	845	845	845	845	845	146	0.12	0.12	0.12	0.12	0.12	0.12
Century Fairfield Village LTD (8005)	513	513	513	513	513	513	208	0.11	0.11	0.11	0.11	0.11	0.11
Marion Landing HOA (8020)	1,144	1,196	1,196	1,196	1,196	1,196	157	0.19	0.19	0.19	0.19	0.19	0.19
City of Dunnellon (8339)	2,770	6,135	7,064	8,166	9,255	10,151	125	0.35	0.77	0.88	1.02	1.16	1.27
Windstream Utilities Co (9360)	1,440	2,333	2,518	2,700	2,903	3,152	409	0.59	0.95	1.03	1.10	1.19	1.29
Upcharch Marinas - Sweetwater (9425)	249	452	452	452	452	452	277	0.07	0.13	0.13	0.13	0.13	0.13
Small Utilities	4,925	6,657	7,776	8,724	9,541	9,973	177	0.87	1.18	1.38	1.54	1.69	1.77
MARION COUNTY SJRWMD													
City of Ocala (50324)	52,760	66,121	75,293	84,447	93,525	102,604	185	9.74	12.52	13.97	15.54	16.96	18.60
Aqua Utilities of Florida Inc	3,414	3,570	3,638	3,663	3,673	3,673	104	0.35	0.46	0.46	0.47	0.47	0.47
City of Belleview (3137)	10,227	12,802	14,895	16,723	17,691	17,691	77	0.79	1.00	1.16	1.30	1.38	1.38
Marion County Utilities Department SJRWMD													
Deerpath (50381)	1,936	2,452	2,706	2,960	3,215	3,489	64	0.12	0.20	0.22	0.24	0.26	0.28
Raven Hill Subdivision (51172)	686	689	689	689	689	689	159	0.11	0.14	0.14	0.14	0.14	0.14
Silver Springs Regional Water & Sewer (4578)	1,025	1,230	1,233	1,253	1,335	1,335	272	0.28	0.34	0.34	0.34	0.36	0.36
Silver Springs Shores (3054)	16,908	24,849	30,348	34,081	36,010	36,010	76	1.29	1.60	1.74	1.83	1.91	1.91
Southoak Subdivision (51173)	953	971	974	974	974	974	140	0.13	0.18	0.18	0.18	0.18	0.18
Spruce Creek Golf and Country Club (399)	4,899	6,730	6,758	6,759	6,759	6,759	394	1.93	2.97	3.12	3.24	3.32	3.35
Spruce Creek South (82827)	2,733	2,751	2,751	2,752	2,752	2,752	260	0.71	0.91	0.91	0.91	0.91	0.91
Stonecrest Utilities	10,200	13,983	16,566	17,837	20,339	20,339	99	1.01	1.65	2.01	2.01	2.01	2.01
Marion Utilities Inc	4,979	5,043	5,058	5,074	5,089	5,089	153	0.76	0.77	0.77	0.77	0.78	0.78
Ocala East Villas	0	458	459	461	461	461	328	0.00	0.15	0.15	0.15	0.15	0.15
Sunshine Utilities	4,342	4,977	5,277	5,579	5,770	5,770	343	1.49	1.71	1.81	1.91	1.98	1.98
The Villages of Marion [3]	8,863	8,890	8,890	8,890	8,890	8,890	245	2.17	2.13	2.13	2.13	2.13	2.13
County Total	**170,879**	**227,957**	**260,993**	**287,319**	**311,923**	**330,521**		**30.13**	**41.28**	**45.83**	**49.50**	**52.82**	**56.04**

1. Demands developed by the SWFWMD and the SJRWMD for their water supply assessments.
2. Demand projections based on methodology described in the text, not compliance per capita of 150 gpcpd.
3. This utility is owned and served by The Vilalges in Sumter County.

Chapter 3 – Groundwater Resource Assessment

3.0 Key Points

Key Points

- The groundwater resource assessment is a planning-level evaluation that identifies areas in the WRWSA where groundwater will be generally available or where further investigation into aquifer supplies is needed. The evaluation uses regional groundwater flow modeling to simulate declines in aquifer levels due to projected groundwater withdrawals in 2030.
- The SWFWMD Northern District (ND) groundwater flow model is utilized for the SWFWMD jurisdiction in Marion, Citrus, Sumter, and Hernando Counties. The SJRWMD North-Central Florida (NCF) groundwater flow model is utilized for the SJRWMD jurisdiction of Marion County.
- The projected groundwater withdrawals used for the evaluation assume continued reliance on groundwater extracted from existing withdrawal locations at current levels of water conservation, based on population growth projections. The assessment does not simulate increases in supplies of beneficial reuse, alternative water supply development, or reductions in future water demand (conservation or diminished rates of population growth).
- Simulated declines in aquifer levels are evaluated to determine the potential to affect lakes and wetlands, spring flows, and MFL priority water bodies due to increased groundwater withdrawals. Water resource criteria are used to identify potential adverse impacts to groundwater resources due to the simulated declines in aquifer levels.
- SWFWMD and SJRWMD resource assessment methodologies are used in the respective jurisdictions to determine potential adverse impacts to groundwater resources due to model simulated declines in aquifer levels. The presence (or absence) of potential adverse impacts is used to interpret the viability of fresh groundwater to serve future water demands to 2030.
- Based on ND Model results within its domain and SWFWMD resource assessment methodologies, groundwater appears to be viable to serve projected water demand in 2030 in Citrus County and the SWFWMD jurisdiction in Marion County.
- Based on NCF model results within its domain and SJRWMD resource assessment methodologies, groundwater does not appear to be viable to serve all projected water demand in 2030 in the SJRWMD jurisdiction in Marion County.
- The potential effects of projected 2030 groundwater withdrawals in northern Sumter County and southern Marion County are difficult to interpret, but suggest a need for additional supplies or reductions in demand from conservation. Additional hydrogeologic data collection, monitoring, and analysis are warranted in this area.
- In Hernando County, projected water demand in 2030 could lead to restrictions on groundwater withdrawals in the Spring Hill area, potentially requiring additional supplies or demand reduction from conservation. Dispersed groundwater withdrawals in Hernando County located to the north or east of the Weekiwachee springshed appear to be viable.
- The SWFWMD and SJRWMD are developing an accelerated data collection and monitoring program in southern Marion, northwest Lake, and northern Sumter County over the next two years (SWFWMD, 2008). Information gained from this program will provide important data for refinement of the groundwater flow models used in this assessment. The information used for this groundwater resource assessment will be updated by the SWFWMD and SJRWMD at minimum 5 year intervals.

3.1 Introduction

The groundwater resource assessment is a planning-level evaluation that identifies areas in the WRWSA where groundwater will be generally available or where further investigation into aquifer supplies is needed. The evaluation uses regional groundwater flow modeling to simulate declines in aquifer levels due to projected groundwater withdrawals in 2030, based on the population growth projections discussed in Chapter 1.

The assessment evaluates the potential effect of projected water demand in 2030 on aquifer levels through comparison to pre-development or 1995 conditions. The simulated declines in aquifer levels are evaluated to determine the potential to affect lakes and wetlands, spring flows, and priority water bodies with adopted MFLs or proxy MFLs developed by the WRWSA. Water resource criteria are used to identify potential adverse impacts to these groundwater resources due to the simulated declines in aquifer levels. The presence (or absence) of potential adverse impacts is used to identify additional data needs and interpret the viability of fresh groundwater to serve future withdrawals to 2030.

The projected water demand in 2030 used for the evaluation assumes continued reliance on groundwater extracted from current withdrawal locations at current levels of water conservation to serve the projected increase in demand. Since the projected demand is determined assuming continued reliance on groundwater, the assessment does not simulate increases in supplies of beneficial reuse, alternative water supply development, or reductions in future water demand (conservation or diminished rates of population growth). An increase in the use of these supplies or additional demand reduction would adjust the groundwater demand. The model simulations use groundwater demands that are not adjusted (unadjusted)[1] for water resource management strategies such as additional conservation, increase in beneficial reuse, and alternative water supply development.

Significant regulatory and incentive measures have been implemented by the SWFWMD and SJRWMD to achieve additional demand reduction and beneficial reuse supply development in the WRWSA. [2] The largely rural nature of the WRWSA region and relative high historic per capita rates indicates that these measures will cause a significant adjustment in future groundwater demands as they are implemented, potentially more so than in more developed regions of the SWFWMD and SJRWMD. There is a strong likelihood that demand will be adjusted in the WRWSA region and that future groundwater will be extracted from more dispersed locations than current withdrawals given the rural setting of the region. In light of these region-specific factors, water supply assumptions that are relevant to the interpretation of fresh groundwater viability are included where appropriate.

3.2 Hydrogeologic Description of the WRWSA and Vicinity

The WRWSA and vicinity includes all of Hernando, Sumter, Citrus and Marion Counties and portions of Pasco, Polk, Lake, Putnam, Alachua and Levy Counties. The project region covers parts of the SWFWMD, SJRWMD, and SRWMD while WRWSA member governments Marion County and the City of Ocala span the SJRWMD and SWFWMD jurisdictions (Figure 3-1).

[1] Actual groundwater demand in the future will vary based on a variety of additional factors, including the actual rate of population growth.
[2] See Chapter 4 for information on water conservation and Chapter 5 for information on beneficial reuse in the WRWSA.

Hydrogeologic units underlying the region are listed in Figure 3-2. The stratigraphic or geologic units underlying area, as mapped by the Florida Geological Survey, form the framework of the hydrogeologic units. These units are the surficial aquifer (SA), intermediate confining unit (ICU), Upper Floridan Aquifer, Lower Floridan Aquifer, middle confining unit I (MCU I), and middle confining unit II (MCU II).

The SA occurs towards the eastern and southern extents of the region and comprises soils and undifferentiated sands and clays of Pleistocene/Pliocene age where it is present. The SA is conceptualized as a near surface permeable unit that is either continuously or intermittently saturated with rainfall recharge. Where the SA is continuously saturated, it is assumed to be underlain by the less permeable Miocene sediments of the ICU. In upland areas of the Ocala Hills, however, the SA may exceed 50 feet in thickness.

The ICU comprises low permeability clays, sands, and carbonates of Miocene age. The area where the ICU is present corresponds to the SA and the Semi-Confined Upper Floridan Aquifer Recharge Region. The ICU occurs in continuous fashion towards the eastern and southern extents of the region. For example, the Brooksville Ridge and Fairfield Hills areas are highly karst, ridge systems with relatively thick confinement where numerous, localized, hydraulically "perched" lakes and water tables exist because of the generally thick clays between the surface and the underlying Upper Floridan aquifer with hydraulic head differences varying from 20 to more than 100 feet (Basso, 2004).

The Floridan Aquifer was subdivided by Miller (1986) into an Upper Floridan Aquifer (UFA) and a Lower Floridan Aquifer (LFA). Miller (1986) proposed that middle confining units within the Avon Park Formation separated the UFA from the LFA. The UFA in the region consists mainly of the Suwannee Limestone (Oligocene), Ocala Limestone (Eocene), and the upper portion of the Avon Park Formation (Eocene); and the LFA is mainly composed of the lower portion of the Avon Park Formation. In some areas, the LFA contains poor-quality water and is not used as a potable water source. However, high sulfate concentrations have been observed in the UFA in western Marion County. In general, the geologic units that comprise both the Upper and Lower Floridan Aquifers dip and thicken to the south. The UFA is mostly unconfined over most of the WRWSA except along the eastern and southern portions of the area where the ICU becomes thicker and continuous.

Springs in west-central Florida are normally associated with karst terrains. Pervious soils, sinkholes and karst geology allow significant amounts of rainfall to recharge the FAS and discharge at the springs. An example is the Chassahowitzka Springs, which is a coastal spring complex, where flooded karst features form spring vents, fissures, and highly-eroded limestone at or near land surface.

Travel time and distance for groundwater migration to spring discharges vary based on geologic features such as transmissivity and the existence of fracture zones (which may serve as conduits for flow or clay-filled fractures may impede migration). Spring flows can exhibit seasonality, reaching a minimum at the end of the dry season and peaking at the end of the wet season (Jones et al, 1996). An example is Rainbow Springs, where the seasonal pattern is an indication that the groundwater flow system is recharged by precipitation falling in close proximity (5 to 10 miles radius) to the spring in addition to precipitation falling at a greater distance.

The springshed is the land area or drainage basin that contributes rainfall or runoff to a spring. These areas are difficult to define, especially at their distal ends, as the boundaries may change with season, climate, or land use. Figure 3-3 depicts the approximate location of the MFL-priority springsheds in the WRWSA. As shown, much of the region is located within these approximate springsheds, including large areas in Citrus, Marion, Sumter, and Hernando Counties.

Springsheds are located in areas with relatively high and moderate transmissivity values in the UFA due to the karst geology associated with each spring system. Almost all springsheds are located in areas where transmissivity exceeds 500,000 ft^2/ day. Particularly high transmissivity is associated with springs in areas of Marion, Citrus, and Hernando Counties. Transmissivities in areas outside these springsheds range from 50,000 to 500,000 ft^2/ day (Ryder, 1985).

3.3 Application of Groundwater Flow Models

WRWSA utilization of the SWFWMD ND and SJRWMD NCF groundwater flow models and the respective model boundaries is shown on Figure 3-4. As shown, the WRWSA utilizes the ND Model for the SWFWMD jurisdiction in Marion, Citrus, Sumter, and Hernando Counties. The NCF Model is utilized in the SJRWMD area of Marion County. The ND and NCF Models also have areas of coverage in Alachua, Putnam, Levy, Lake and Orange Counties. The respective model boundaries extend beyond the WRWSA and reflect the connectivity of the regional aquifer systems beyond the WRWSA jurisdictional boundaries. The ND Model does not include far northeast Marion County, while the NCF Model does not include far western Marion County.

The ND Model is used by the SWFWMD because it includes more up-to-date hydrogeologic data, represents the SA as an active layer, and has transient capabilities and a smaller grid size, in comparison to the USGS Peninsular Florida (PF) model. The NCF Model is preferred by the SJRWMD to the PF model because of the better treatment of recharge, the inclusion of the SA as an active layer, and smaller grid size in comparison to the PF model. The ND and NCF Models are described in more detail in subsequent sections of this chapter.

Current water demand projections for 2030 are provided by the SWFWMD and SJRWMD as inputs to the groundwater flow models. The current water demand projections are detailed in Chapter 1.

The ND and NCF Models are used for this evaluation to portray regional conditions and do not provide detailed, regulatory-level data regarding aquifer conditions in localized areas. The ND and NCF Models and the groundwater resource assessment are discussed below.

3.4 Groundwater Flow Models

This section describes the ND and NCF groundwater flow model used for the assessment in the SWFWMD and SJRWMD areas of the WRWSA, respectively.

3.4.1 Description of the SWFWMD ND Model

The SWFWMD ND Model domain includes three groundwater basins: the eastern, the northern, and the central groundwater basins (see Figure 3-5). The model western boundaries for the northern and the central basins are extended approximately five miles offshore to account for the discharge of freshwater into the Gulf of Mexico from the Floridan Aquifer System (FAS). The assignment of the western boundaries was based on the results from the saltwater intrusion model developed for Hernando County (HydroGeoLogic, 2002).

The regional grid consists of 182 columns and 275 rows and has uniform model cell spacing of 2500 by 2500 feet (see Figure 3-6). The grid spacing is modified in the vertical to conform to geological formation geometry and topography.

In the vertical direction, seven (7) layers of finite-difference cells are used to represent aquifer systems discussed above (e.g., Figure 3-2). Owing to the permeability contrasts between hydrogeologic units, each unit is simulated as a discrete model layer rather than using one model layer to represent a thick sequence of permeable units (e.g., UFA). In regions where the ICU is missing, the second model layer represents the SA sands. The ICU distribution is shown on Figure 3-7. The Suwannee Limestone is also missing north of Southern Citrus County. Where the Suwannee Limestone is absent, model layers 3 and 4 represent the Ocala Limestone. The Ocala Limestone does not exist in the northernmost region of the NDWRAP area. In this area, model layers 3 through 5 represent the Avon Park Formation. MCU I and MCU II are represented as a single confining unit. The elevation data for each layer was obtained from the Florida Geologic Survey. The ND Model is unique in west-central Florida in that it is a fully 3-dimensional groundwater flow model which does not rely on leakance coefficients to simulate flow through confining units. Additional details of the ND Model are provided in HydroGeoLogic (2008).

The lateral and lower model boundaries are assigned constant head (prescribed head), general head, or no-flow boundary conditions. The SA (Regional Model Layer 1) along the eastern and northeastern lateral model boundaries is represented by prescribed hydraulic heads. The western boundary conditions are specified as constant heads and are in hydrostatic equilibrium with the Gulf of Mexico. The equivalent freshwater heads extend across all layers present along the western boundary.

Previous regional scale modeling results (Sepulveda, 2002) were used to assign general head boundary conditions along the eastern and northeastern portions of the model domain for the Upper and Lower Floridan aquifers. The general head conditions along these boundaries were assigned to the Suwannee Limestone (Regional Model Layer 3), the Ocala Limestone (Regional Model Layer 4), and the Upper and Lower Avon Park Formations (Regional Model Layers 5 and 7). Model layers 2 and 6 (ICU and MCU) act as confining units with predominantly vertical groundwater flow. As a result, no-flow conditions were assigned along the perimeters of these model layers.

All lateral model boundaries not defined with constant head or general head boundaries were assigned no-flow boundary conditions.

The lower model boundary was chosen as the bottom of the Lower Avon Park (Regional Model Layer 7) or, where the Lower Avon Park is absent, the Middle Confining Unit (Regional Model

Layer 6). Because of the low permeability associated with evaporite lithology across these sections of the flow system, this bottom boundary was defined as a no-flow boundary.

Distributions of transmissivity in the Upper and Lower Floridan aquifers for the ND Model are given in Figures 3-8, and 3-9, respectively. The boundary of the LFA in the ND Model is also shown as the limit of the transmissivity distribution in Figure 3-9.

Recharge in the ND Model is based on rainfall, runoff, and evapotranspiration (HydroGeoLogic, 2008). Neither the septic tank inflow nor the return flow from domestic waste facilities is included in the current ND Model.

The ND Model was calibrated under steady-state conditions for 1995 and transient conditions from 1996-2002. The simulated heads from the 1995 steady-state simulation were used as starting heads for a seven-year transient simulation that used monthly stress periods (HydroGeoLogic, 2008).

The computer code MODFLOW-SURFACT (HydroGeoLogic, 2002) was selected for the groundwater flow modeling for the NDWRAP area. MODFLOW-SURFACT is an enhanced version of the U.S. Geological Survey modular three-dimensional groundwater flow code (McDonald and Harbaugh, 1988). MODFLOW-SURFACT was selected for the NDM because of the following potential capabilities and attributes:

1. Rigorous simulation of saturated and unsaturated conditions in unconfined aquifers;
2. Ability to simulate groundwater seepage faces;
3. Ability to simulate wells that are open to several aquifer units; and
4. Capability to simulate of density-dependent groundwater flow and solute transport (i.e., saltwater intrusion).

The ND Model is part of a long-term SWFWMD effort, the Northern District Water Resources Assessment Project (NDWRAP), to evaluate water resources in the northern part of the SWFWMD. The current version of the ND Model is described in detail in HydroGeoLogic (2008). The model is currently being updated, and another version is expected to be released in 2010.

3.4.2 Description of the SJRWMD NCF Model

The NCF Model (Motz and Dogan, 2004) covers a rectangular domain of approximately 5,650 sq.mi. in north-central Florida. The domain is divided into 150 columns and 168 rows with uniform grid spacing of 2,500 ft (Figure 3-10). The NCF Model, developed based on the USGS MODFLOW code (McDonald and Harbaugh, 1988), has three active layers: Layer 1 - the SA, Layer 2 – the UFA and Layer 3 - the LFA, and the ICU and the Middle Semi-Confining Unit/Middle Confining Unit (MSCU/MCU) as vertical leakances between the three layers.

Details of the three aquifers and the two intervening units are given in Motz and Dogan (2004) and references therein. It is noted by Motz and Dogan (2004) that in parts of Alachua and Marion Counties, the SA is very thin or absent. In these areas, the UFA is considered unconfined. Areas where the UFA is considered to be unconfined in the NCF Model are shown in Figure 3-11. The UFA in the NCF Model is a zone of relatively high permeability which is attributed to the combination of high primary and secondary porosity of the limestone that this

unit comprises (Miller, 1986). The NCF Model distribution of transmissivity in the UFA is shown in Figure 3-12. The transmissivity value is as high as 10^7 ft^2/day in Marion County.

The NCF Model distribution of transmissivity in the LFA is shown in Figure 3-13. In the figure, the transmissivity value ranges from 10^5 to 10^6 ft^2/day. High chloride concentrations (>5,000 mg/L) are present in some areas in the LFA. Areas in the southwestern and eastern parts of the model, where groundwater with a high chloride concentration occupies the full thickness of the LFA, were not considered part of the flow domain. MODFLOW cells in Layer 3 are inactive in these areas. The locations of these inactive cells are also shown in Figure 3-13.

Areal recharge is applied to the uppermost active layer (the SA where present, the UFA where the SA is absent) over the entire model, through combined use of the Recharge and Evapotranspiration Packages in MODFLOW. Recharge in the NCF Model is based on rainfall, irrigation, septic tank inflow, runoff, and evapotranspiration (Motz and Dogan, 2004). The resulting is net recharge which was applied to the NCF Model. Return flow from domestic waste facilities was not included.

A general head boundary (GHB) is assigned around the lateral boundary of the UFA and LFA using the GHB Package in MODFLOW. The River Package is used to simulate direct discharge from the SA and UFA to the surface water system. The Drain Package is used to simulate the 46 springs found within the model area. The Well Package is used to simulate the estimated water-use within the model area.

The model was calibrated to average steady-state 1995 conditions, using 81 observation wells in the SA and 278 observation wells in the UFA, as well as observed or estimated discharges for the 46 springs simulated in the model. The model calibration is generally excellent, with a root mean square error of 4.51 ft for the SA and 3.27 ft for the UFA. Total simulated springflow equals 100% of the total observed or estimated springflow.

3.5 Groundwater Flow Simulation Considerations

3.5.1 Northern Sumter, Southern Marion and Northern Lake County Hydrogeology

An area of uncertainty in the simulation results occurs in the northern Sumter/southern Marion/northern Lake Counties' region due to complex transitional geology and limited hydrogeologic data. In this area, the hydrogeologic system is more complex than in most of the Northern West-Central Florida Groundwater Basin (NWCFGWB) domain, and only limited data is available to characterize this region in the ND and NCF Models.

Western Lake County forms the boundary between two separate groundwater basins having differing levels of surficial confinement: The NWCFGWB and the East-Central Florida Groundwater Basin (ECFGWB) (see Figure 3-5). Generally, the NWCFGWB is comprised of a regionally unconfined UFA with a deep water table while the ECFGWB contains a semi-confined UFA under shallow water table conditions. The location of the boundary between these two hydrogeologic systems is based on limited data in the ND and NCF Models. Impacts to lakes and wetlands may be significantly less in a semi-confined versus an unconfined region, because the confinement can protect surficial water features from drawdown experienced in the UFA. The location and depth of UFA water level declines may also vary based on the extent of confinement.

This region contains both the UFA and LFA which is separated by a MCU 1 from Miller (1986). The hydraulic characteristics and spatial extent of both MCU 1 and the LFA are poorly understood in the region.

Calibration of LFA water levels was not performed in the ND Model. In the ND Model, hydraulic conductivity within the unit was largely assigned a uniform value of 66 ft/d based on a previous USGS model of the Ocala National Forest area (Knowles and others, 2002). In addition, the vertical leakage through MCU 1 was not altered in the calibration process and a uniform vertical hydraulic conductivity of 1.1 ft/d was assigned to this layer. The leakance values of MCU 1 range from 1.0×10^{-5} to 6.4×10^{-1} 1/day. The values for transmissivity in the LFA range from 20,000 to 50,000 ft^2 /day.

In the NCF Model, the LFA and the MCU 1 layers were calibrated because there are some observation wells in the LFA. The calibrated leakance values of MCU 1 range from 1.0×10^{-6} to 5.0×10^{-3} 1/day. The calibrated values for transmissivity in the LFA range from 280,000 to 2.0×10^{6} ft^2 /day. In Marion County, the leakance values range from 1.0×10^{-6} to 1.0×10^{-3} 1/day, the predominant values of transmissivity range from 100,000 to 500,000 ft^2 /day.

Where the LFA exists, the LFA is simulated as a continuous layer in the ND Model. In the NCF Model, only the LFA in areas with chloride concentration less than 5,000 mg/L is included in the model. MCU 1 is simulated as a leaky layer in the both the ND and NCF Models.

The complex hydrogeology and limited available hydrogeologic data in northern Sumter/southern Marion/northern Lake County makes interpretation of groundwater modeling results somewhat difficult. Historically, observed drawdown impacts have been small or below measurable limits. To improve confidence in model results in this area, a series of pumpage analyses were performed by WRA and sensitivity analyses were performed by the SWFWMD using the ND Model to improve understanding of the system and increase confidence in groundwater model predictions. The analysis by WRA includes simulation of a well confined LFA and is discussed later in this report.

3.5.1.1 Hydrogeologic Sensitivity Analyses

Significant quantities of groundwater are projected to be extracted in 2030 from both the Upper and Lower Floridan aquifers in the Villages located in northeastern Sumter County. The modeled groundwater extraction rates from the two aquifers in 2030 are given in Table 3-1 below, based on the Villages' SWFWMD WUP. Impact to UFA levels due to LFA withdrawals may be significantly less in an area where the MCU 1 has a lower vertical hydraulic conductivity than that used in a groundwater model.

Table 3-1. Modeled Villages Extraction Rates from the Upper and Lower Floridan aquifers in 2030.

Rate (mgd)	
Aquifer	**2030**
UFA	10.3
LFA	10.4

Note:
1) *Projected extraction data taken from the Villages SWFWMD WUP No. 20013005.*
2) *The current Villages estimate for 2030 extraction rates is 8.0 and 11.0 MGD from the UFA and LFA, respectively.*

The sensitivity analyses conducted by the SWFWMD were undertaken to determine the potential groundwater withdrawal impacts associated with different ND Model parameter combinations in the northern Sumter County area that are within a realistic range based on prior knowledge of hydrogeology and other flow model simulations.

A total of nine model scenarios were run by the SWFWMD in which varying hydraulic conductivity, conductance values, and spatial extent of the semi-confined UFA were used. The results from the SWFWMD sensitivity analysis indicate that the maximum predicted drawdown impacts occurred to nearby springs and the downstream section of the Withlacoochee River when the semi-confined boundary of the UFA was moved further west from its current position in the ND Model, toward central Sumter County. This simulation produced greater overall drawdown in the UFA that expanded westward to further reduce Gum Springs flow and baseflow at the Holder reach of the Withlacoochee River. In contrast, water level drawdown in the SA was significantly diminished in northeast Sumter County due to the introduction of confinement between the surficial and UFA.

Both Gum and Fenny Springs showed the greatest variation in predicted flow reductions from non-pumping (eg, pre-development) conditions to 2025 projected groundwater demand based on the nine scenario runs. Gum Springs flow declines ranged from three to 13% with a median change of 8.5% (based on a pre-development flow of 61.1 cubic feet per second (cfs). Fenny Spring flow reductions varied from 11.6 to 16.5% with a median change of 12.4%. Silver Spring flow reductions varied from 2.2 to 5.8% with a median change of 4.4% (based on a pre-development flow of 665.9 cfs. All other springflow reductions varied by less than 1%. The Holder reach of the Withlacoochee River displayed the greatest variation in baseflow reductions among the scenarios, ranging from 3.9 to 11.6% with a median change of 6.9% (based on a pre-development flow of 235.58 cfs. All other Withlacoochee River segment baseflow reductions showed less variation, generally much less than 5%. A complete description of the model sensitivity analyses for the northern Sumter area is found in Basso (2008).

The results of the SWFWMD sensitivity simulations show that percent groundwater flow reductions to Gum Springs, Fenny Springs, the Holder reach of the Withlacoochee River, and aquifer water levels in northeast Sumter County can vary greatly depending on the nature of the hydrogeologic system. The complexity of this system with a poorly understood transition zone between the unconfined and semi-confined UFA, the degree of confinement provided by the ICU and MCU 1, the actual permeability of major flow zones in the UFA and LFA, and the degree of lake/river connection to the groundwater system directly affects the magnitude of predicted impacts.

To address this issue, both the SWFWMD and SJRWMD are developing an accelerated data collection and monitoring program that involves drilling and testing at 16 sites in the southern Marion, northwest Lake, and northern Sumter County over the next two years (SWFWMD, 2008). In addition, the City of Wildwood has entered into a cooperative funding agreement with the SWFWMD to test drill the LFA for potential future supplies, and the City of Ocala plans to test drill the LFA. More detail regarding the data collection and monitoring program is provided in a subsequent section. Information gained from this program will provide important data for refinement of the ND and NCF Models. This in turn will result in increased confidence in overall model predictions.

3.5.2 Water Management District Boundaries

The SJRWMD has designated the far southern extent of Marion County as a Priority Water Resource Caution Area (PWRCA), meaning that projected water needs within a 20-year planning horizon cannot be met by traditional groundwater sources without incurring unacceptable impact to natural resources (SJRWMD, 2005). [3] Additionally, the SJRWMD, SWFWMD, and SFWMD have approved interim rules to restrict groundwater withdrawals to 2013 demands in the Central Florida Coordination Area (CFCA), which includes southern Lake County.

The PWRCA designation does not have an equivalent in SWFWMD and adds jurisdictional complexity to the WRWSA's water supply planning efforts involving Sumter and Marion Counties. With respect to this groundwater resource assessment, the PWRCA designation indicates that it is important to consider the effect of projected withdrawals in the SJRWMD on the groundwater flow modeling, since projected water demands in the SJRWMD in 2030 are unlikely to be met by traditional groundwater sources.[4] The SJRWMD regulatory program will restrict future groundwater withdrawals to avoid unacceptable adverse impacts to natural resources.

To facilitate identification of potential jurisdictional complexities to groundwater development in Sumter and Marion Counties, pumpage and sensitivity analyses were performed involving rates of groundwater withdrawal in the SJRWMD jurisdiction. These analyses include:

- ND Model pumpage analyses involving both the 2005 and 2025 pumping packages in the SJRWMD.[5]
- Sensitivity analysis regarding the eastern boundary condition of the ND Model located in Orange and Lake Counties.
- Sensitivity analysis regarding the portions of the southern and eastern boundary condition of the NCF Model located in Orange, Lake, and Seminole Counties.

More detail regarding the sensitivity and pumpage analyses is provided in the following sections.

3.5.3. Existing Water Use Permit Considerations

As mentioned, the projected water demand in 2030 is determined assuming continued reliance on groundwater extracted from current withdrawal locations at current rates of water conservation. The groundwater resource assessment does not generally consider increases in supplies of beneficial reuse, alternative water supply development, or reductions in future water demand (conservation). Water resource management strategies such as additional conservation, increase in beneficial reuse, and alternative water supply development will adjust

[3] This determination was based on the SJRWMD regional groundwater modeling, water resource criteria, and other factors (SJRWMD, 2005).
[4] There will also be a significant adjustment in future groundwater demands in the WRWSA due to additional reclaimed water supply and conservation efforts in the region. Significant regulatory and incentive measures have been implemented by the SWFWMD and SJRWMD to achieve additional demand reduction and beneficial reuse supply development. See Chapters 4 and 5 of this report.
[5] A ND Model pumping package for 2030 in the SJRWMD was not available for use in this project.

the projected groundwater withdrawals.[6]

The existing SWFWMD WUP (No. 20013005) for the Villages contains a special condition that requires consideration of developing seven (7) mgd of alternative water supplies or regional groundwater supplies. To assist with interpretation of groundwater modeling results, a pumpage analysis was performed involving a seven mgd reduction in pumpage in the ND Model in the Villages area. The analysis assesses the response of the UFA to this reduction in pumpage. More detail regarding the analysis is provided in a subsequent section.

3.5.4 Data Collection and Future Model Refinement

The SWFWMD and SJRWMD are aggressively pursuing a drilling and testing program in their jurisdictional area to improve the understanding of the system and increase confidence in numerical model predictions. The SWFWMD has recently completed coring to 1,500 ft below land surface at its Regional Observation and Monitoring Program (ROMP) site no. 117 near Lake Okahumpka in northeast Sumter County. The SWFWMD plans to construct monitor wells and conduct hydraulic testing of the aquifer systems at this site which will provide invaluable data for the future refinement and calibration of models in this region. This site, along with many other planned sites, will provide important information relative to improvement of model predictions in the region.

Continued refinements to the ND and NCF Models include improving the conceptualization of the groundwater system as new hydrogeologic, water level, and aquifer testing data become available. With the additional data, improvements can be made to the representation of lakes, rivers, and wetlands in the models.

Future enhancements to the ND Model are planned, such as using active model calculated groundwater recharge and/or an integrated (coupled groundwater and surface water) modeling technique. These enhancements will enable improved simulations of predevelopment water levels to better estimate cumulative changes due to pumping, as well as simulations to estimate effects of long-term changes in rainfall/recharge on water levels. A more in-depth model sensitivity analysis is also planned that examines changes in model parameters to ascertain the effect they might have on model calibration and prediction results. The SWFWMD will examine how lakes are represented in the model and their contributions to groundwater recharge through seepage.

The NCF Model will undergo a post-verification process to provide a second calibration point (in addition to the original 1995 calibration). The second calibration will be to a period of time in the 2004-2006 range and will provide verification that the model remains accurate in the vicinity of the calibration. The post-verification should improve the predictive capabilities of the NCF Model.

As changes to the ND and NCF Models are made, the SWFMWD and SJRWMD will provide for scientific peer review of the models by outside parties. Comments and suggestions made as part of the peer review will be addressed and incorporated into the NCF and ND Models as appropriate. Future refinements to the ND and NCF Models should improve the confidence in

[6] Actual groundwater demand in the future will vary based on a variety of additional factors, including the actual rate of population growth.

model predictions included in this report.

3.6 Projected Groundwater Withdrawals

3.6.1 Groundwater Withdrawals within the WRWSA

The SWFWMD and SJRWMD have estimated water use and projected future demand for their respective areas located within the WRWSA jurisdiction. These values were subsequently used by each agency to prepare the pumpage estimates and projections used for the model simulations contained in this report. Chapter 1 details the current water use estimates and demand projections. As discussed above, the pumpage discussed here assumes that the increased water demand will continue to rely on groundwater withdrawn from current extraction locations at current levels of water conservation (unadjusted groundwater demand), based on the population growth projections discussed in Chapter 1. [7] Refer to Tables 3-2 and 3-3 for a summary of 2030 pumpage in the ND and NCF Models in the WRWSA.

Table 3-2. Summary of 2030 ND Model Pumpage in WRWSA.

County	2030 (mgd)
Citrus	45.2
Hernando	48.9
Sumter	34.6
Marion – SWFWMD	31.3
Marion – SJRWMD[8]	53.5
Total	214.9

Table 3-3. Summary of 2030 NCF Model Pumpage in WRWSA.

County	2030 (mgd)
Marion – SWFWMD	32.6
Marion – SJRWMD	56.9
Citrus	28.1
Sumter	32.4

The available pumping packages for the SWFWMD area of the ND Model and the SJRWMD area of the NCF Model were prepared using different methodologies by the respective agency. For example, for the ND Model, domestic self-supply withdrawals were reduced by 60% in unconfined areas of the UFA to account for return flows (septic seepage) back into the aquifer. For the NCF Model, recharge is increased from 1995 to 2030 to account for return flows back into the aquifer which result from projected land use changes. Model boundaries also differ such that portions of Marion County are not covered by the ND Model, while portions of Citrus and Sumter Counties are not covered by the NCF Model. Other methodological differences are

[7] Actual groundwater demand in the future will vary based on a variety of additional factors, including the actual rate of population growth.

[8] A ND Model pumping package for 2030 in the SJRWMD was not available, so a 2025 pumping package was used for the SJRWMD area in the ND Model.

present between the agencies with respect to determination of pumpage, water use and projected demand. Comparison of agency methodologies is beyond the scope of this chapter. The respective pumping packages provided by the SWFWMD and SJRWMD are used for the analysis because they are the best available information.

3.6.2 Groundwater Withdrawals outside the WRWSA

The SWFWMD, SJRWMD and SRWMD have estimated water use and projected future demand for their respective areas located outside of the WRWSA jurisdiction. Similar to the areas within the WRWSA mentioned above, these values were subsequently used by each agency to prepare the pumpage estimates and projections used for the model simulations contained in this report. The areas outside of the WRWSA within the NCF and/or ND Model extents include portions of Levy, Putnam, Polk, Pasco, Hillsborough, Lake and/or Seminole Counties. Projected groundwater withdrawals in the ND and NCF Models in these areas are given in Tables 3-4 and 3-5, respectively.

For the ND Model, the 2025 pumping package for the SJRWMD region of the ND Model[9] was obtained from two existing SJRWMD groundwater models. The two existing groundwater models are the SJRWMD's NCF Model and the East-Central Florida (ECF) Model. The former includes the northern third of Lake County and northwards, whereas the latter encompasses all of Lake County and areas to east and southeast. Where the NCF and ECF models overlapped, the NCF Model pumping data were used per the recommendation of the SJRWMD. The 2025 pumping package for the SJRWMD region of the model were prepared by the SWFWMD based on data received from the SJRWMD in July 2007.

As discussed above, the pumpage discussed here assumes that the increased water demand will continue to rely on groundwater withdrawn from current extraction locations at current levels of water conservation (unadjusted groundwater demand).

Table 3-4. Summary of 2030 ND Model Pumpage Outside WRWSA.[10]

County	Rate (mgd)	
	Water Management District	2030[(1)]
Hillsborough	SWFWMD	70.4
Polk	SWFWMD	17.6
Pasco	SWFWMD	103.2
Levy	SWFWMD / SRWMD	10.0
Clay	SJRWMD	0.1
Orange	SJRWMD	2.4
Alachua	SJRWMD	3.2
Lake	SJRWMD[(2)]	85.2

(1) A small portion of Lake County is within the SWFWMD, but water use there is negligible.

[9] A ND Model pumping package for 2030 in the SJRWMD was not available, so a 2025 pumping package was used for the SJRWMD area in the ND Model.
[10] See footnote number 8 above.

Table 3-5. Summary of 2030 NCF Model Pumpage Outside WRWSA.

County	Rate (mgd)	
	Water Management District	2030
Seminole	SJRWMD	18.9
Putnam	SJRWMD	29.2
St. Johns	SJRWMD	33.0
Clay	SJRWMD	8.98
Lake	SJRWMD(1)	81.5
Orange	SJRWMD	6.00
Volusia	SJRWMD	19.8
Flagler	SJRWMD	6.4
Alachua	SJRWMD / SRWMD	43.1
Bradford	SRWMD	2.5
Levy	SWFWMD	2.8

(1) A small portion of Lake County is within the SWFWMD, but water use there is negligible.

3.7 SWFWMD Northern District Groundwater Modeling Results – Estimated and Projected

3.7.1 Estimated Pre-Development Conditions

The ND Model was used to determine potentiometric distributions for predevelopment conditions. The ND Model was run for one year with all groundwater withdrawals removed to approximate pre-withdrawal conditions over the model domain.

The ND Model was calibrated based on groundwater elevation data from 1995 to 2002 using estimates of net recharge (surface infiltration less evapotranspiration). In order to determine the head distributions at predevelopment (in both the surficial and Upper Floridan aquifers), the model was run in a transient mode with all the extraction wells removed until a good match was obtained between the published predevelopment UFA potentiometric elevation distribution (Johnston et al. 1980) and the model-simulated potentiometric surface.[11,12] ND Model predevelopment potentiometric surface distributions in the surficial and Upper Floridan aquifers are shown in Figures 3-14 and 3-15, respectively.

[11] The ND Model has not completed calibration for predevelopment conditions. For this project, the model was also run without withdrawals under a steady-state condition. However, examination of simulated SA heads in the southern and eastern domain (outside of the area of interest for this project) indicated areas where heads were above land surface. This occurred under the steady-state condition because the ND Model has not completed calibration for predevelopment conditions. To minimize the occurrence of water above land surface and better match the observed USGS predevelopment surface in the UFA, the pre-withdrawal period run time was selected as one year.

[12] It is recognized that simulating the ND Model under pre-pumping conditions for one year may not fully account for all water level change compared with a steady state simulation. The ND Model was not calibrated for a pre-pumping condition and therefore the one year simulation time is the best available approximation method given the current level of understanding of the system and SWFWMD analysis of long-term water level trends. In addition, this modeling approach was also used in model scenarios evaluating the impacts of the Northern Tampa Bay wellfields in the Tampa Bay Water Resources Assessment Project report (SWFWMD, 1996).

3.7.2 Projected 2030 Evaluation

The ND Model groundwater resource assessment is a planning level evaluation based on projected groundwater demands within the model domain for 2030. The groundwater simulations assume that the increased water demand within the model domain will be met solely by groundwater from current withdrawal locations at current levels of water conservation (unadjusted groundwater demand). As a regional-scale analysis, the evaluation is intended to evaluate the potential impact of projected 2030 water demand on aquifer levels and groundwater resources, and identify local areas based on these constraints where further investigation into aquifer supplies will be required.

3.7.2.1 2030 Methodology

The potentiometric distributions in 2030 were obtained by running the ND Model under long-term transient conditions (5 years) to approximate steady state conditions. Boundary conditions for the model domain are held at 1995 calibration levels for this evaluation.[13] The model was run with 2005 as the initial conditions and projected 2030 extraction rates until the changes in groundwater elevation were insignificant.

The ND Model simulated pre-withdrawal heads were compared to 2030 simulated heads to ascertain impacts to the groundwater system due to projected withdrawals. Model drawdown was determined by subtracting the 2030 aquifer heads from the pre-withdrawal heads. Using the projected withdrawals described above, the ND Model was utilized to determine potential changes in aquifer levels from pre-development to 2030.

3.7.2.2 2030 Simulations

Two 2030 ND Modeling scenarios were developed to help identify areas where groundwater may be available and where further investigation into aquifer supplies will be required. The development of these two scenarios was based on the groundwater flow modeling considerations, discussed above, regarding northern Sumter/southern Marion/northern Lake County geology and future withdrawals outside the SWFWMD jurisdictional boundary, as discussed above, to bracket a range of potential 2030 conditions based on unadjusted groundwater demands in the SWFWMD. As previously discussed, SJRWMD has determined that projected water needs in Marion and Lake Counties in 2025 may not be met by traditional groundwater sources.

The two scenarios were not applied to the aquifer systems in Citrus County and Hernando County, because the geology is not as complex and the counties lie entirely within the SWFWMD. The two model scenarios were conducted to assist with interpretation of modeling results, by bracketing the range of modeled conditions to the UFA and SA systems in Marion and Sumter Counties.

[13] More discussion on ND Model boundaries is presented later in this chapter.

The two scenarios selected for this purpose are described in Table 3-6 below.

Table 3-6. ND Model Simulations for Projected 2030 Withdrawals.

Scenario 1 Medium-Withdrawal Simulation Bounds	Rationale
Elimination of 2030 LFA withdrawal from Villages (see Note 1)	Simulation of well-confined LFA
Use of 2005 pumping package for the ND Model extent in the SJRWMD areas in Lake and Marion Counties (see Note 2)	PWRCA designation indicates that unadjusted 2025 demands in SJRWMD will not be met by groundwater (see Note 3)
Scenario 2 High-Withdrawal Simulation Bounds	**Rationale**
Inclusion of LFA withdrawal from Villages	Simulation of poorly-confined LFA
Use of 2025 pumping package for the ND Model extent in the SJRWMD areas in Lake and Marion Counties (see Note 4)	Simulation of potential growth in groundwater use in the SJRWMD

Note:

1) *The 2025 pumping rate was approximately 8.9 mgd in the LFA, which is 2.0 mgd less than that actually permitted for the LFA (SWFWMD WUP No. 20013005). Therefore, the entire LFA withdrawal plus 2.0 mgd of UFA withdrawal was removed from the Villages for the analysis (10.9 mgd).*
2) *The 2005 pumping rate for the ND Model extent in the SJRWMD area was 30.1 mgd in Marion County and 89.7 mgd in Lake County.*
3) *There will also be a significant adjustment in future groundwater demands in the WRWSA due to additional reclaimed water supply and conservation efforts in the region. Significant regulatory and incentive measures have been implemented by the SWFWMD and SJRWMD to achieve additional demand reduction and beneficial reuse supply development. See Chapters 4 and 5 of this report.*
4) *The 2025 pumping rate for the ND Model extent in the SJRWMD area was 52.9 mgd in Marion County and 84.5 mgd in Lake County.*

3.7.2.3 ND Modeling Results

Results for the high withdrawal simulation and the medium withdrawal simulations are presented below. As previously discussed, since these simulations are aimed at interpretation of model results for the Marion and Sumter County aquifer systems, the range of modeled conditions is not applicable to Hernando and Citrus Counties (i.e., there is no difference between the simulations for Hernando and Citrus Counties).

3.7.2.3.1 Aquifer Drawdown

High Withdrawal Simulation – Sumter County

The distributions of cumulative drawdown (difference between the 2030 and predevelopment potentiometric elevations) for the surficial and Upper Floridan aquifers are shown in Figures 3-16 and 3-17, respectively.

In Figure 3-16, projected cumulative drawdown from predevelopment to 2030 is on the order of 0.5 to over two feet in the SA in eastern Sumter County. In Figure 3-17, in northeastern Sumter County, projected cumulative drawdown ranges from one foot to over two feet in the UFA, with the area of drawdown in the range of 0.5 to 1 foot extending to northwestern Sumter County.

Medium Withdrawal Simulation – Sumter County

The distributions of cumulative drawdown (difference between the 2030 and predevelopment potentiometric elevations) in the surficial and Upper Floridan aquifers are shown in Figures 3-18 and 3-19, respectively.

In Figure 3-18, projected cumulative drawdown from predevelopment to 2030 is on the order of 0.5 to one foot in the SA in eastern Sumter County. In Figure 3-19, in northeastern Sumter County, projected cumulative drawdown ranges from 0.5 to two feet in the UFA.

High Withdrawal Simulation – Marion County

The distributions of cumulative drawdown (difference between the 2030 and predevelopment potentiometric elevations) for the surficial and Upper Floridan aquifers are shown in Figures 3-16 and 3-17, respectively.

In Figure 3-16, projected cumulative drawdown from predevelopment to 2030 is less than 0.5 foot in the SA in eastern Marion County. In Figure 3-17, in central Marion County, projected cumulative drawdown ranges from 0.5 foot to over one foot in the UFA, with the amount of drawdown less than 0.5 foot extending to northern Marion County.

Medium Withdrawal Simulation – Marion County

The distributions of cumulative drawdown (difference between the 2030 and predevelopment potentiometric elevations) in the surficial and Upper Floridan aquifers are shown in Figures 3-18 and 3-19, respectively.

In Figure 3-18, projected cumulative drawdown from predevelopment to 2030 is less than 0.5 foot in the SA in Marion County. In Figure 3-19, in central Marion County, projected cumulative drawdown ranges from less than 0.5 to one foot in the UFA.

Citrus County and Hernando County

The distributions of cumulative drawdown (difference between the 2030 and predevelopment potentiometric elevations) in the surficial and Upper Floridan aquifers are shown in Figures 3-16 and 3-17, respectively. As previously discussed, the high and medium withdrawal simulations are identical for Citrus County and Hernando County.

In Figure 3-16, projected cumulative drawdown from predevelopment to 2030 is generally less than one foot in the SA in south Hernando County. In Figure 3-17, projected cumulative drawdown from predevelopment to 2030 is on the order of 0.5 to two feet in the UFA in the unconfined areas of southwest Hernando County, with the area of drawdown in the range of 0.5 to 1 foot extending to central Hernando County.

Difference between the High Withdrawal and Medium Withdrawal Simulations - Sumter and Marion Counties

A comparison between Figures 3-16 to 3-17 and 3-18 to 3-19, respectively, indicates that the possible difference in terms of groundwater level response in some areas is on the order of 0.5

foot for both the UFA and SA systems in northern Sumter County. In central and southern Marion County, the possible difference in the unconfined UFA is on the order of 0.5 foot.

3.7.2.3.2 Spring Flows

Discharge rates at a number of springs in the WRWSA were extracted from the model simulations described above. Spring discharge rates were modeled during the predevelopment period and with projected groundwater extraction simulations in 2030 (both high-withdrawal and medium-withdrawal simulations). These rates are given for the ND Model in Table 3-7. Spring discharge rates as fractions of respective predevelopment discharge rates are given in Table 3-8 for the ND Model.

Table 3-7. ND Model WRWSA Spring Discharge Rates.

Spring	Rate		
	Pre-Development (cfs)	High Withdrawal 2030 (cfs)	Medium Withdrawal 2030 (cfs)
Silver Spring	665.9	633.4	643.0
Rainbow Spring	639.9	628.9	638.3
Weekiwachee Spring	143.7	134.0	133.9
Crystal River Group	346.9	339.6	339.4
Blind Springs	43.0	42.9	42.9
Gum Springs	61.1	55.6	57.0
Homosassa River System	71.6	70.2	70.0
Chassahowitzka Spring	64.1	62.9	62.6
Fenney Spring	19.8	17.7	

Table 3-8. ND Model WRWSA Spring Discharge Rate Ratios.

Spring	Ratio		
	Pre-Development	High Withdrawal 2030	Medium Withdrawal 2030
Silver Spring	1.00	0.95	0.97
Rainbow Spring	1.00	0.98	1.00
Weekiwachee Spring	1.00	0.93	0.93
Crystal River Group	1.00	0.98	0.98
Blind Springs	1.00	1.00	1.00
Gum Springs	1.00	0.91	0.93
Homosassa River System	1.00	0.98	0.98
Chassahowitzka Spring	1.00	0.97	0.98
Fenney Spring	1.00	0.89	

In 2030, discharge rates at the majority of the springs are reduced by less than 5% of the respective predevelopment discharge rates. At Weekiwachee and Fenney Springs, the cumulate reductions are projected to be 7 and 11%, respectively.

Difference between the High Withdrawal and Medium Withdrawal Simulations - Sumter and Marion Counties

The difference between the high-withdrawal and medium-withdrawal simulation for springs in Marion County is in the area of 2%. The difference between the high-withdrawal and medium-withdrawal simulation for springs in Sumter County is also in the range of 2%.

3.7.3 Other Northern District Model Analyses

Additional pumpage analyses were performed to assist with the interpretation of groundwater modeling results. The methodology and model results for these analyses are discussed in the next section.

3.7.3.1 Existing Water Use Permit Considerations

As previously discussed, it is possible that up to seven (7) mgd of the projected groundwater demand in the Villages area may not be met by groundwater, due to a special condition in their SWFWMD WUP (No. 20013005). To account for this possibility, a sensitivity analysis was performed by removing seven (7) mgd from the 2030 high-withdrawal simulation for the UFA in the Villages area. The response was determined by subtracting the potentiometric surface without the removal from the surface with the removal.

The UFA response to the removal is shown in Figure 3-20. As shown, the regional UFA aquifer response in northeastern Sumter County and northwestern Lake County is in the vicinity of 0.5 foot, with a small area of response as great as one foot. In other words, the predicted drawdown between 2005 and 2030 could be up to one foot less than that otherwise predicted for 2030. It should be noted that the SA does not exist in northeastern Sumter County in the ND Model.

3.7.3.2 Orange County

There are large groundwater withdrawals in Orange County located outside the ND Model eastern boundary. As previously discussed, in order to limit adverse impacts to water resources from these withdrawals, the SJRWMD, SWFWMD, and SFWMD have developed interim rules to restrict groundwater withdrawals in an area of Orange County and Lake County within the CFCA. According to the SJRWMD, additional groundwater extraction in Orange County has occurred since 1995 (the date of the eastern boundary condition for the ND Model) and will be restricted in 2013. In order to assess the impact due to additional groundwater extraction on the drawdown within the ND Model, a sensitivity analysis was conducted.

Predicted drawdown due to additional pumping between 1995 and 2013 along the model's eastern boundary was first generated by the SJRWMD using the existing ECF Model (SJRWMD, 2007). In order to assess the extent that the drawdown may propagate westward from the model's eastern boundary, the ECF-Model-generated 2013 potentiometric surface was incorporated into the ND Model eastern boundary, and the ND Model was run in a steady-state mode. Shown in Figures 3-21 and 3-22 are the distributions of drawdown in the surficial and Upper Floridan aquifers, respectively, attributed to the additional drawdown along the eastern boundary. The results indicate that the propagation of drawdown resulting from pumping in the Orange County area is confined to the Lake County region in the ND model.

3.8 SJRWMD North Central Florida Groundwater Modeling Results – Estimated and Projected

3.8.1 Estimated 1995 Conditions

The NCF Model was used to determine the potentiometric elevation distribution for 1995 conditions based on the calibrated average steady-state 1995 conditions. The distribution of pumping throughout the model for 1995 was provided by the SJRWMD. 1995 potentiometric surface distributions in the surficial and Upper Floridan aquifers are shown in Figures 3-23, and 3-24, respectively.

3.8.2 Projected 2030 Evaluation

The NCF Model groundwater resource assessment is a planning level evaluation based on projected groundwater demands within the model domain for 2030. The groundwater simulations included here assume that the increased water demand will be met solely by groundwater from current withdrawal locations at current levels of water conservation (unadjusted groundwater demand). As a regional-scale analysis, the evaluation is intended to evaluate the potential impact of projected 2030 water demand on aquifer levels and groundwater resources, and identify local areas based on these constraints where further investigation into aquifer supplies will be required.

3.8.2.1 2030 Methodology

The potentiometric distributions in 2030 were obtained by running the NCF Model under steady state conditions. The distribution of pumping and recharge throughout the model for 2030 was provided by the SJRWMD. Boundary conditions for the model domain adjusted the 1995 calibrated boundaries for the 2030 simulation. The southern boundary is adjusted by the SJRWMD using 2013 drawdown from the ECF model. The northern and eastern model boundaries are adjusted by the SJRWMD using 2030 drawdown from the NEF Model (Durden, 1997).[14] The model was run with 1995 as the initial conditions and projected 2030 extraction rates. Net recharge was changed in 2030, using a parcel-based method to project increases or decreases in return flows from septic tanks and irrigation. The projected increase in recharge in the model at 2030 is shown on Figure 3-25. As shown, recharge tends to decrease in areas with an unconfined UFA and may increase or decrease in areas where the SA is present in the NCF Model.

The NCF Model simulated 1995 heads were compared to 2030 simulated heads to ascertain impacts to the groundwater system due to projected withdrawals. Model drawdown was determined by subtracting the 1995 aquifer heads from the 2030 heads. Using the projected withdrawals described above, the NCF Model was utilized to determine potential changes in aquifer levels from 1995 to 2030.

[14] More discussion on NCF model boundaries is presented later in the chapter.

3.8.2.2 NCF Modeling Results

3.8.2.2.1 Aquifer Drawdown

Marion County

The distribution of increased drawdown (difference between the 2030 and 1995 potentiometric elevations) for the surficial and Upper Floridan aquifers is shown in Figures 3-26 and 3-27, respectively.

As shown in Figure 3-25, the projected increase in drawdown in the SA from 1995 to 2030 ranges from 0.5 to one foot in northeast Sumter County. As shown in Figure 3-27, a potential increase in drawdown ranging from 0.5 foot to two feet is predicted in the UFA in northeast Sumter.

3.8.2.2.2 Spring Flows

Table 3-9. NCF Model WRWSA Spring Discharge Rates.

Spring	Rate	
	1995 (cfs)	2030 (cfs)
Silver Spring	706.8	641.1
Rainbow Spring	653.0	638.3
Silver Glen Spring	105.4	104.7
Salt Springs	74.0	73.6
Sweetwater Spring	13.0	12.7
Juniper and Fern Hammock Springs	24.5	23.2

Table 3-10. NCF Model WRWSA Spring Discharge Rate Ratios.

Spring	Ratio	
	1995	2030
Silver Spring	1.00	0.91
Rainbow Spring	1.00	0.98
Silver Glen Spring	1.00	0.99
Salt Springs	1.00	1.00
Sweetwater Spring	1.00	0.98
Juniper and Fern Hammock Springs	1.00	0.94

3.8.3 Other NCF Model Analyses

Additional pumpage analyses were performed to assist with the interpretation of groundwater modeling results. The methodology and model results for these analyses are discussed in the next section.

3.8.3.1 Model Boundaries

There are large groundwater withdrawals in the SJRWMD located outside the NCF Model boundary. As previously discussed, in order to limit adverse impacts to water resources from these withdrawals, the SJRWMD, SWFWMD, and SFWMD have developed interim rules to restrict groundwater withdrawals in an area of Orange County and Lake County within the CFCA. According to the SJRWMD, additional groundwater extraction has occurred since 1995 (the date of the calibration boundary condition for the NCF Model). Additional groundwater development will be restricted in 2013 within the CFCA. Areas in Flagler, Lake and Volusia Counties have been designated PWRCAs indicating that projected water needs within a 20-year planning horizon can not be met by traditional groundwater sources without incurring unacceptable impact to natural resources (SJRWMD, 2005). [15] In order to assess the impact due to additional groundwater extraction on the drawdown within the NCF Model, a sensitivity analysis was conducted.

Predicted drawdown due to additional pumping after 1995 along the model's boundary was generated by the SJRWMD using the ECF and NEF Models (SJRWMD, 2007; Dugan, 1997). ECF drawdown in 2013 and projected NEF drawdown in 2030 are used by the SJRWMD to adjust the NCF Model boundary in 2030. In order to assess the extent that the drawdown may propagate from the model's southern, eastern and northern boundaries, the ECF and NEF Model-generated drawdowns were incorporated into the NCF Model boundary, and the NCF Model was run. Shown in Figures 3-28 and 3-29 are the distributions of drawdown in the surficial and Upper Floridan aquifers, respectively, attributed to the additional drawdown along the boundary. The results indicate that the propagation of drawdown resulting from 2013 pumping in the Orange County area extends through Lake County and into southern Marion County in the NCF Model. Drawdown resulting from projected 2030 pumping north of the model boundary does not propagate into Marion County.

3.8.3.2 Recharge Sensitivity

Marion County

As previously mentioned, net recharge was changed from 1995 in 2030 using a parcel-based method to project increases or decreases in return flows from septic tanks and irrigation (see Figure 3-25). The net recharge tends to decrease in areas with an unconfined UFA and increase slightly in areas where the SA is present in the NCF Model. Notable changes in recharge occur in the Villages area, where increases of over two-inches occur; and in central Marion County, where decreases from one to 2.5 inches predominate.

Changes in aquifer levels stemming from increases in net recharge were identified through a comparative analysis. The NCF Model was run for 2030 pumping using the 1995 recharge package. The potentiometric surface from this simulation was then subtracted from the surface of the 2030 simulation which used the 2030 recharge package. The distribution of increased

[15] This determination was based on the SJRWMD regional groundwater modeling, water resource criteria, and other factors (SJRWMD, 2005). There will also be a significant adjustment in future groundwater demands in the WRWSA due to additional reclaimed water supply and conservation efforts in the region. Significant regulatory and incentive measures have been implemented by the SWFWMD and SJRWMD to achieve additional demand reduction and beneficial reuse supply development. See Chapters 4 and 5 of this report.

drawdown (difference between the 2030 potentiometric elevations due to change in recharge) for the surficial and Upper Floridan aquifers is shown in Figures 3-30 and 3-31, respectively.
As shown in Figure 3-30, the simulated drawdown in the SA in 2030 due to the net recharge change increases from 0.5 to about one foot in central Marion County. As shown in Figure 3-31, the simulated change in drawdown in the unconfined UFA in 2030 due to the net recharge change increases from 0 foot to 0.5 feet in central Marion County.

Simulated Silver Spring discharges are also affected by the net change in recharge. The projected discharge in 2030 using the 2030 recharge package is 641.1 cfs, which is a discharge rate ratio of 0.91 from 1995 conditions. The projected discharge in 2030 using the 1995 recharge package is 665.4 cfs, which is a discharge rate ratio of 0.94 from 1995 conditions. The simulated change in discharge due to the change in net recharge is approximately 24 cfs, or 3% of 1995 spring discharge.

3.9 Potential Impact to Groundwater Resources

The projected groundwater withdrawals have the potential to affect aquifer levels, spring flows, and surface water features such as lakes and wetlands, due to declines in aquifer levels. Predicted impacts to these features can constrain the permitting of groundwater withdrawals per the SWFWMD and SJRWMD Chapter 40C-2 and 40D-2, F.A.C. permitting criteria, respectively.

In addition, the SWFWMD and SJRWMD have adopted or scheduled MFLs for priority water bodies pursuant to Section 373.042, Florida Statutes. Predicted impacts to these features are intended to serve both as planning and regulatory constraints to water supply development. See Chapter 2 for more information on MFLs, including the development of proxy MFLs within the WRWSA.

This section identifies the potential impact of the 2030 model results on applicable groundwater resources, and identifies potential concerns that may affect the development of groundwater resources.

3.9.1 Effect on Spring Flows

3.9.1.1 Citrus County

MFL-priority springs, and their springsheds, are located in Citrus County, including the Crystal River Springs, Homosassa Spring, and Chassahowitzka Spring (see Figure 2-2 in Chapter 2). The projected 2030 reduction in Citrus County spring flows, based on ND regional groundwater modeling, is much less than the proxy MFL allowable reductions and therefore significant environmental impacts are not anticipated to the springs. Additionally, with the unconfined nature of the UFA in Citrus County, environmental permitting criteria for water use permits will prevent harm to surface lakes and wetlands and thus limit the likelihood of inducing significant reductions in spring flow.

As anticipated increases in future water demand occurs, each of the three large springsheds should be monitored relative to springflow and water quality. But, seeing as predicted drawdown is low in Citrus County, significant impacts to water quality and quantity appear unlikely to the 2030 planning horizon.

3.9.1.2 Hernando County

One MFL-priority spring, Weekiwachee Spring, and its springshed are located in Hernando County (see Figure 3-3). Weekiwachee Spring is located in western Hernando County in a future water demand area where the UFA is unconfined. As groundwater demands increase over time, spring flow may be affected by withdrawals in the springshed. The Weekiwachee Spring has an MFL adopted in 2009, which protects both spring flow and water quality from significant harm due to water withdrawals.

The MFL adopted for this spring has an estimated cumulative allowable reduction of 10% of springflow to prevent significant harm to the resource. The ND Model projects a 2030 springflow decline of 7% from predevelopment conditions, assuming local increases in water demand are met by groundwater. This potential reduction remains within the 10% allowable criteria. However, since this is a regional model prediction, spring flow reductions should be verified by field data and monitoring to ensure that adverse impacts do not occur.

3.9.1.3 Sumter County

One MFL-priority spring, Gum Spring, and its springshed are located in northwestern Sumter County (see Figure 3-3). A second spring, Fenney Spring, is also located in northern Sumter County. As groundwater demands increase over time, spring flow may be affected by withdrawals in the springsheds. The Gum Spring is scheduled for MFL establishment in 2010, which will protect both spring flow and water quality from significant harm due to water withdrawals.

The proxy MFL developed for Gum Spring has a cumulative allowable reduction of 16.6%. The ND Model projects a maximum 2030 springflow decline of 9% from predevelopment conditions, assuming local increases in water demand are met by groundwater. A maximum 2030 springflow decline of 11% is projected by the ND Model for Fenney Springs. The potential reductions remain within the 16.6% proxy allowable criteria. However, since these are regional model predictions, spring flow reductions should be verified by field data and monitoring to ensure that adverse impacts do not occur.

This interpretation that projected withdrawals meet springflow criteria is based on the proxy MFL for Gum Springs discussed in Chapter 2. The actual MFL adoption in 2010 for Gum Spring could affect this conclusion.

3.9.1.4 Marion County

Three MFL-priority springs are located in Marion County, including Silver Springs, Silver Glen Springs, and Rainbow Springs. The City of Ocala is located within the Silver Springs springshed (see Figure 3-3). Silver Springs is proposed for MFL adoption by the SJRWMD in 2011; Silver Glen Springs by the SJRWMD in 2013; and Rainbow Springs by the SWFWMD in 2010. These MFLs will protect both spring flow and water quality from significant harm due to water withdrawals.

The SJRWMD uses an allowable 15% springflow reduction from 1995 conditions and the SWFWMD uses an allowable 15% springflow reduction from predevelopment conditions (where more detailed information is not available). The NCF Model projects a springflow reduction in

2030 of 9% for Silver Springs, and 1% to 2% for Rainbow Springs. The ND Model projects a springflow reduction in 2030 of 5% from predevelopment conditions for Silver Springs and 2% for Rainbow Springs.

A number of smaller springs are also located in Marion County, including Sweetwater Springs, Salt Springs, and Juniper and Fern Hammock Springs. The NCF Model projects springflow reductions in 2030 ranging from 0% to 6% for these springs.

Based on SJRWMD and SJRWMD planning criteria, these springflow declines should be acceptable.

3.9.2 Effect on Lakes and Wetlands

3.9.2.1 Citrus County

A number of lakes with SWFWMD-established minimum guidance levels are located in Citrus County. These lakes may be a concern for specific or local withdrawals. The minimum guidance levels are used in determining whether a lake meets the SWFWMD "stressed" designation; however, this designation does not bear directly on water supply. On a regional basis the primary lake of concern is Lake Tsala Apopka, whose MFLs have been adopted. A MFL for Fort Cooper Lake has also been adopted. The most restrictive of the MFLs are the Hernando Pool and the Inverness Pool in Lake Tsala Apopka. The allowable reduction on a long-term median stage basis is the Minimum Lake Level (MLL)[16] of 0.8 ft. This suggests that a projected cumulative regional drawdown of less than 0.8 ft will remain within limits to prevent significant ecological harm.

The model prediction for the projected cumulative drawdown in Citrus County in general is less than the planning level criterion of one (1) foot which is assumed by the SWFWMD to be capable of incurring harm to wetlands and lakes.[17,18] Much of the Citrus County is predicted to have less than 0.5 ft drawdown, based on ND Model results using unadjusted demands. The establishment of MFLs for the coastal springs and Withlacoochee River should additionally limit the potential for harm to natural resources due to water withdrawals.

3.9.2.2 Hernando County

Lakes and wetlands are present throughout Hernando County. Lakes Hunters, Lindsey,

[16] Tsala Apopka's High Minimum Lake Level (HMLL) is influenced by and reflects surfacewater flow patterns and not directly comparable to groundwater drawdown.

[17] The SWFWMD regional planning level criterion is based on work done in the Northern Tampa Bay area where it was observed that impacted wetlands in the wellfield areas were more likely to be found in areas where the models predicted greater than one (1) foot of drawdown in the SA. The planning level criterion is generally consistent with the SWFWMD wetlands MFL methodology, developed using cypress wetlands in the flatwoods environment of the Northern Tampa Bay area that presumes that significant harm will occur when the long-term median water level in a wetland is lowered by greater than 0.8 feet. Work is ongoing at the SWFWMD to evaluate the use of the wetland MFL methodology in the sandhill environment common in the Northern SWFWMD. The resource monitoring evaluates the predictive capabilities of modeling tools and monitors their results. Water resource management decisions can be adjusted over time based on results of the resource monitoring.

Mountain, Neff, Spring and Weekiwachee Prairie have adopted MFLs which will protect these features from significant harm due to water withdrawals. Lake Tooke and Whitehurst Pond are scheduled for MFL adoption in 2013. Lakes Lindsey, Elizabeth, Francis, Geneva, and Sparkman are located within the Withlacoochee River Basin with established minimum guidance levels under the F.A.C.

Mountain, Neff, and Spring Lakes are near the area of greatest projected localized drawdown impacts to the UFA in the entire WRWSA, but are also located on the Brooksville Ridge, an area of hydraulic separation between the surficial and Upper Floridan aquifers due to a thick clay confining unit. As a result, these lakes and the wetlands along the ridge should be generally isolated from drawdown in the UFA. This is reflected in model results generally showing less than 0.25 ft SA drawdown for much of the Brooksville Ridge.

An area of concern is the potential UFA drawdowns of greater than one (1) foot projected for the southwest-central portion of the county, with the Spring Hill area exceeding two feet. The Weekiwachee springshed, Weekiwachee Prairie Lake, Hunters Lake, Lake Tooke and Whitehurst Pond are located within this region. The UFA is generally unconfined in this area. The projected drawdown, based on ND Model results using unadjusted demands, exceeds the one foot planning level criterion which is assumed to be capable of harming lakes and wetlands.

Since the model reduction in Weekiwachee Spring springflow to 2030 is not predicted to exceed its adopted MFL, it is possible that the primary constraint to groundwater withdrawals in the unconfined southwest-central portion of Hernando County will be harm to lake and wetland features. The ND Model is calibrated to regional conditions and is not suitable for site specific investigations concerning specific lakes and wetlands. As groundwater use is intensified over the planning horizon, the relationship between the quantity and distribution of groundwater withdrawals and the individual levels of sensitive water features should be established and monitored on a programmatic basis. Lakes and wetlands located in the unconfined western areas of Hernando County will be sensitive to withdrawals and many of the lakes have or will have MFL protection.

Possible environmental constraints to groundwater extraction will necessitate careful evaluation of future withdrawals in western Hernando County. Dispersal and rotation of groundwater withdrawals can eliminate or reduce the potential for harm to lakes and wetlands. Water resource management strategies including additional conservation, beneficial reclaimed water use and dispersed withdrawals will reduce local groundwater demands. In this region, coordination between regulatory and incentive measures utilized by the WMDs can effectively deploy these management tools where they are needed. The management tools can be adjusted and optimized based on environmental and economic considerations and the ability to reduce water demands.

3.9.2.3 Sumter County

Lake Panasoffkee, Lake Miona, Lake Deaton, Big Gant Lake and Lake Okahumpka have adopted MFLs in Sumter County. These lakes should be protected from significant drawdown impacts by their MFLs, but other local lakes and wetlands should also be closely monitored. The effects of projected 2030 groundwater withdrawals in Sumter County are difficult to assess, but withdrawals could cause a cumulative reduction of up to two feet in unconfined areas of the UFA and up to about one foot in the SA, based on ND Model results.

A specific area of concern is the potential UFA drawdowns of greater than two feet projected for the far northeast portion of Sumter County, based on model results using unadjusted demands. In much of this region, the UFA is unconfined. The projected drawdown exceeds the SWFWMD one foot planning level criterion which is assumed to be capable of harming lakes and wetlands. In addition, Lake Miona is located within this area and its MFL will also constrain future groundwater withdrawals.

The difference between the high- and medium- projected 2025 withdrawal simulations is meaningful in Sumter County. Compared to the high-withdrawal simulation, the medium-withdrawal simulation shows less area with projected unconfined UFA and SA system drawdowns exceeding the SWFWMD one foot planning level criterion.

Both high- and medium- withdrawal simulations suggest that some reduction in groundwater demand may be necessary in the far northeast portion of Sumter County to avoid adverse impacts to lakes and wetlands. The Villages sensitivity analysis shows a regionally significant increase in aquifer levels based on the removal of seven (7) mgd of withdrawals from the UFA, suggesting that a decrease or dispersal of groundwater withdrawals could eliminate or reduce the potential for harm to lakes and wetlands in northeast Sumter County.

Possible lake and wetland constraints to groundwater extraction will necessitate careful evaluation of future withdrawals in northeastern Sumter County. Water resource management strategies including additional conservation, beneficial reclaimed water use and dispersed withdrawals can reduce local groundwater demands. In this region, coordination between regulatory and incentive measures utilized by the WMDs can effectively deploy these management tools where they are needed. The management tools can be adjusted and optimized based on environmental and economic considerations and the ability to reduce water demands.

3.9.2.4 Marion County

Lakes Charles, Bowers, Halfmoon, Hopkins Prairie, Nicotoon, Smith, Weir and Kerr have adopted MFLs in Marion County. Lakes Bonable, Little Bonable, and Tiger are scheduled for MFL adoption in 2011. These lakes should be protected from significant drawdown impacts by their MFLs, but other local lakes and wetlands should also be closely monitored. The effects of projected 2030 groundwater withdrawals in Marion County are difficult to assess, but could cause an aquifer level decline of up to two feet in unconfined areas of the UFA and over one foot in the SA, based on NCF Model results using unadjusted demands. Projected impacts to lakes and wetlands appear to be the most significant potential environmental constraint to groundwater development in Marion County; however, in the SWFWMD, the 2030 ND Model simulation of projected cumulative drawdown in Marion County is less than the planning level criterion of one (1) foot aquifer decline which is assumed by the SWFWMD to be capable of incurring harm to wetlands and lakes.

Lake MFLs have been adopted in Marion County by the SJRWMD for Lakes Kerr and Halfmoon. The MFLs for these lakes allow less than 0.3 feet of drawdown from 1995 conditions. The drawdown limit for each is exceeded by the simulated aquifer level decline in 2030. Other adopted lake MFLs in Marion County are projected to be met in 2030. MFLs for Lakes Kerr and

Halfmoon were established in the 1990's and are likely to be re-evaluated prior to 2030.[19] The lakes are located in the Ocala National Forest away from population centers. These MFLs are unlikely to serve as a significant constraint to WRWSA member government permits because the cone of influence of any individual member (such as the City of Ocala) will be negligible at their distance between the population center and Lakes Kerr and Halfmoon. Area wide rulemaking similar to the CFCA is not anticipated by the SJRWMD in Marion County.

Projected 2030 regional groundwater withdrawals based on unadjusted demands outside the WRWSA could cumulatively contribute to unacceptable aquifer declines at Lakes Kerr and Halfmoon. However, projected 2030 regional withdrawals based on unadjusted demands are unlikely to occur from areas outside the WRWSA[20] designated as PWRCAs. As shown in Table 3-11, projected 2030 water demands in PWRCAs outside the WRWSA (excluding the CFCA) exceed the water demands that have already been determined by the SJRWMD to be unsustainable. The SJRWMD regulatory program will restrict the projected regional withdrawals in the PWRCA to avoid unacceptable adverse impacts to natural resources. Over 30 mgd in projected 2030 withdrawals that are unlikely to occur are incorporated to the NCF model simulation (either through pumpage within the model domain or boundary condition adjustments) which predicts unacceptable aquifer declines at Lake Kerr.

Table 3-11. Comparison of Projected Groundwater Use in PWRCA in Flagler, Lake and Volusia Counties.[21,22]

	Projected Groundwater Use Determined to be Unsustainable in Flagler, Lake and Volusia Counties (2025) (1)	Projected Groundwater Use in Flagler, Lake and Volusia Counties Contributing to Modeled Aquifer Declines (2030) (2)	Difference (mgd)
Total (mgd)	172.64	210.51	37.87

(1) Source: SJRWMD 2003 Water Supply Assessment.
(2) Source: SJRWMD 2008 Water Supply Assessment – Draft (SJRWMD, 2009).

In the SJRWMD, the results of the 2030 NCF Model simulation of 1995 drawdown is greater than likelihood of harm criteria under which aquifer declines are assumed by the SJRWMD to be capable of incurring harm to wetlands and lakes. The methodology for the SJRWMD likelihood of harm analysis is summarized in SJRWMD (2009) and in WRA (2009). Figure 3-32 shows 2030 SA NCF Model drawdown contours and the associated wetland areas captured by the likelihood of harm analysis. Approximately 4,001 acres of wetlands are determined to exhibit moderate or higher likelihood of harm in the SA.[23] It should be noted that the difference in

[19] The SJRWMD has a regular re-evaluation program for lakes whose MFLs were adopted under prior methods. This program typically revises the previously adopted MFLs using more recent data. The Lake Kerr MFL is scheduled for re-evaluation by the SJRWMD in 2012.
[20] There will also be a significant adjustment in future groundwater demands in the WRWSA due to additional reclaimed water supply and conservation efforts in the region. Significant regulatory and incentive measures have been implemented by the SWFWMD and SJRWMD to achieve additional demand reduction and beneficial reuse supply development. See Chapters 4 and 5 of this report.
[21] There are small areas in Flagler and Volusia counties which are not designated PWRCAs.
[22] Southern Lake County is within the CFCA, where groundwater use will be restricted in 2013. Modeled quantities in Draft WSA in southern Lake County were held at 2013 levels.
[23] Likelihood of harm methodology in the unconfined UFA eliminates perched wetlands (depth to water table greater than 15 feet) from consideration since they are disconnected from the water table (Kinser et

drawdown due to differences between the 1995 and 2030 recharge packages discussed above contribute significantly to the area captured by the likelihood of harm analysis in the SA. Figure 3-34 shows the 2030 likelihood of harm analysis in the SA using constant recharge in the NCF Model. As shown, approximately 3,186 acres of the 4,001 acres of wetlands determined to exhibit moderate or higher likelihood of harm are generated due to the recharge difference (80%). The wetlands determined to exhibit moderate or higher likelihood of harm using constant recharge are located only in southern Marion County. Figure 3-33 shows the 2030 unconfined UFA NCF Model drawdown contours and the associated wetland areas captured by the likelihood of harm analysis. Approximately 67 acres of wetlands are determined to exhibit moderate or higher likelihood of harm in the unconfined UFA, based on National Wetlands Inventory (NWI) maps.

The NCF model simulation suggests that some reduction in unadjusted 2030 groundwater demand may be necessary in southern Marion County to avoid adverse impacts to lakes and wetlands, though additional investigation into groundwater supplies is needed. Pre-1995 drawdown, where present, can contribute to actual wetland and lake impacts and cumulative drawdowns of greater than 2 feet from pre-development conditions are much more likely to correlate with observed impacts.[24] Cumulative model results are not available for the NCF Model, and neither the SWFWMD nor the SJRWMD has developed a confident metric for assessing wetland harm due to drawdown in the sandhill areas prevalent in Marion County (WRA, 2009). The NCF and ND groundwater models also have a different conceptualization of the groundwater flow system in Marion County. As shown in Figure 3-35, the extent of the SA in the NCF Model is much greater than that in the ND Model. Impacts to lakes and wetlands may be significantly less in a semi-confined versus an unconfined region, because the confinement can protect surficial water features from drawdown experienced in the UFA. The location and depth of UFA water level declines may also vary based on the extent of confinement.

Possible lake and wetland constraints to groundwater extraction will necessitate resource monitoring, hydrogeologic data collection and careful evaluation of future withdrawals in southern Marion County. Water resource management strategies including additional conservation, beneficial reclaimed water use and dispersed withdrawals can reduce local groundwater demands where needed. In this region, coordination between regulatory and incentive measures utilized by the WMDs can effectively deploy these management tools where they are needed. The management tools can be adjusted and optimized based on environmental and economic considerations and the ability to reduce water demands.

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al, 2008). Perched wetlands are included in the likelihood of harm methodology for the SA. Perched wetlands in the SA in Marion County are elevated from approximately 15 to 40 feet above the water table. These systems are primarily located east and west of the Ocklawaha River where the river floodplain transitions to the Mount Dora ridge. Since they are disconnected from the water table, perched wetlands in the SA are unlikely to constrain the permitting of groundwater withdrawals.

[24] Observed impacts and preliminary cumulative drawdown to 1997 were determined by the SJRWMD, SWFWMD, and SFWMD in the CFCA. See September 25, 2009 CFCA project progress and activities for the future available at www.cfcawater.com.

3.9.3 Effect on Seepage Contributions to River Systems

The ND Model simulates Withlacoochee River groundwater contributions at various reaches along the river (see Tables 3-12 and 3-13.). An entry corresponding to a gauging station represents a cumulative river flux at that location, excluding springs which discharge to the river from above land surface. Although the relative effect of groundwater withdrawals on the river will vary by reach, the cumulative fluxes are selected for evaluation because observed data at gauging stations are available to assess possible effects on river flows. The river stages used in the ND Model were interpolated from the median value at USGS flow recording stations for 1995.

In the projected 2030 simulation, river discharge rates at the majority of the gauges are either reduced or increased by a few percent of the respective predevelopment discharge rates, due to the corresponding local increase or decrease in groundwater pumping. On a cumulative basis from predevelopment to 2030, the downstream reach in the vicinity of Holder is predicted to see a 9% reduction in seepage baseflow. The maximum difference between the high-withdrawal and medium-withdrawal simulation is about 4%. The ND Model simulates river baseflow declines of less than 2% at all other Withlacoochee River gauging stations from predevelopment to 2030.

Table 3-12. Summary of Cumulative Withlacoochee River Gain/Loss Rates.

River Reach/Gauging Station	Discharge Rate (cfs)		
	Pre-Development	High Withdrawal 2030	Medium Withdrawal 2030
Withlacoochee near Cumpressco	8.92	8.88	8.84
Withlacoochee near Dade City	12.61	12.36	12.55
Withlacoochee at Trilby	56.62	56.10	58.36
Withlacoochee at Croom	99.36	99.49	103.9
Withlacoochee near Floral City	95.16	95.24	99.89
Withlacoochee at Wysong Dam	152.54	151.07	155.03
Withlacoochee near Holder	235.58	215.21	227.84

Table 3-13. Summary of Cumulative Withlacoochee River Gain/Loss Rate Ratios.

River Reach/Gauging Station	Discharge Rate Ratio		
	Pre-Development	High Withdrawal 2030	Medium Withdrawal 2030
Withlacoochee near Cumpressco	1.00	1.00	0.99
Withlacoochee near Dade City	1.00	0.98	1.00
Withlacoochee at Trilby	1.00	0.99	1.03
Withlacoochee at Croom	1.00	1.00	1.05
Withlacoochee near Floral City	1.00	1.00	1.05
Withlacoochee at Wysong Dam	1.00	0.99	1.02
Withlacoochee near Holder	1.00	0.91	0.97

Seepage fluxes to the Ocklawaha River and Rodman Reservoir are not simulated in the NCF Model, although springs discharging above land surface and submerged springs which discharge to the river system are simulated. Additional hydrologic evaluation would be required to determine projected reductions to seepage fluxes for the Ocklawaha River system.

3.9.3.1 Discussion of River Seepage Results and Proxy MFLs

Chapter 2 developed proxy MFLs for the Withlacoochee River system. The proxy MFLs characterized the seasonal river flow regime into three intervals delineated by low-flow and high-flow thresholds. Three locations on the river were characterized based on the availability of a long-term flow dataset – Trilby, Croom, and Holder. The proxy MFLs assigned percent-of-flow reductions to each of the intervals in each of three seasonal blocks, at each location. The percent-of-flow reductions were based on surface water flow records that integrate both surface- and ground- water components of river hydrology. They are intended to be protective of river hydrology and ecology with respect to the cumulative effects of water withdrawals. On a river-wide average basis, the contribution of groundwater seepage to Withlacoochee River flow is thought to be significant (USFWS, 2005).

The projected changes to the river groundwater contribution reflect potential changes to the aquifer system at a median river stage in 1995. The Holder gage is the furthest downstream location with a proxy MFL, and changes at this location will integrate potential changes to the contribution of groundwater to river flow over most of the river system. The middle seasonal block for the proxy MFLs near Holder gage is Block 2, which has a median flow of 438 mgd. At a percent-of-flow reduction of 13%, 57 mgd or 88 cfs is estimated for withdrawal at the Block 2 median flow. The projected cumulative reductions to the contribution of groundwater to river flow near Holder, depending on whether the high-withdrawal or medium-withdrawal simulation is selected, vary from 20.4 CFS to 7.8 CFS as shown in Table 3-7. These reductions are well within the corresponding percent-of-flow reduction in Block 2.

As previously discussed, river groundwater contributions were calibrated and modeled based on the calendar year 1995 condition. The proxy MFLs were established using three seasonal blocks, so additional hydrologic evaluation would be required to determine whether the projected reductions to groundwater flow are within the percent-of-flow reductions for the other blocks.

The location of the three proxy MFLs and the calendar year 1995 condition to calibrate and model groundwater contribution also limits evaluation of specific river reaches. Additional hydrologic study would be required to adjust the three proxy MFLs for the other reaches that lack long term data sets. Specific reaches of the river may function as both recharge and discharge areas, depending on the river stage and the season. Additional hydrologic evaluation would be required to identify these reaches and determine whether the projected reductions to groundwater flow are within the percent-of-flow reductions for each seasonal block.

The proxy MFL developed for Gum Springs – which has a relatively direct connection to the Holder reach - has a cumulative allowable reduction of 16.6% based on flow contributions to the river during low-flow periods and maintenance of habitat in the spring run. Although the river will have different MFL-water resource considerations than will Gum Springs, the predicted cumulative reductions to the river groundwater contribution are well within this value.

3.10 Water Supply and Projected Aquifer Level Decline

Since groundwater is the primary potable water source in the WRWSA, the groundwater resource assessment carries significant implications for future potable water supplies. Projected groundwater withdrawals have the potential to cause aquifer declines and affect spring flows and surface water features such as lakes and wetlands. Predicted impacts to these features will affect and constrain approaches to water supply development.

There are areas in the WRWSA where groundwater may not be available to the 2030 planning horizon based on unadjusted demands, and areas where further investigation into water supplies will be required to established groundwater availability. This section is a qualitative discussion of the water supply development considerations resulting from the potential impacts to groundwater resources. It discusses areas where further investigation into water supplies will be required and identifies water resource management strategies that may be employed to meet water supply and environmental needs.

3.10.1 Citrus County

With Citrus County drawdown expected to be well below the SWFWMD planning criterion based on ND regional groundwater modeling, groundwater should be an environmentally acceptable supply to the 2030 planning horizon. Increases in future water demand and aquifer levels should be monitored for changes over time.

3.10.2 Hernando County

Significant UFA drawdown is projected in southwestern Hernando County based on unadjusted demands. With some of this withdrawal occurring from the UFA beneath areas of the Brooksville Ridge, surface environmental features along the Ridge should be isolated from UFA water level declines. However, wetlands and lakes in the unconfined portion of the UFA to the west of the ridge (i.e., the Spring Hill area) are projected to experience drawdown capable of incurring environmental harm if water demand continues to be met with local groundwater. Additional supplies or reductions in demand from conservation will be needed in the Spring Hill area within the 2030 planning horizon. A recent SWFWMD WUP[25] contained a condition requiring Hernando County to plan for alternative or non-local groundwater supplies in the western utility service area.

Possible water supply options for the Spring Hill area include rotating withdrawals within the area and dispersing projected groundwater withdrawals in Hernando County towards the northern and eastern areas of the County. Hernando County's recent SWFWMD WUP[26] fit this resource strategy by authorizing new withdrawals in the eastern county (eastern utility service area). Additional conservation or increases in beneficial reuse supplies could also help to meet future water needs in Hernando County; both of these strategies are currently planned for deployment in Hernando County.

[25] SWFWMD WUP No. 2983.009
[26] SWFWMD WUP No. 20005879.004

3.10.3 Sumter County

The potential effects of projected 2030 groundwater withdrawals in Sumter County are difficult to interpret, but significant UFA drawdown is projected in northeastern Sumter County if unadjusted water demand continues to be met with local groundwater. Projected drawdown, if it materializes, has the potential to cause environmental harm to wetlands and lakes in the unconfined portion of the UFA in far northeastern Sumter County.

The location, magnitude and extents of drawdown are difficult to identify and additional data collection, monitoring and analysis will be required to refine the interpretation of ND Model results in Sumter County. The presence of the SA in east-central Sumter County and semi-confinement of water features in the eastern County should facilitate some withdrawals.
The model results suggest a need for additional supplies or reductions in demand from conservation in northeastern Sumter County to avoid potential impacts to environmental features. The recent SWFWMD WUP[27] contained a condition requiring the Villages to plan for alternative or non-local groundwater supplies if unacceptable adverse impacts are observed.

In conjunction with increased monitoring and data collection, possible water supply options for the Villages area include additional demand reduction, dispersal of projected groundwater use, increased use of reclaimed water, and alternative water supplies. The Villages' recent acquisition of additional reclaimed water supplies from utilities in Marion and Lake Counties is an example of an effort to manage water resources through alternative water supply development. A groundwater dispersal option for potable supply is discussed in more detail as a conceptual wellfield project in Chapter 6.

3.10.4 Marion County

The potential effects of projected 2030 groundwater withdrawals in Marion County are difficult to interpret, but moderate UFA drawdown is projected in southern Marion County if unadjusted water demand continues to be met with local groundwater. Projected drawdown may be capable of causing environmental harm to wetlands and lakes in the unconfined UFA and the SA in southern and central Marion County.

The location, magnitude and extents of drawdown are difficult to identify and additional data collection, monitoring and model updates will be required to refine the interpretation of groundwater flow model results in Marion County. The presence of the SA in east-central Marion County and perched wetlands and lakes throughout the county should facilitate some withdrawals.

The model results suggest a need for reductions in demand from conservation and increased beneficial reuse in Marion County to avoid drawdown levels that may affect environmental features. The recent SJRWMD CUP[28] contained a condition requiring Ocala to plan for alternative or non-local groundwater supplies by 2013, with implementation beginning in 2027.

[27] SWFWMD WUP No. 20013005
[28] SJRWMD CUP No. 50324.

In conjunction with increased monitoring and data collection, possible water supply options in Marion County include additional conservation, dispersal of projected groundwater use, and increased use of reclaimed water.

3.10.5 Lower Floridan Aquifer

As previously indicated, this region contains both the UFA and LFA which is separated by a MCU 1 from Miller (1986). The hydraulic characteristics and spatial extent of both MCU 1 and the LFA are poorly understood in the region. However, the LFA has been developed successfully as a water supply source both within the WRWSA region at the Villages and elsewhere in the SJRWMD. Where adequate confinement and water quality are present, the LFA may provide a local water source that is not anticipated in this assessment.

Additional hydrogeologic data collection is underway in the region to improve the understanding of the supply potential of the LFA. The SWFWMD and City of Wildwood are collaborating on a test well to assess the viability of the LFA to serve the City of Wildwood. The City of Ocala is planning a LFA test well in response to a permit requirement seeking alternative or additional non-local supplies. As this report was being completed, preliminary results from LFA tests near the Cities of Wildwood and Bushnell were received which suggest that the LFA may offer adequate confinement and water quality to be a significant potable water supply for these cities.

The interpretation of groundwater resources in this chapter is predicated on the assumption that the LFA does not offer adequate confinement and water quality to be a significant water supply for member governments. Confirmed results from the test wells may alter the interpretation of this assessment and should be closely monitored by the SJRWMD, SWFWMD, and WRWSA.

3.11 Groundwater Resource Assessment Summary

The ND and NCF regional groundwater model results predict the potential effect of projected 2030 increases in water use on the Upper Floridan and SAS in the WRWSA. The model results are based on unadjusted water demand using the population projections discussed in Chapter 1. They assume that future water demands will continue to be served by groundwater withdrawn from current extraction locations at current levels of water conservation. [29]

Groundwater appears to be viable to serve future water demand to 2030 in Citrus County. Cumulative drawdown impacts in the UFA will be small (less than 0.5 ft), and cumulative reductions in springflow at Homosassa, Chassahowitkza, and Crystal River are projected to be minimal (less than 3%), which is below the proxy MFLs developed by the WRWSA.

In Hernando County, future water demand in 2030 could lead to restrictions on groundwater withdrawals in the Spring Hill area if unadjusted demands continue to be met with local groundwater. In southwestern Hernando County, cumulative drawdown impacts to the unconfined UFA (> 1.0 foot) will be capable of adversely impacting lakes and wetlands, although perched water features along the Brooksville Ridge should allow some withdrawals there. The MFL for Weekiwachee spring has been adopted by the SWFWMD and may limit future groundwater supplies in the Weekiwachee springshed.

[29] Actual groundwater demand in the future will vary based on a variety of additional factors, including the actual rate of population growth.

Possible supply options in Hernando County include additional conservation, increases in beneficial reuse supply, and dispersal of projected groundwater uses to other areas of Hernando County. Additional groundwater withdrawals to the north or east of the Spring Hill area appear viable in 2030.

The potential effects of projected 2030 groundwater withdrawals in Sumter County are difficult to assess, but suggest a need for additional supplies or reductions in demand from conservation in northeastern Sumter County to avoid potential impacts to environmental features. Projected cumulative drawdown impacts to the unconfined UFA (> 1.0 foot) in Sumter County based on unadjusted demands, if they materialize, have the potential to adverse impact lakes and wetlands, though the presence of the SA in east-central Sumter County and semi-confinement of water features in the eastern County should facilitate some withdrawals. A proxy MFL for Gum Springs has been developed by the WRWSA, and the adoption of the Gum Springs MFL in 2010 may affect estimates of groundwater supply in Sumter County. Additional hydrogeologic data collection, monitoring, and analysis are warranted in this area.

Possible water supply options for the Villages area include additional conservation, dispersal of projected groundwater use, and increased use of reclaimed water and alternative water supplies.

The potential effects of projected 2030 groundwater withdrawals in Marion County are difficult to assess, but suggest a possible need for additional beneficial reuse or reductions in demand from conservation to prevent drawdown levels that may be capable of affecting environmental features. Projected cumulative reductions in springflow in Marion County at Rainbow, Silver, and Silver Glen are projected to be moderate (less than 10%), which is below the planning thresholds used by the SWFWMD and SJRWMD. The adoption of the Rainbow Springs MFL in 2010, the Silver Springs MFL in 2011, and the Silver Glen Springs MFL in 2013 may affect estimates of groundwater supply in Marion County. Additional hydrogeologic data collection, monitoring, model updates, and analysis are warranted in this area.

Generally, increased groundwater withdrawals can affect the hydrology and ecology of lakes, wetlands, springs, and other water features. The ND and NCF regional models analyze regional groundwater conditions and do not provide detailed, regulatory-level investigation of impacts to groundwater conditions in localized areas. Additional field data collection and model updates in Sumter and Marion Counties may affect the results included in these simulations. Refinements to the ND and NCF Models and additional data collection are planned in the future by the SWFWMD, SJRWMD and WRWSA to improve confidence in the model predictions included in this report.

Member government requests for water withdrawals must address the potential for impacts at a more local scale than that in this chapter. Future requests for water withdrawals will require further analysis and will be assessed by the applicable SWFWMD or SJRWMD regulatory program for compliance with water use permitting criteria, including requirements to utilize feasible lower quality sources and reduce demand through conservation.

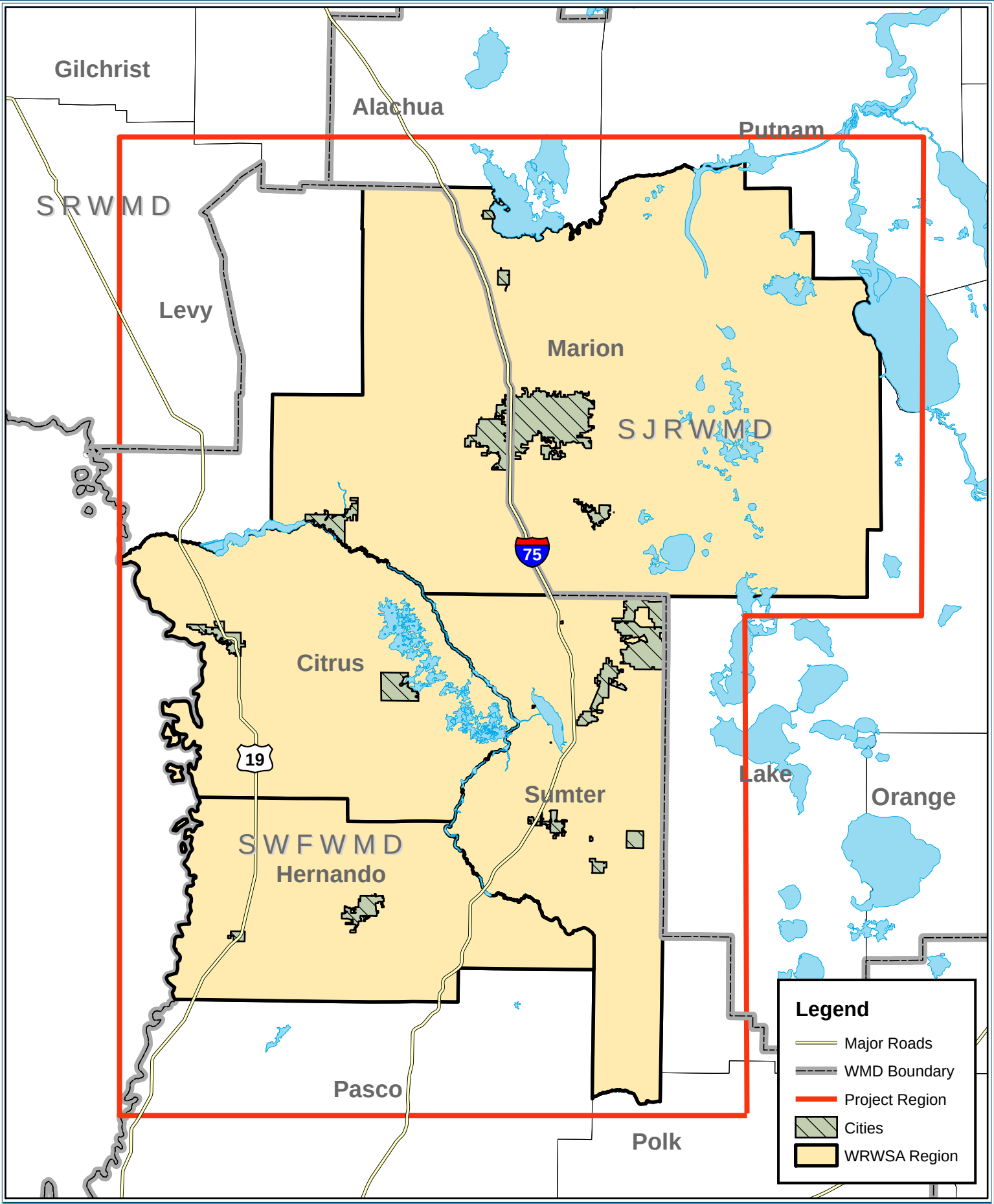

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FIGURE 3-1
WRWSA AND VICINITY

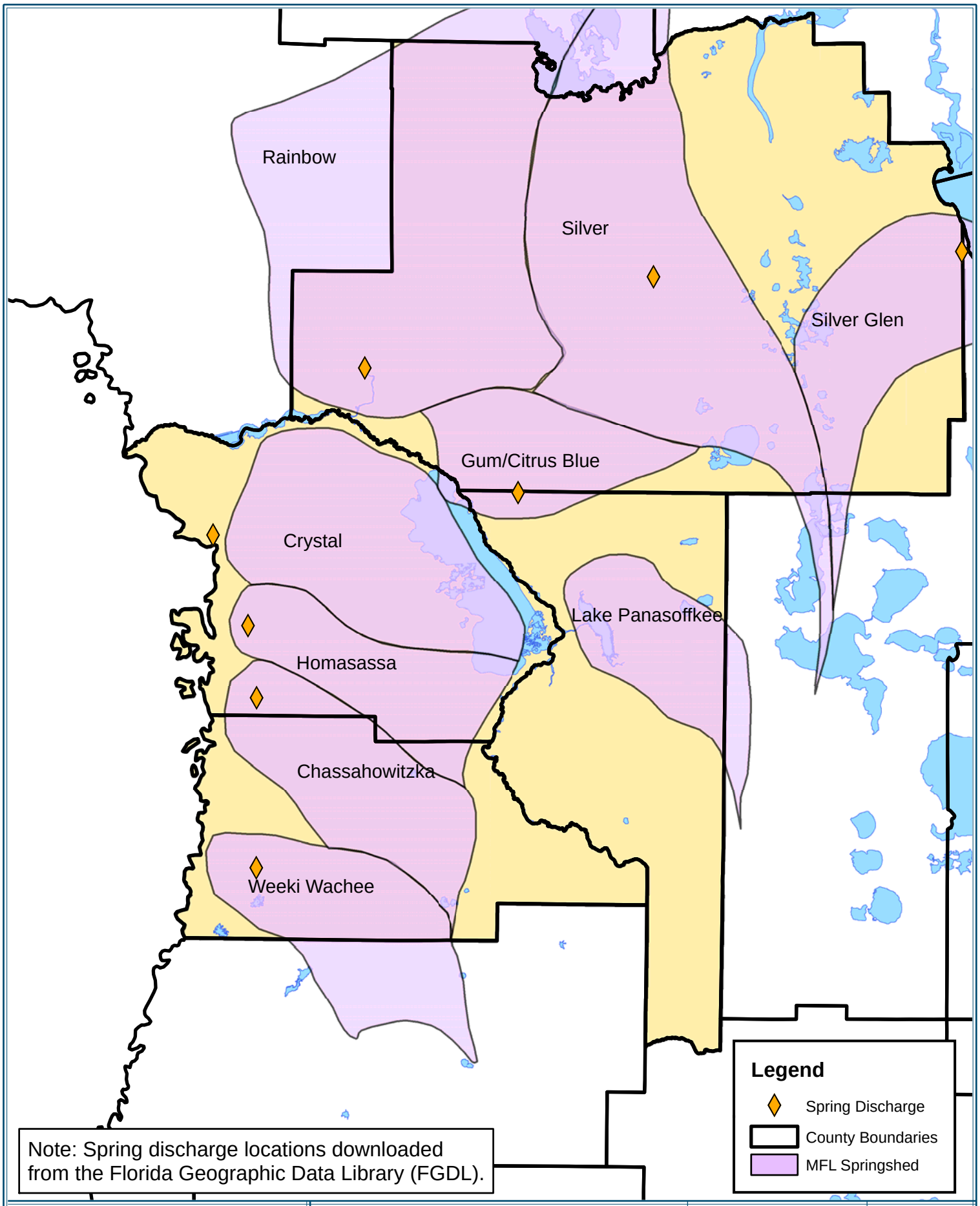
ORIGINAL DATE: 12-03-09
REVISION DATE: NA
JOB NUMBER: 0468
FILE NAME: Figure 4-1.mxd
GIS OPERATOR: DR

N W E S

1 inch equals 11 miles

<table>
<tr><th colspan="2" rowspan="2">Series/Stage</th><th rowspan="2">Formation</th><th colspan="3">Aquifers</th></tr>
<tr><th>East-central Florida</th><th>West-central Florida</th><th>Southwest Florida</th></tr>
<tr><td colspan="2">Pleistocene to Pliocene</td><td>Undifferentiated</td><td colspan="3">Surficial Aquifer (Where Present)</td></tr>
<tr><td colspan="2" rowspan="2">Miocene</td><td>Hawthorn</td><td colspan="3">Intermediate Confining Unit (Where Present)</td></tr>
<tr><td>Tampa Limestone (where permeable)</td><td colspan="3" rowspan="4">Upper Floridan</td></tr>
<tr><td colspan="2">Oligocene</td><td>Suwanne Limestone</td></tr>
<tr><td rowspan="3">Eocene</td><td>Upper</td><td>Upper</td></tr>
<tr><td rowspan="2">Middle</td><td rowspan="2">Avon Park Formation</td><td>Middle semiconfining unit</td><td colspan="2">Middle confining unit</td></tr>
<tr><td>Lower</td><td>Oldsmar Formation</td><td colspan="3" rowspan="2">Lower Floridan</td></tr>
<tr><td colspan="2" rowspan="2">Paleocene</td><td rowspan="2">Cedar Keys Formation</td></tr>
<tr><td colspan="3">Lower Confining Unit</td></tr>
</table>

Figure 3-2. Project Region Hydrostratigraphic Interpretation (Adapted from Johnson and Bush, 1988)



Note: Spring discharge locations downloaded from the Florida Geographic Data Library (FGDL).

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FIGURE 3-3
APPROXIMATE MFL PRIORITY SPRINGSHEDS IN WRWSA

ORIGINAL DATE: 10-28-09
REVISION DATE:
JOB NUMBER: 0468
FILE NAME: Springshed.mxd
GIS OPERATOR: DR

N W E S
1 inch equals 10 miles

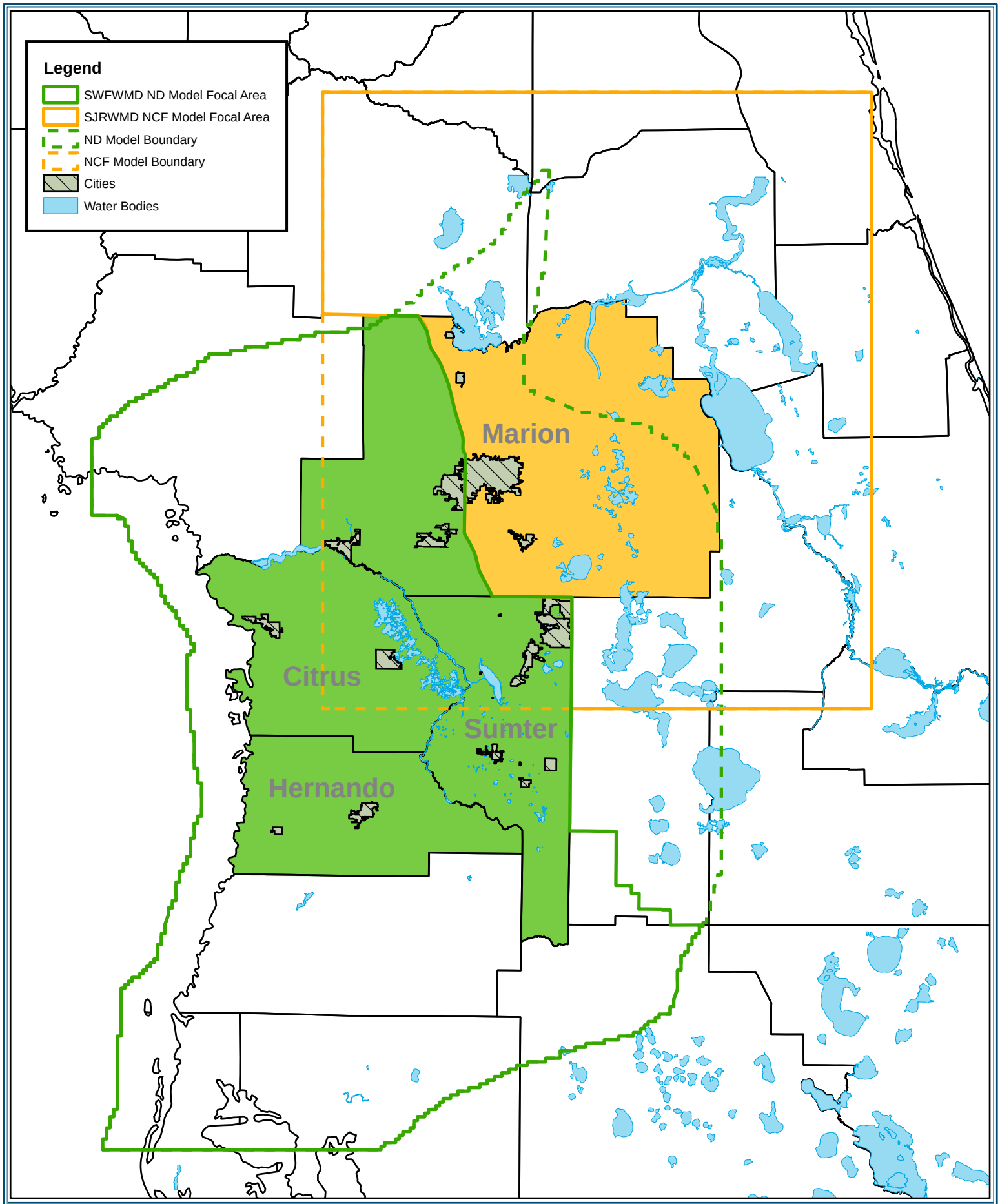

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FIGURE 3-4
WRWSA UTILIZATION OF GROUNDWATER FLOW MODELS

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REVISION DATE: NA
JOB NUMBER: 0468
FILE NAME: Figure 3-4.mxd
GIS OPERATOR: DR

N W E S

1 inch equals 16 miles

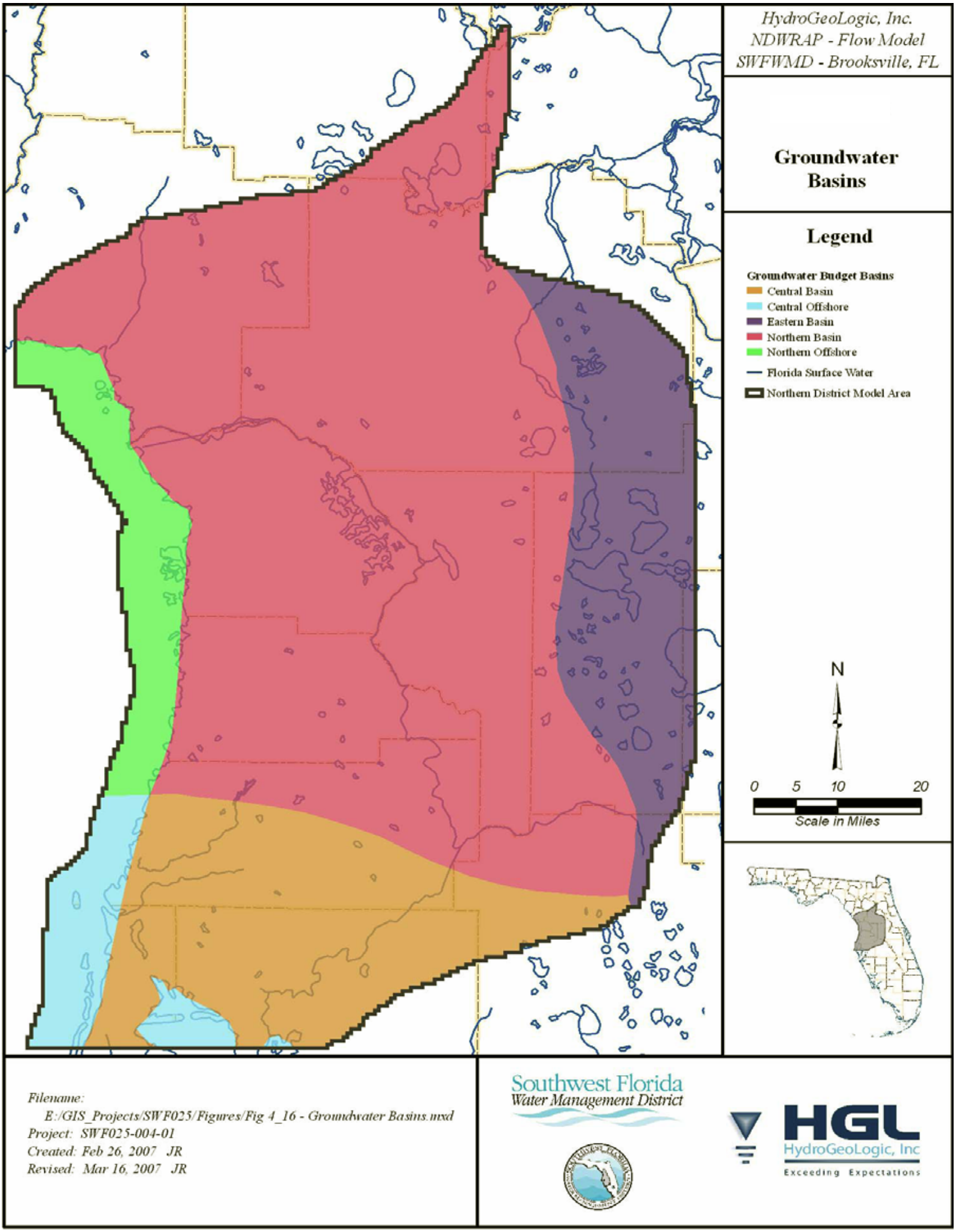

Figure 3-5. ND Model Groundwater Basins (Hydrogeologic, 2008)

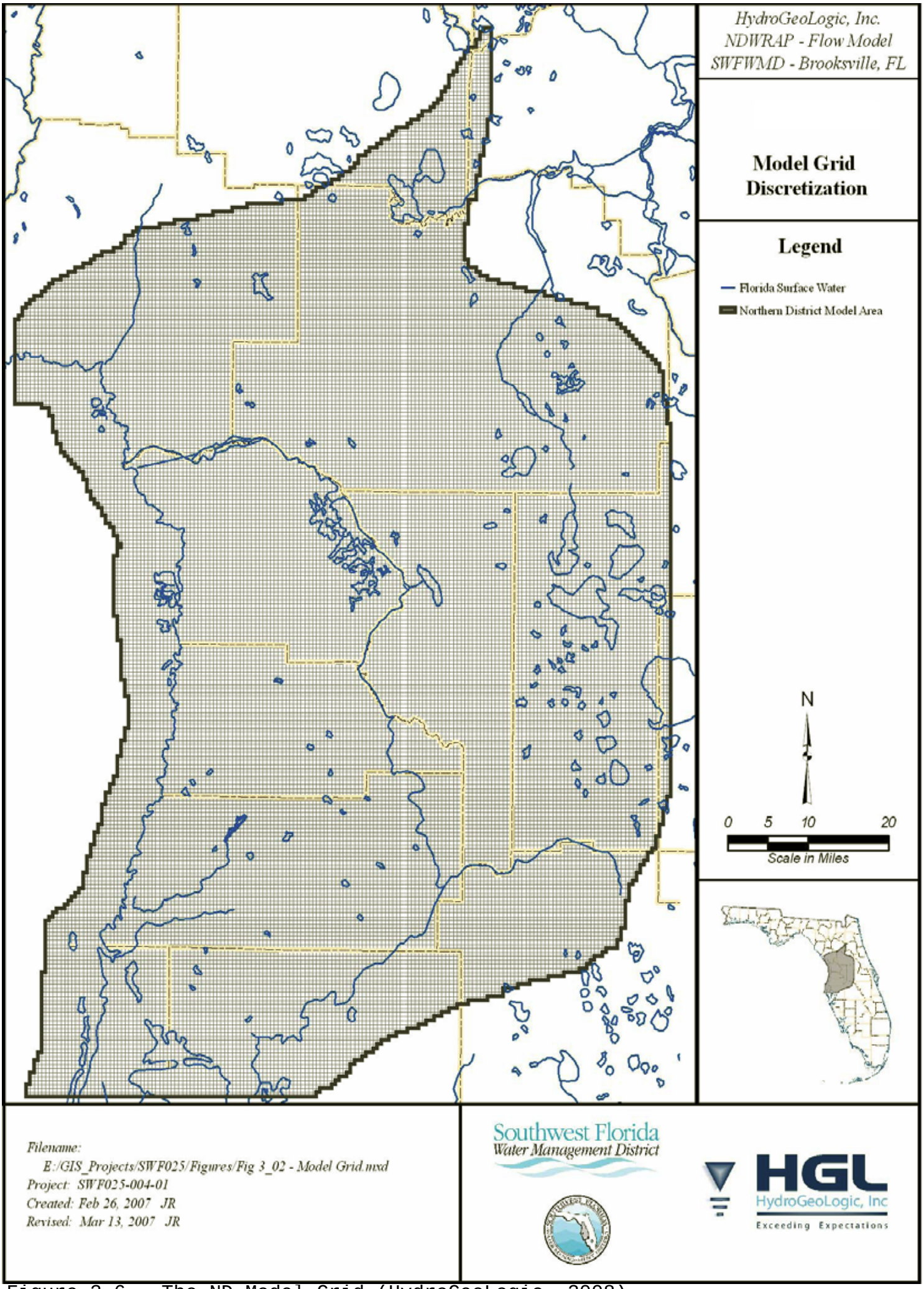

Figure 3-6. The ND Model Grid (HydroGeoLogic, 2008)

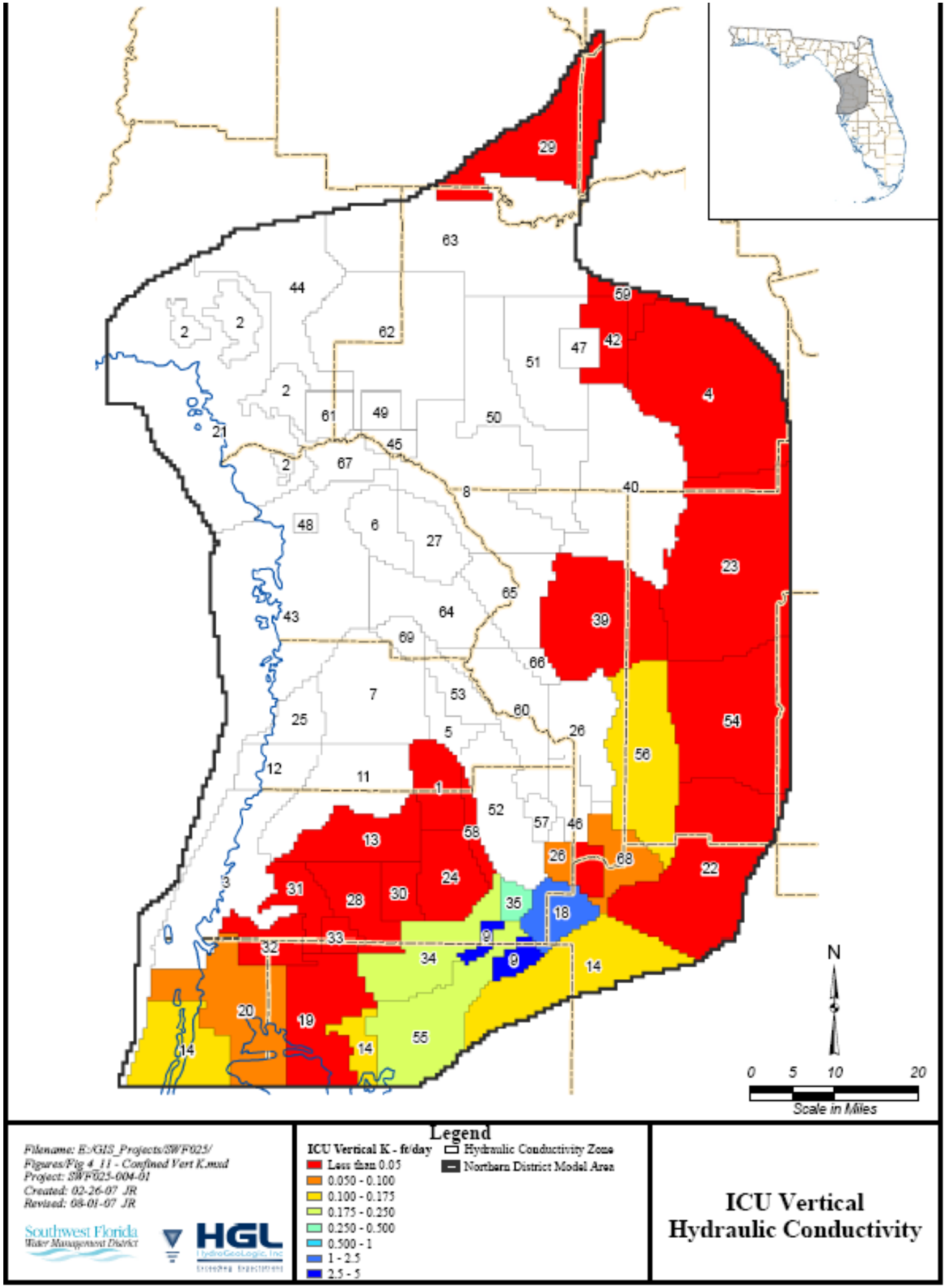

Figure 3-7. ICU Distribution in the ND Model (HydroGeoLogic, 2008)

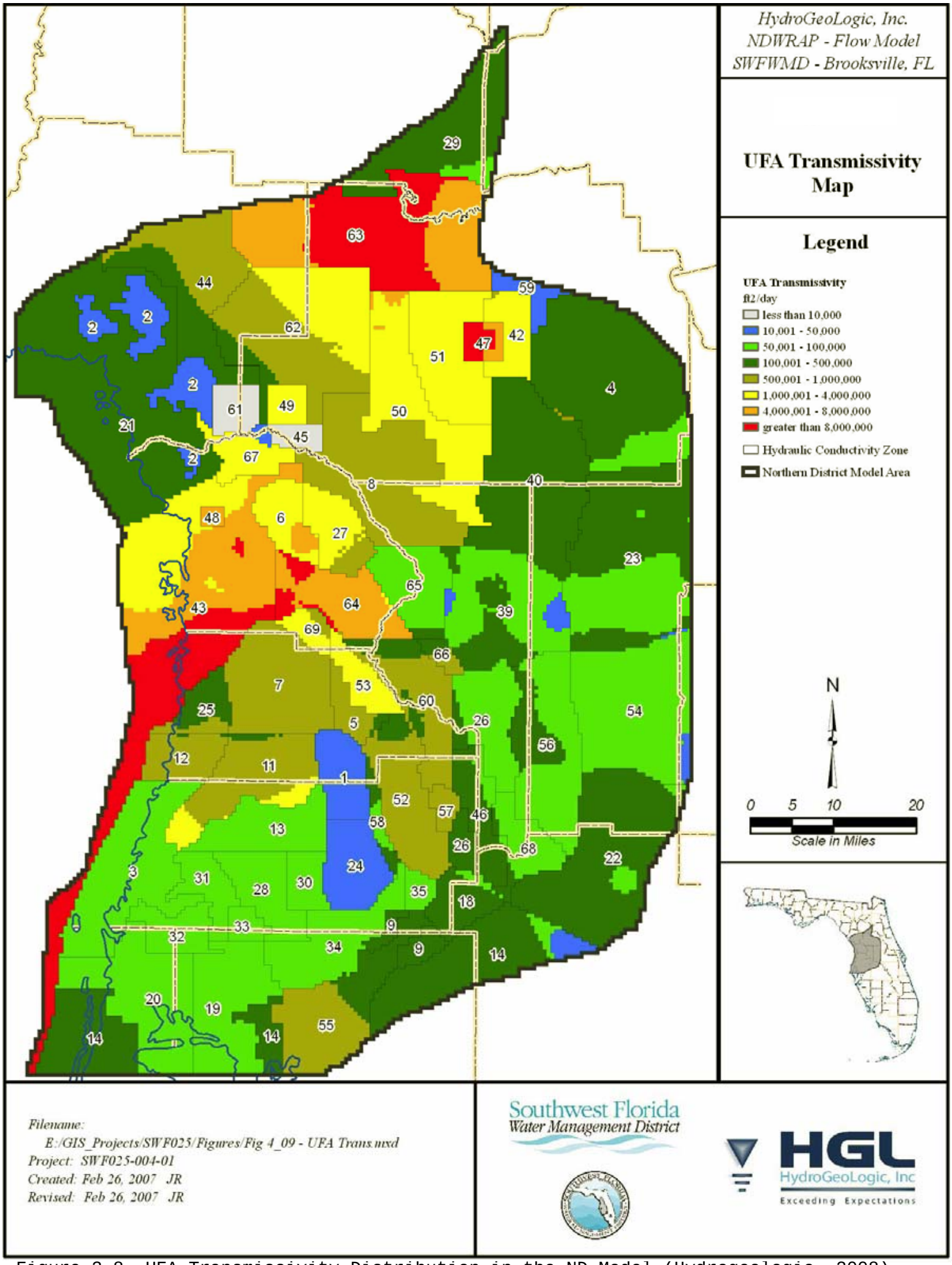

Figure 3-8. UFA Transmissivity Distribution in the ND Model (Hydrogeologic, 2008)

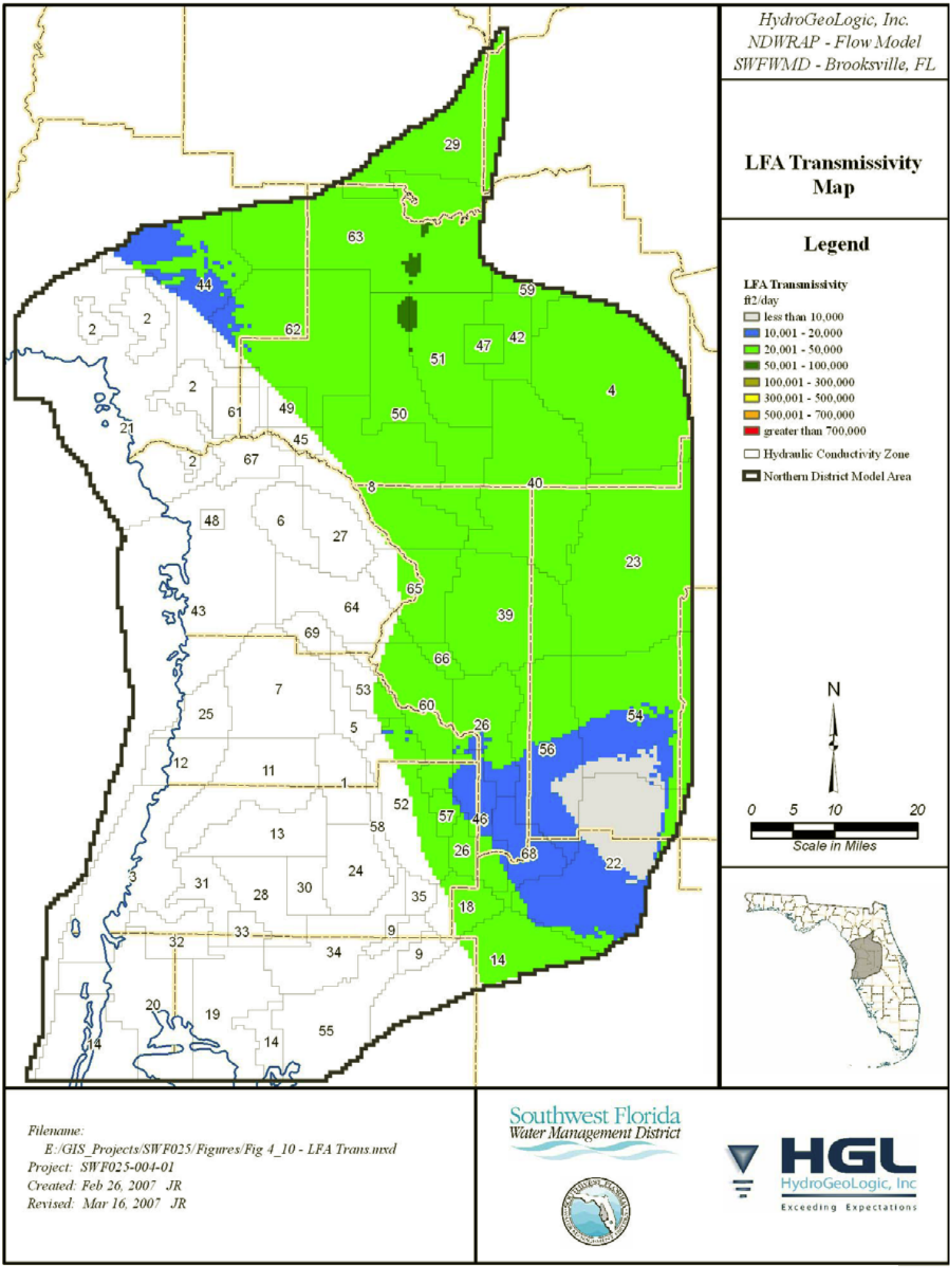

Figure 3-9. LFA Transmissivity Distribution in the ND Model (HydroGeoLogic, 2008)

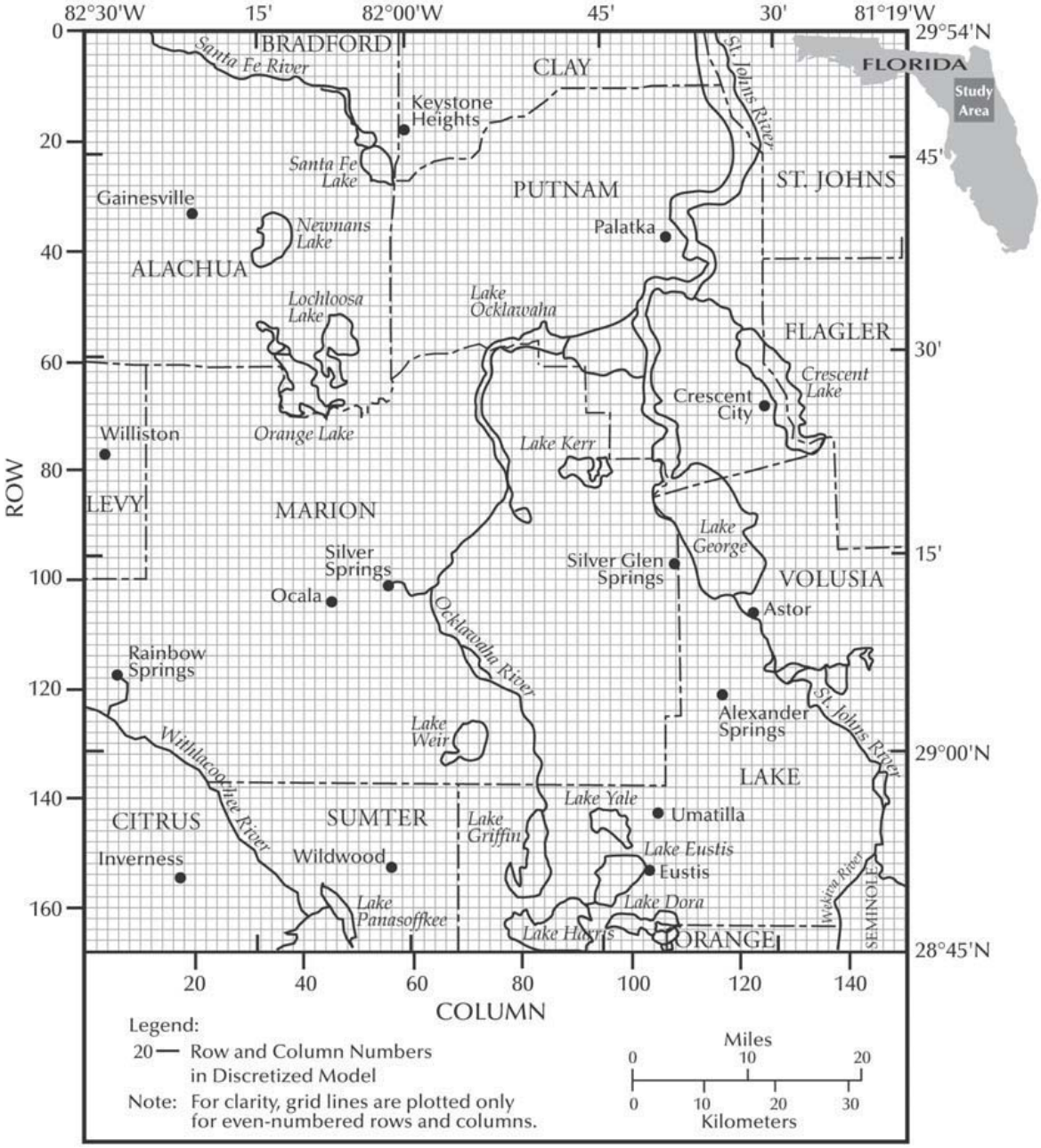

Figure 3-10. The NCF Model Grid (Motz and Dogan, 2004)

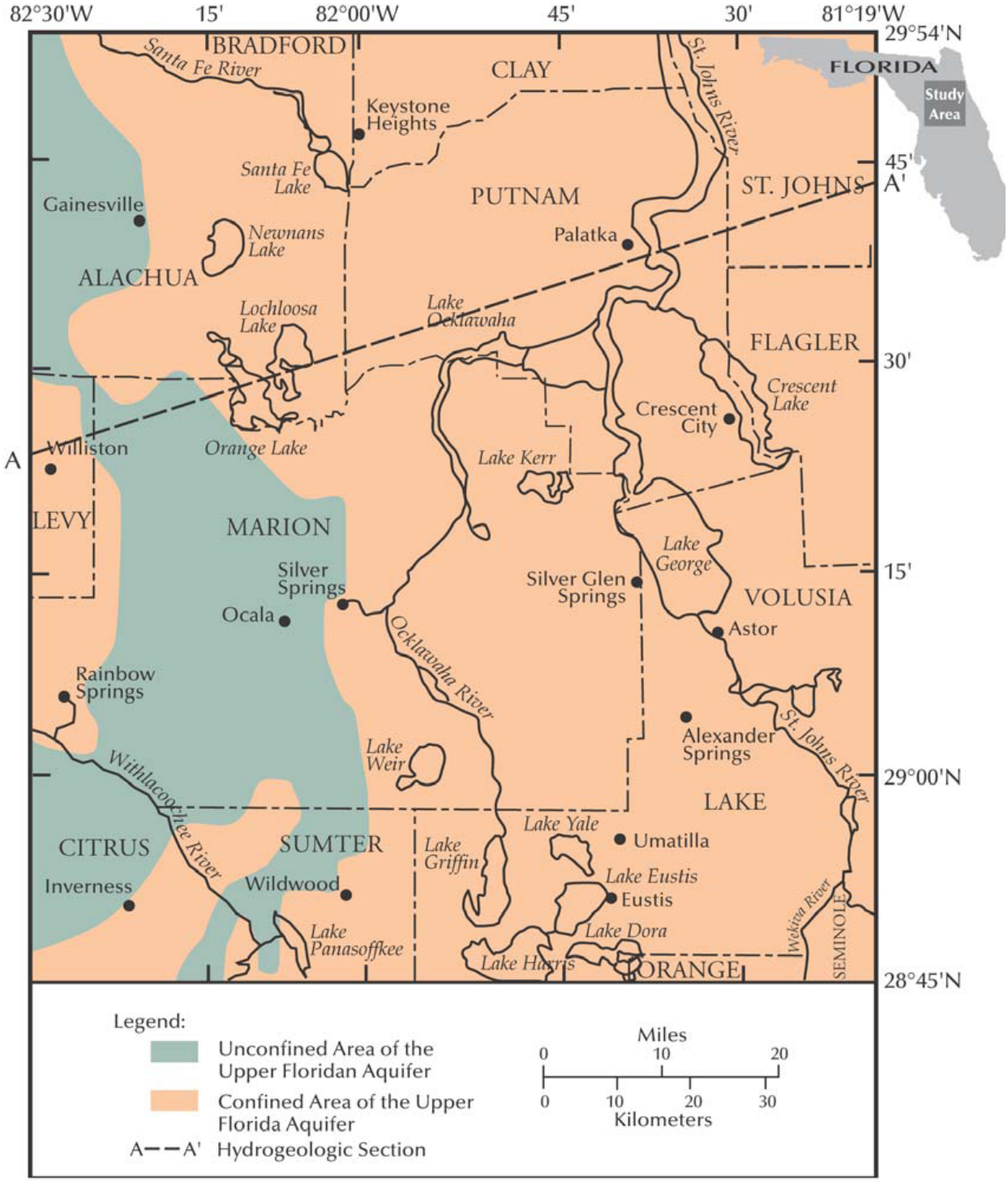

Figure 3-11. Unconfined/Confined Areas in the NCF Model (Motz and Dogan, 2004)

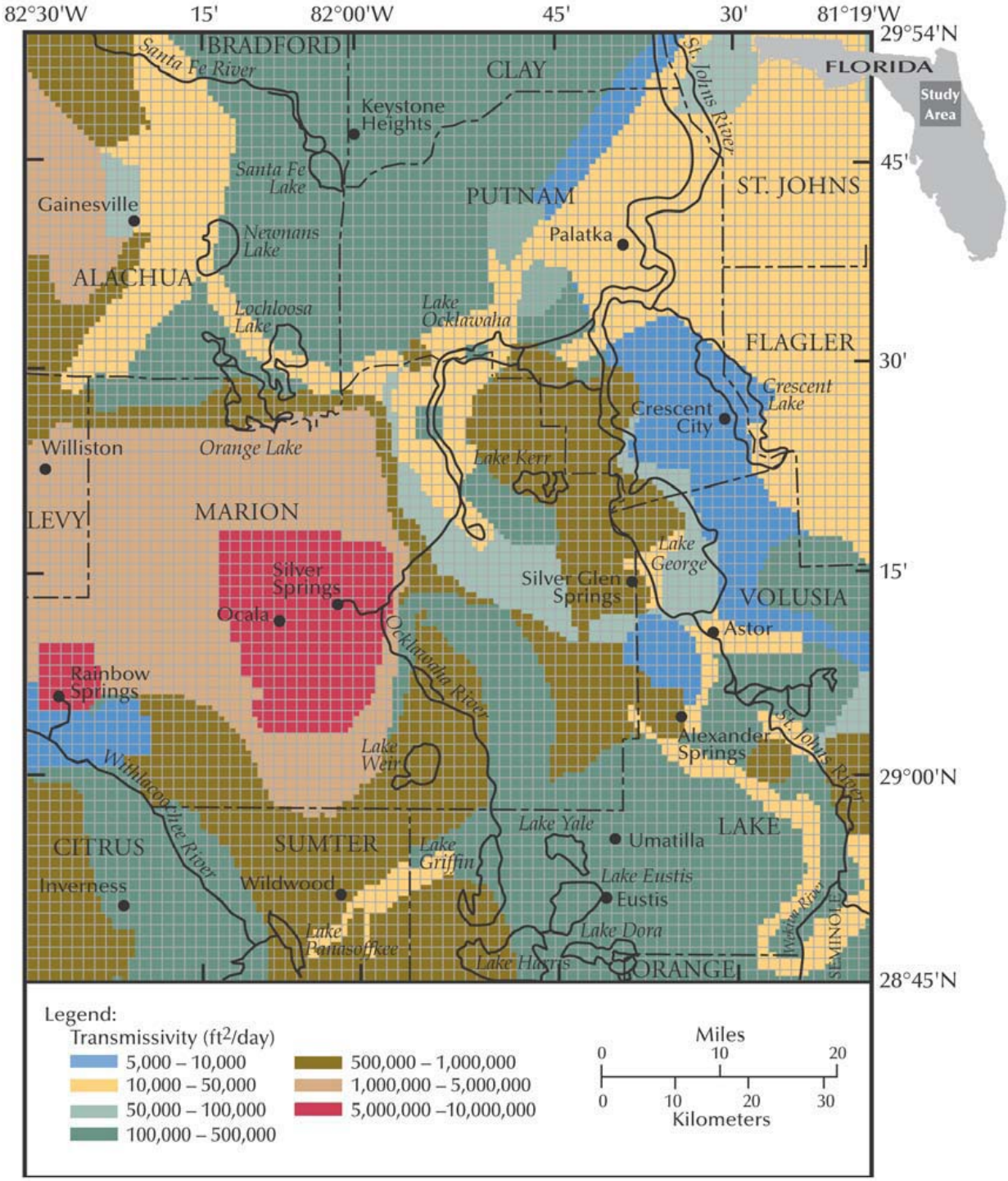

Figure 3-12. UFA Transmissivity in the NCF Model (Motz and Dogan, 2004)

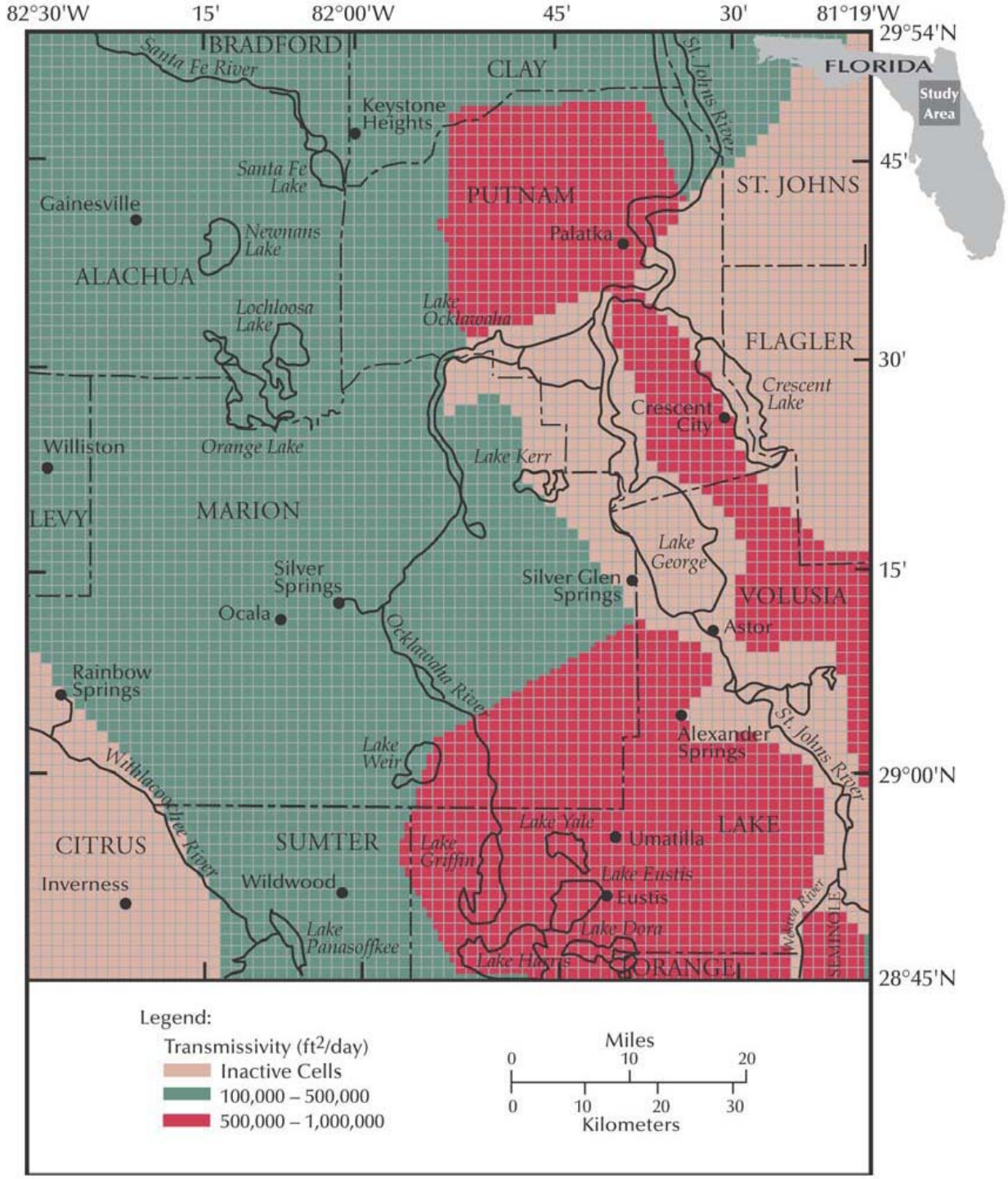

Figure 3-13. LFA Transmissivity in the NCF Model (Motz and Dogan, 2004)

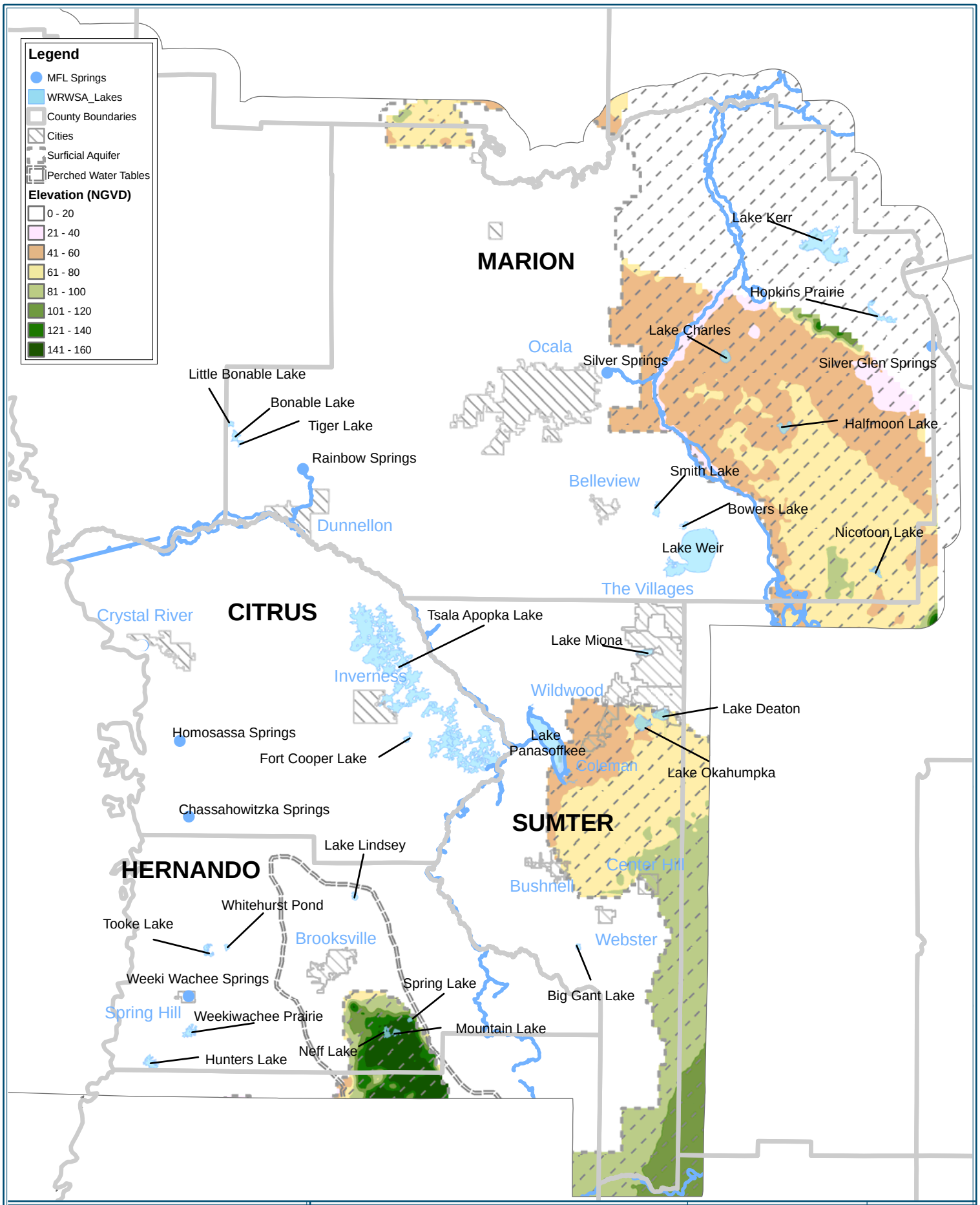

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Figure 3-14
ND Model Potentiometric Surface Distribution at Predevelopment: SA

ORIGINAL DATE: 07-08-08
REVISION DATE: 12-17-09
JOB NUMBER: 0468
FILE NAME: Figure 3-14.mxd
GIS OPERATOR: DR

N W E S
1 Inch = 9.5 Miles

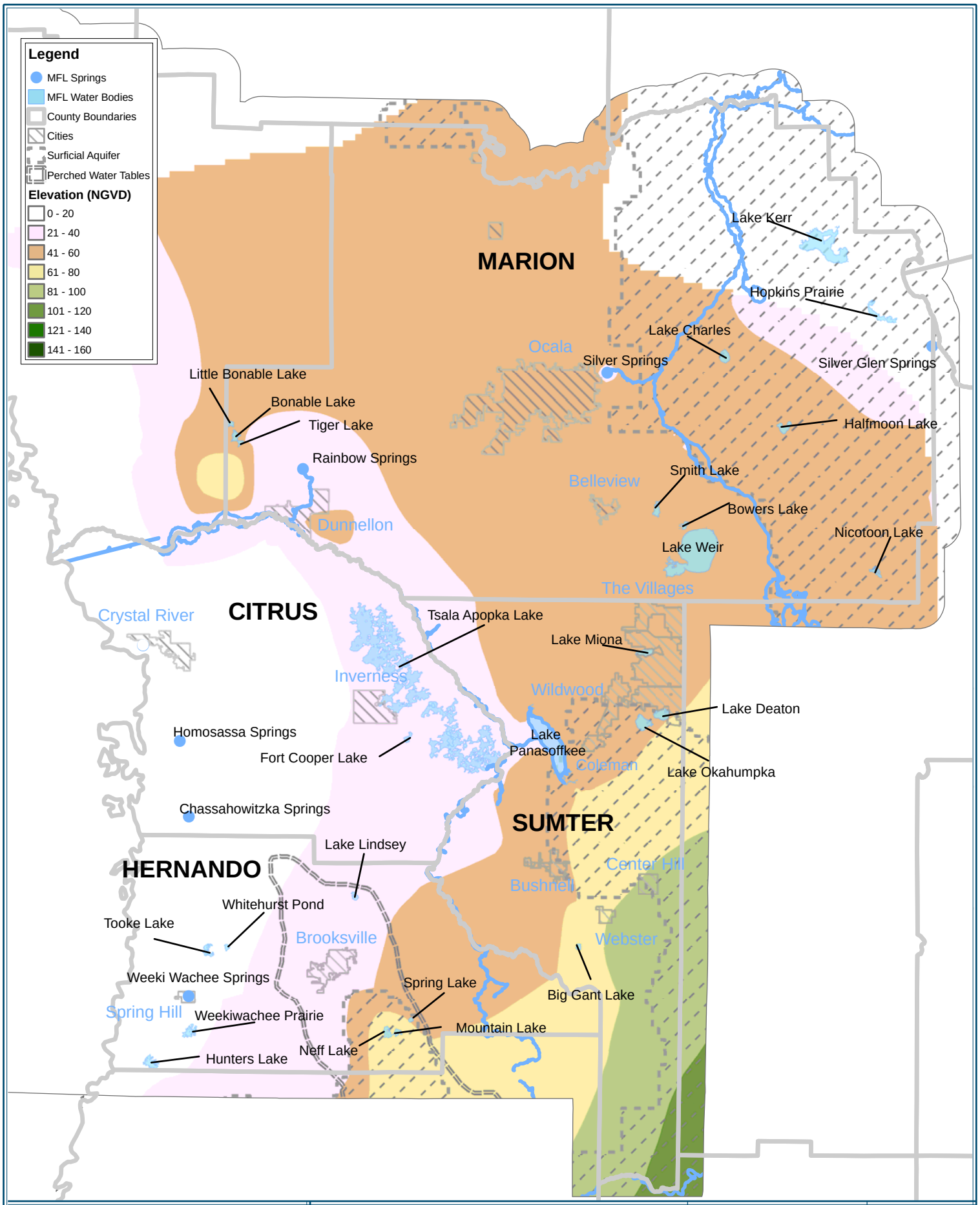

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Figure 3-15
ND Model Potentiometric Surface Distribution at Predevelopment: UFA

ORIGINAL DATE: 07-08-08
REVISION DATE: 12-17-09
JOB NUMBER: 0468
FILE NAME: Figure 3-15.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 9.5 Miles

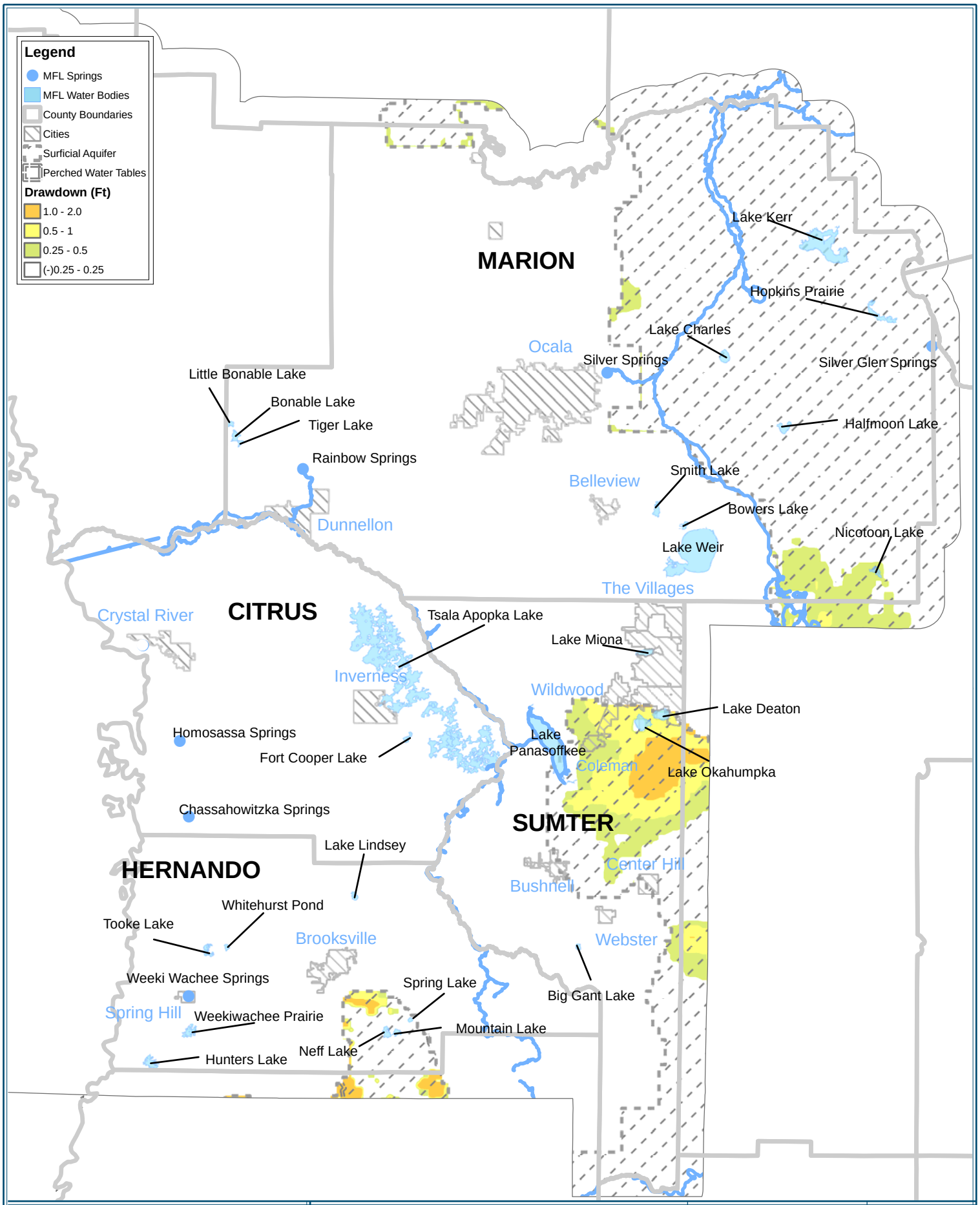

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Figure 3-16
ND Model Cumulative Drawdown Distribution in 2030: Surficial Aquifer, High Withdrawal Simulation

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REVISION DATE: 12-17-09
JOB NUMBER: 0468
FILE NAME: Figure 3-16.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 9.5 Miles

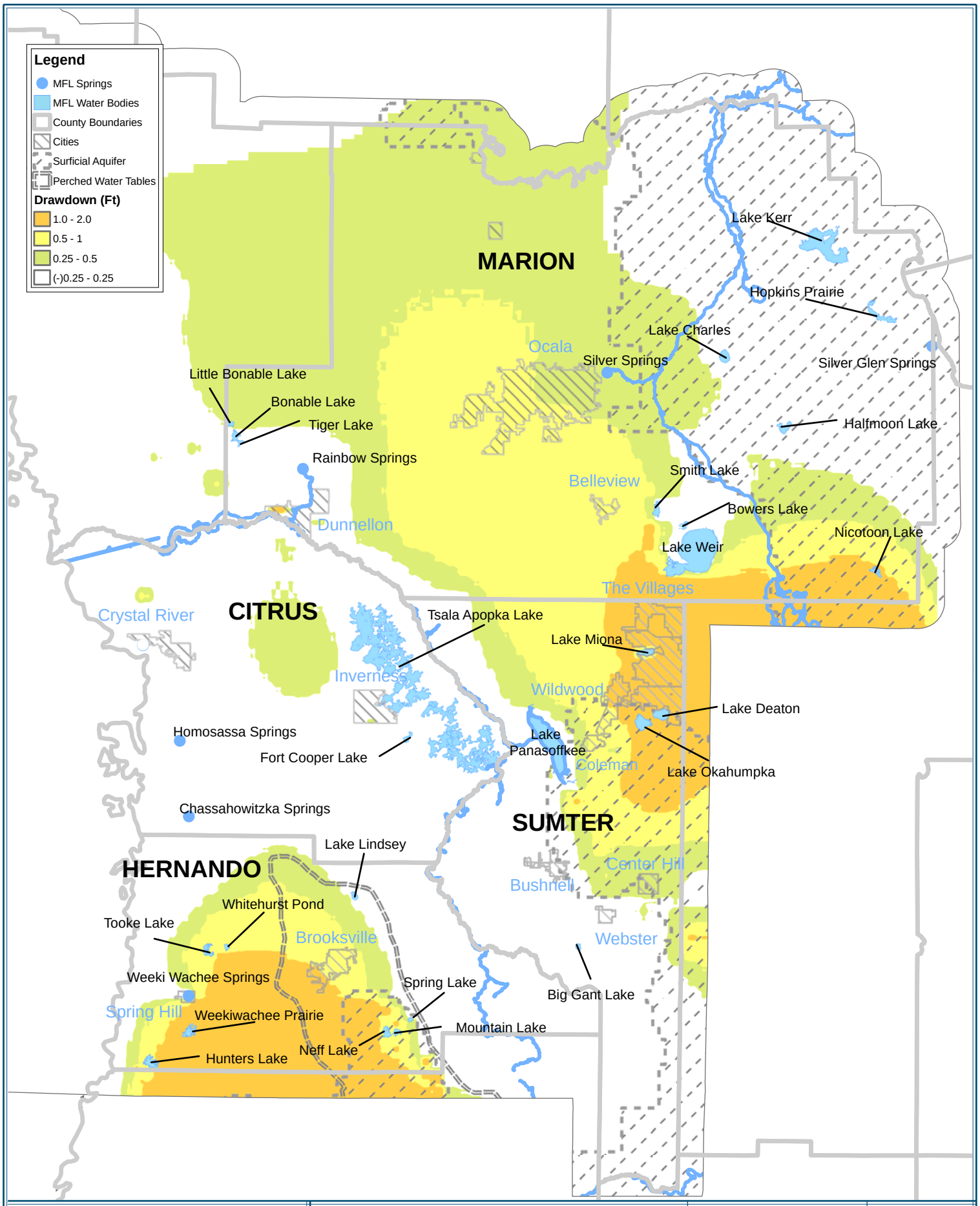

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Figure 3-17
ND Model Cumulative Drawdown Distribution in 2030: Upper Floridan Aquifer, High Withdrawal Simulation

ORIGINAL DATE: 07-08-08
REVISION DATE: 12-17-09
JOB NUMBER: 0468
FILE NAME: Figure 3-17.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 9.5 Miles

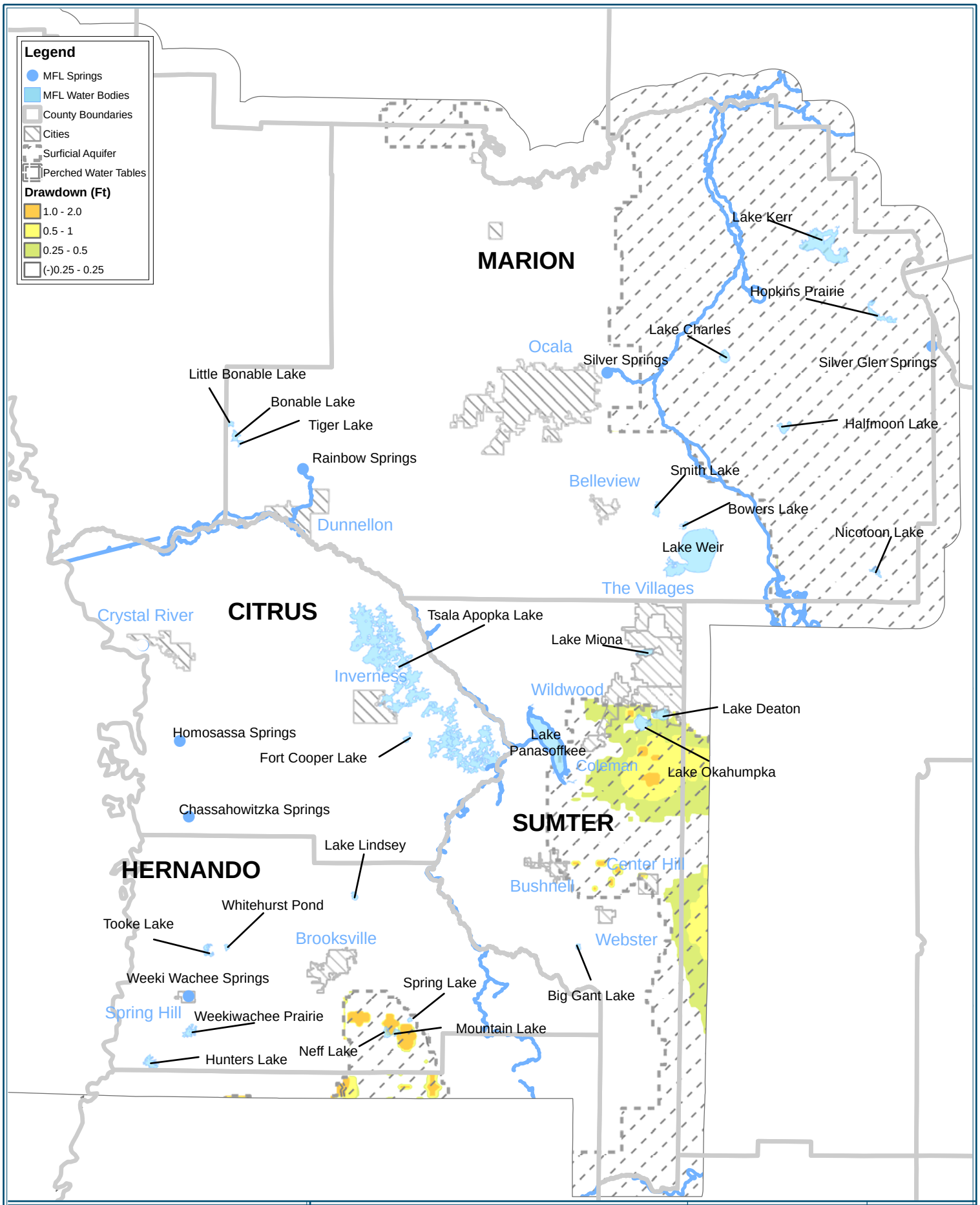

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Figure 3-18
ND Model Cumulative Drawdown Distribution in 2030: Surficial Aquifer, Medium Withdrawal Simulation

ORIGINAL DATE: 07-08-08
REVISION DATE: 12-17-09
JOB NUMBER: 0468
FILE NAME: Figure 3-18.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 9.5 Miles

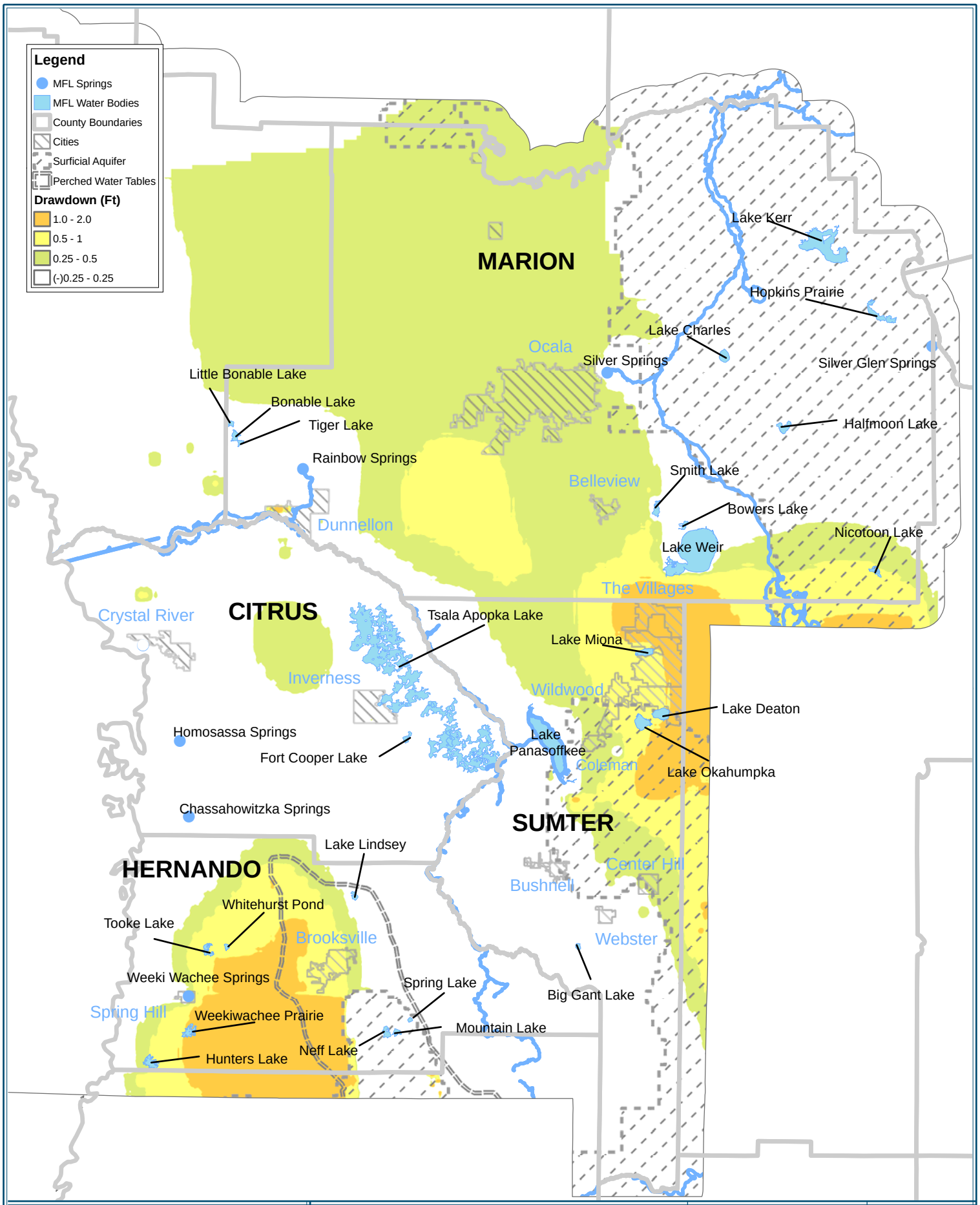

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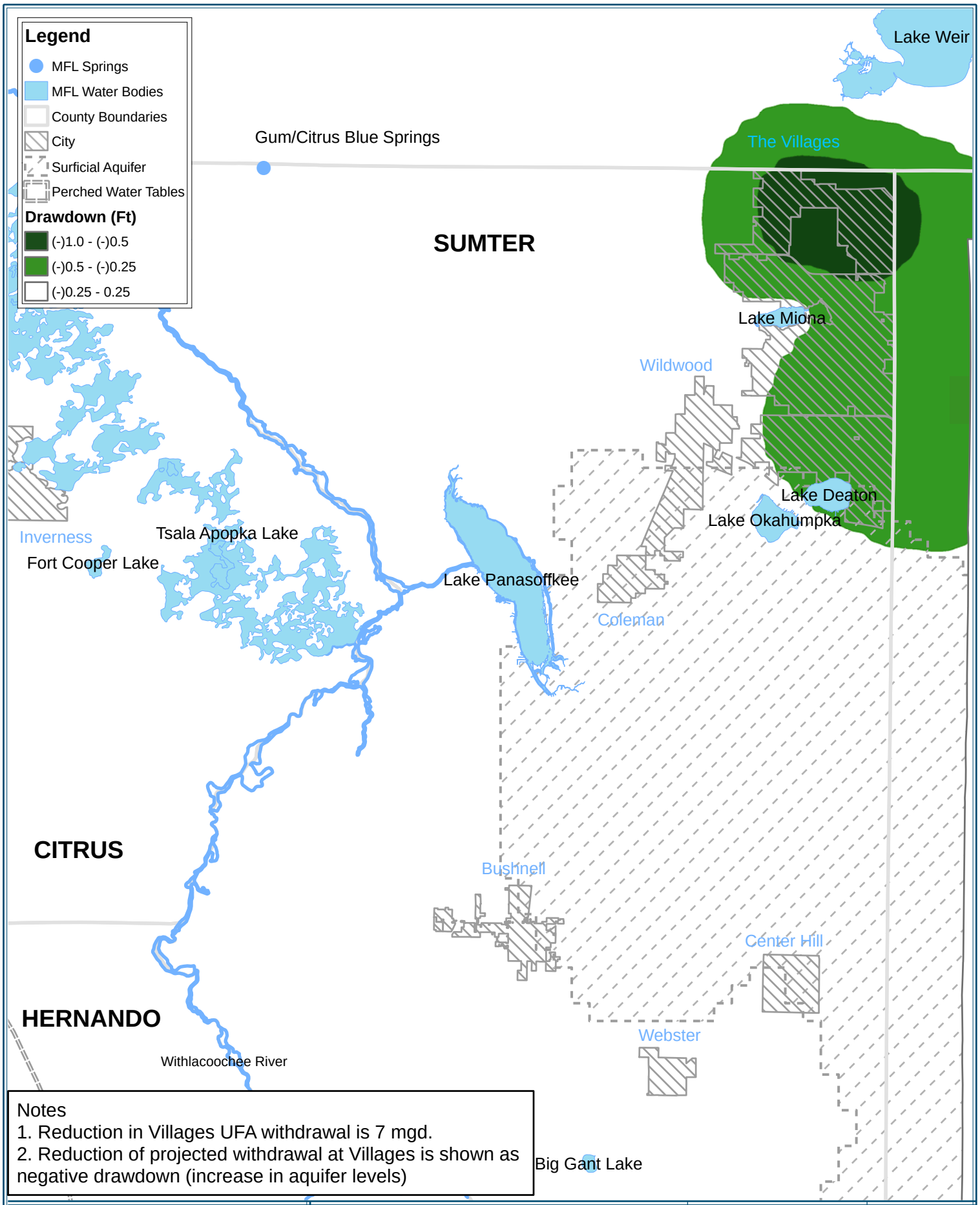
Figure 3-19
ND Model Cumulative Drawdown Distribution in 2030: Upper Floridan Aquifer, Medium Withdrawal Simulation

ORIGINAL DATE: 07-08-08
REVISION DATE: 12-17-09
JOB NUMBER: 0468
FILE NAME: Figure 3-19.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 9.5 Miles



Notes
1. Reduction in Villages UFA withdrawal is 7 mgd.
2. Reduction of projected withdrawal at Villages is shown as negative drawdown (increase in aquifer levels)

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Figure 3-20
ND Model 7 MGD
Sensitivity Analysis UFA Response

ORIGINAL DATE: 06-26-08
REVISION DATE: 12-29-09
JOB NUMBER: 0468
FILE NAME: Figure 3-20.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 4.75 Miles

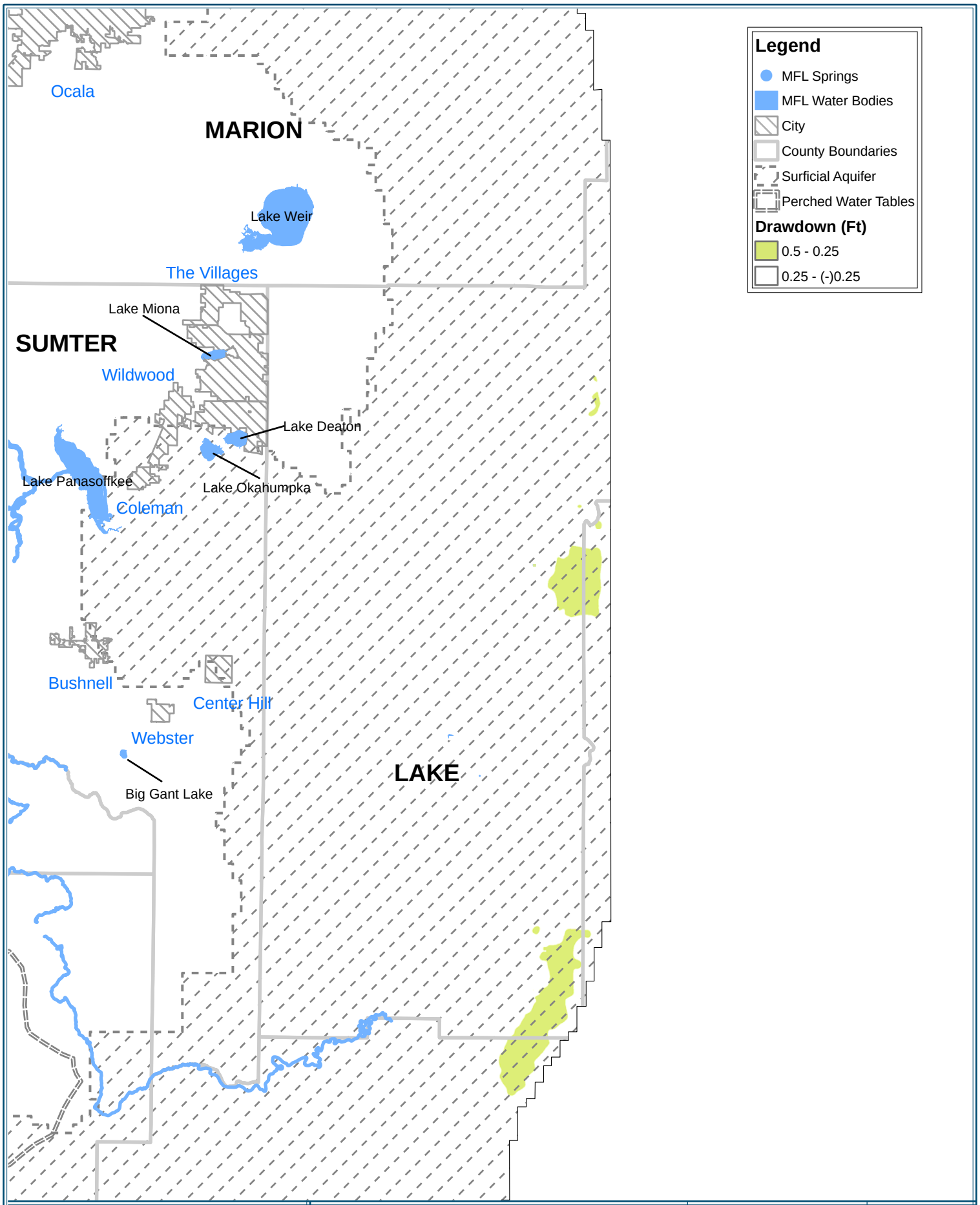

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Figure 3-21
ND Model SA Drawdown Due to Eastern Boundary Condition Withdrawals 1995 - 2013

ORIGINAL DATE: 06-26-08
REVISION DATE: 12-29-09
JOB NUMBER: 0468
FILE NAME: Figure 3-21.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 4.75 Miles

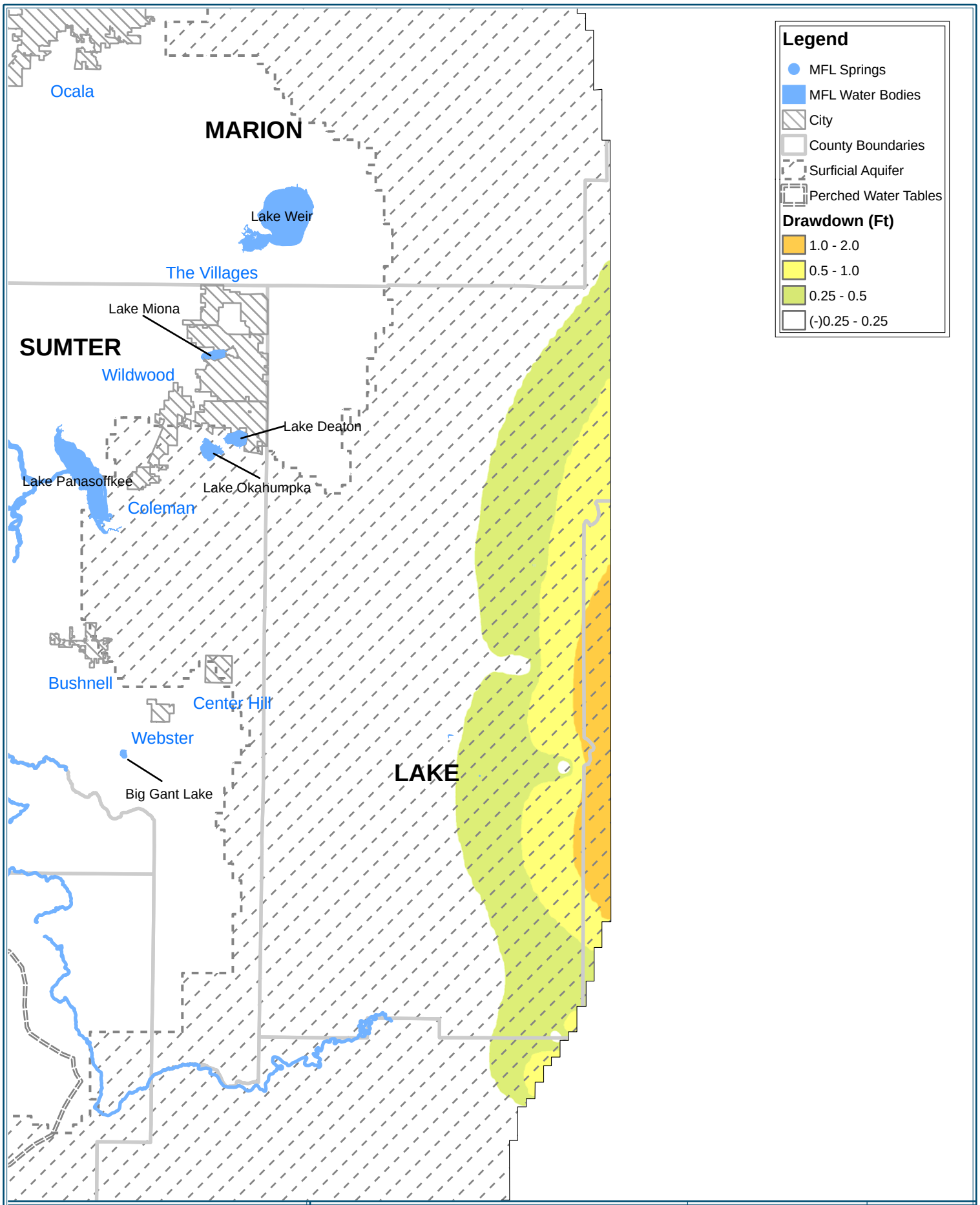

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Figure 3-22
ND Model UFA Drawdown Due to Eastern Boundary Condition Withdrawals 1995 - 2013

ORIGINAL DATE: 06-26-08
REVISION DATE: 12-29-09
JOB NUMBER: 0468
FILE NAME: Figure 3-22.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 4.75 Miles

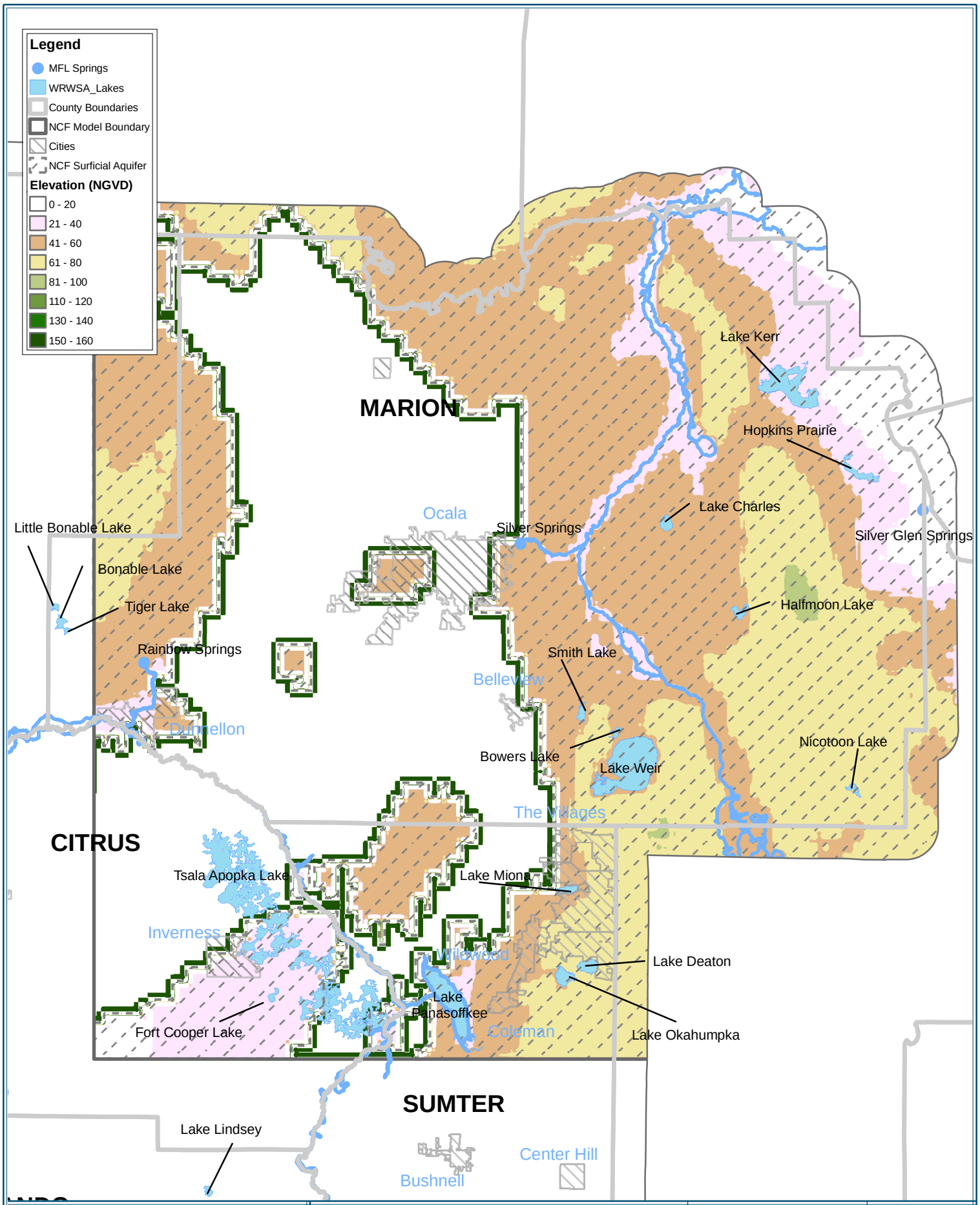

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Figure 3-23
NCF Model Potentiometric Surface Distribution at 1995: SA

ORIGINAL DATE: 07-08-08
REVISION DATE: 12-17-09
JOB NUMBER: 0468
FILE NAME: Figure 3-23.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 9.5 Miles

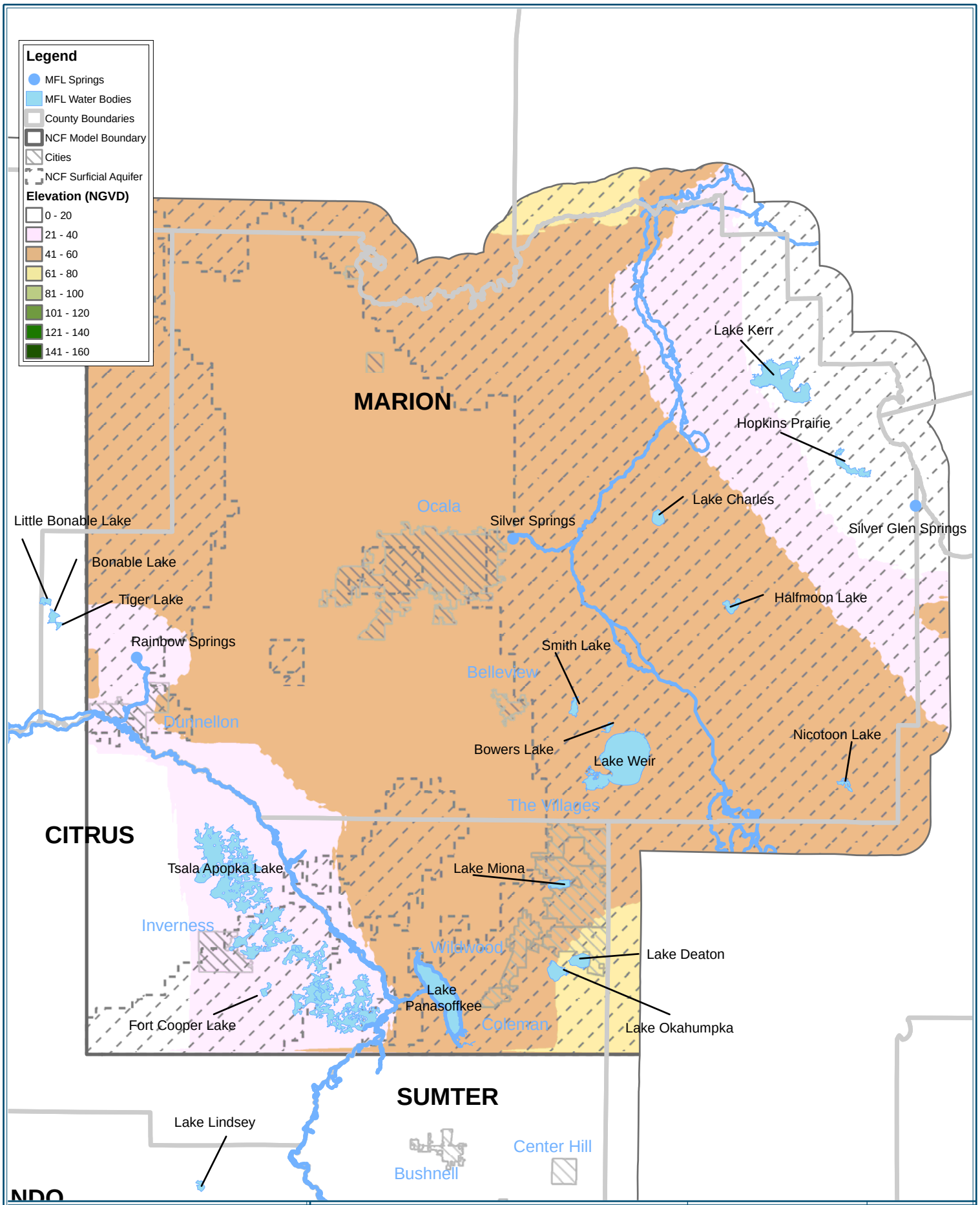

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Figure 3-24
NCF Model Potentiometric Surface Distribution at 1995: UFA

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REVISION DATE: 12-17-09
JOB NUMBER: 0468
FILE NAME: Figure 3-24.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 9.5 Miles

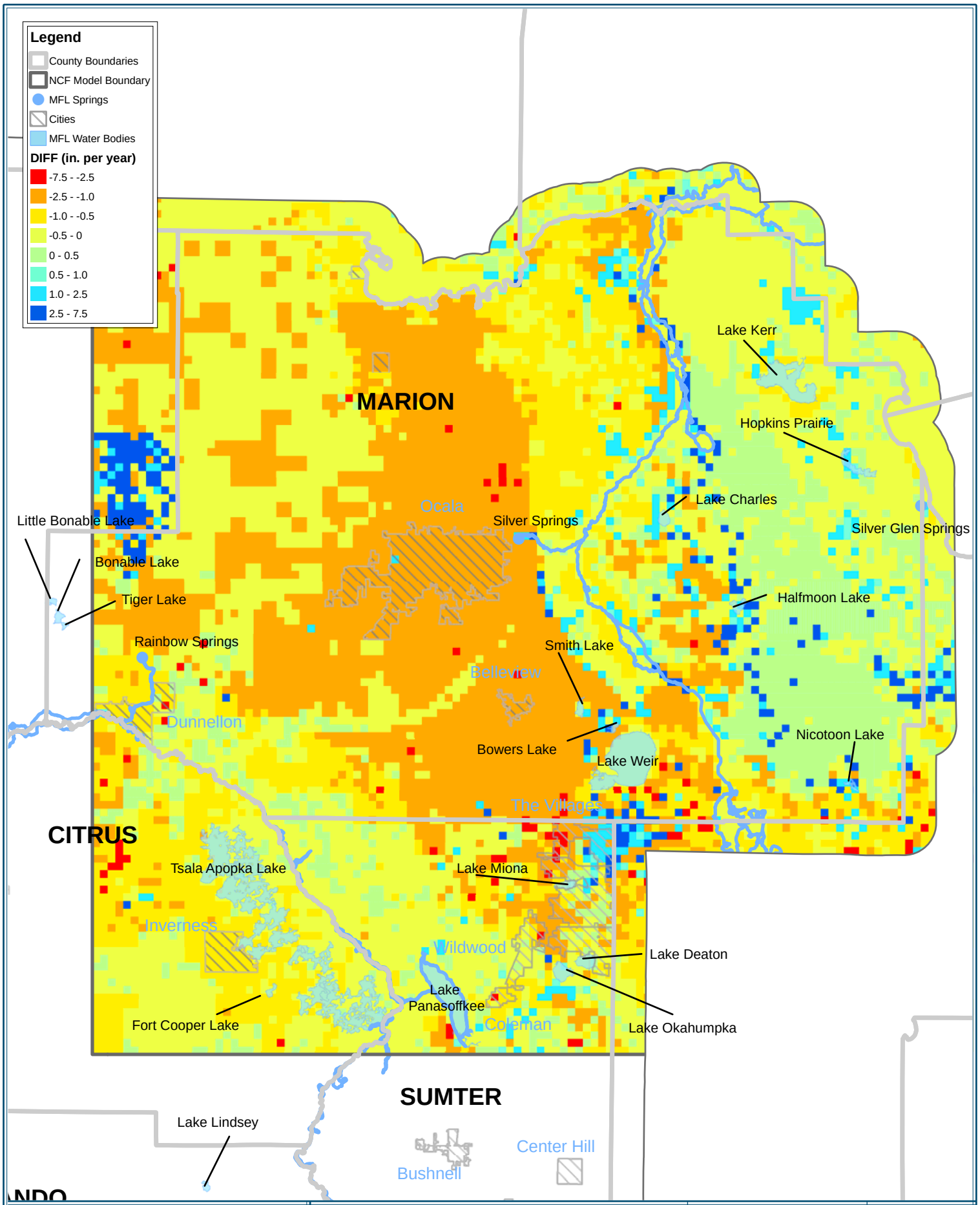

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Figure 3-25
NCF Model Change in Recharge 1995-2030

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REVISION DATE: 12-17-09
JOB NUMBER: 0468
FILE NAME: Figure 3-25.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 7.7 Miles

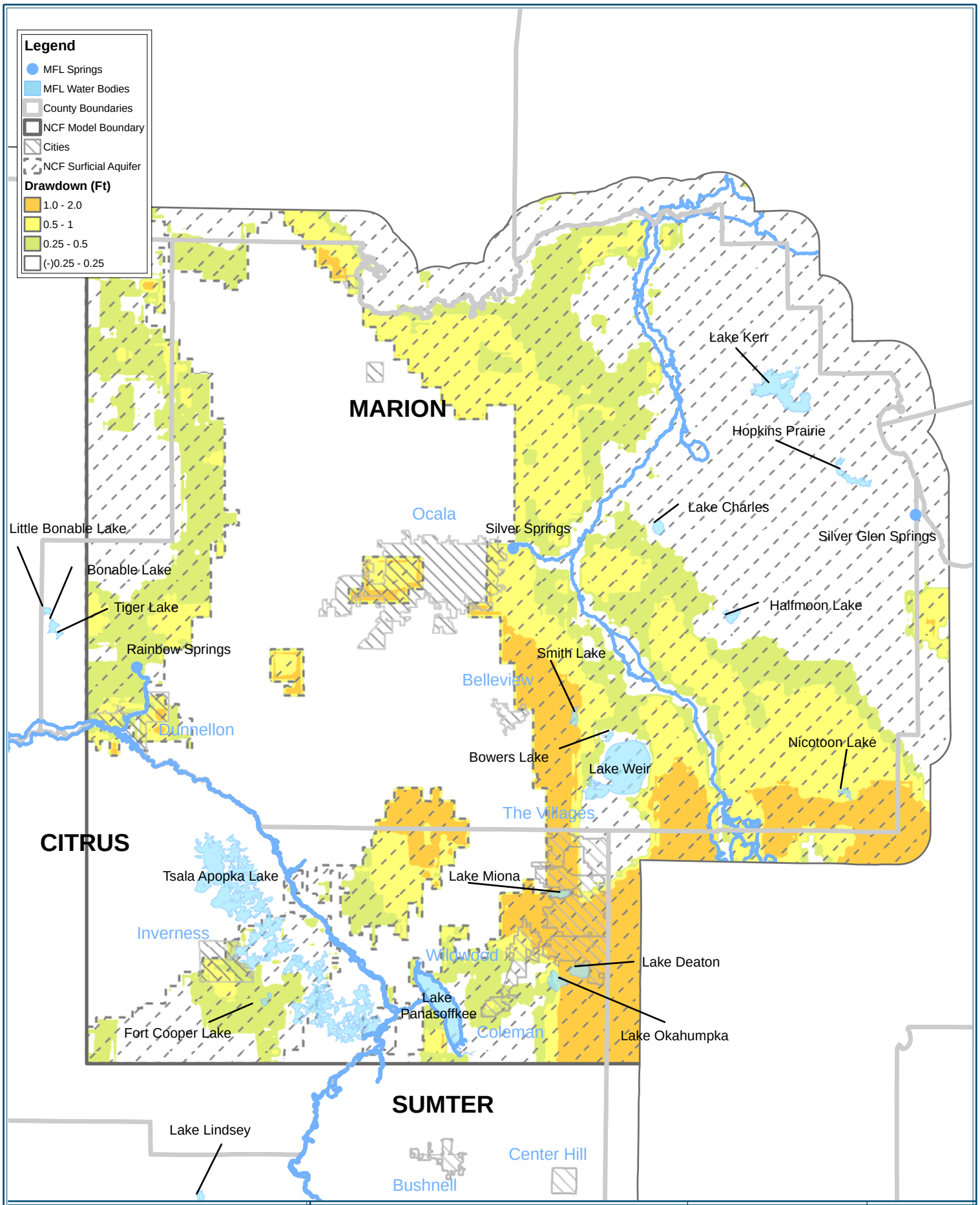

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Figure 3-26
NCF Model 1995 Drawdown Distribution in 2030: Surficial Aquifer

ORIGINAL DATE: 07-08-08
REVISION DATE: 12-17-09
JOB NUMBER: 0468
FILE NAME: Figure 3-26.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 7.7 Miles

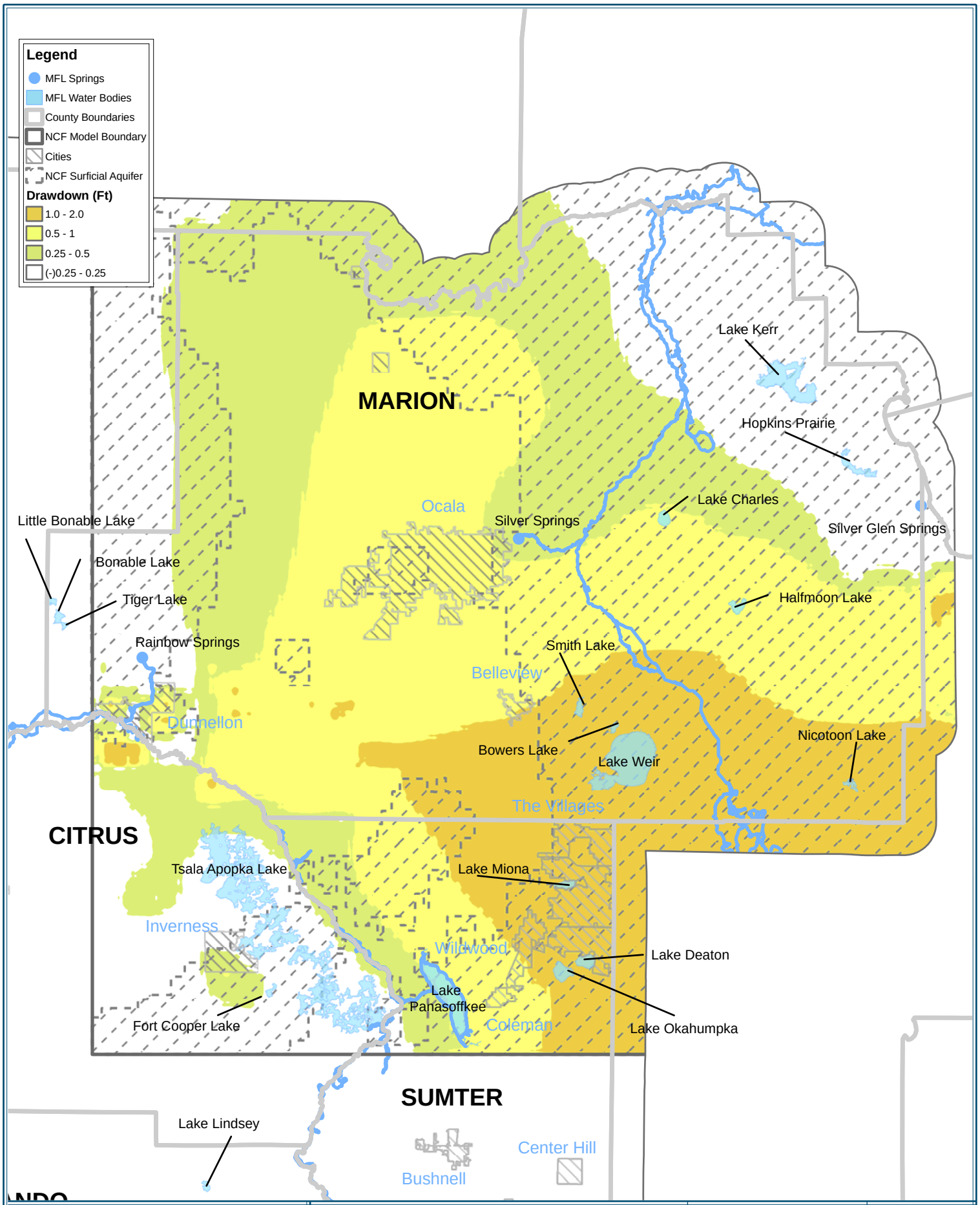

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Figure 3-27
NCF Model 1995 Drawdown Distribution in 2030: Upper Floridan Aquifer

ORIGINAL DATE: 07-08-08
REVISION DATE: 12-17-09
JOB NUMBER: 0468
FILE NAME: Figure 3-27.mxd
GIS OPERATOR: DR

N W E S
1 Inch = 7.7 Miles

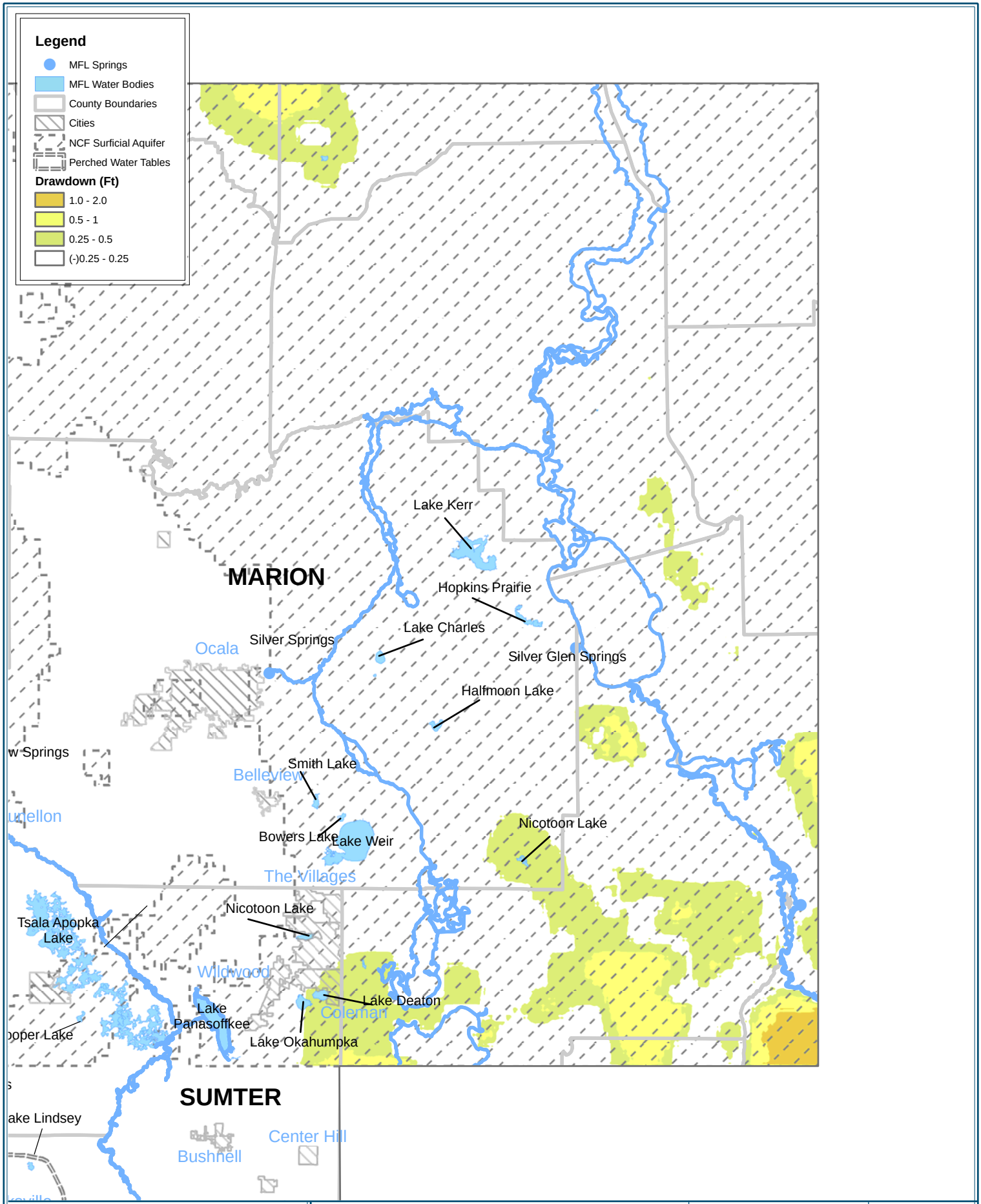

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Figure 3-28
NCF Model SA Drawdown Due to Boundary Condition Withdrawals 1995-2013

ORIGINAL DATE: 07-08-08
REVISION DATE: 1-2-10
JOB NUMBER: 0468
FILE NAME: Figure 3-28.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 7.1 Miles

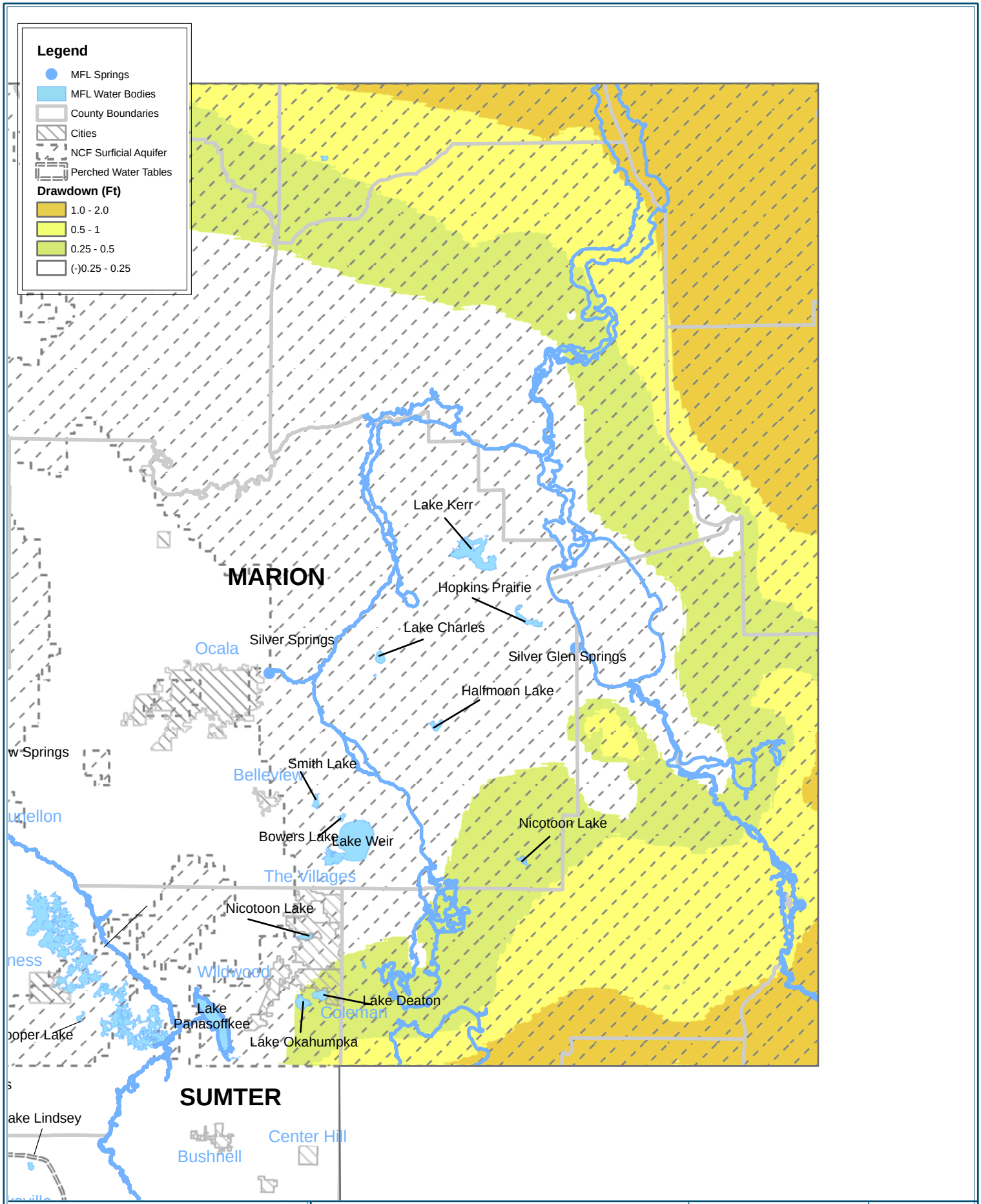

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Figure 3-29
NCF Model UFA Drawdown Due to Boundary Condition Withdrawals 1995-2013

ORIGINAL DATE: 07-08-08
REVISION DATE: 1-2-10
JOB NUMBER: 0468
FILE NAME: Figure 3-29.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 7.1 Miles

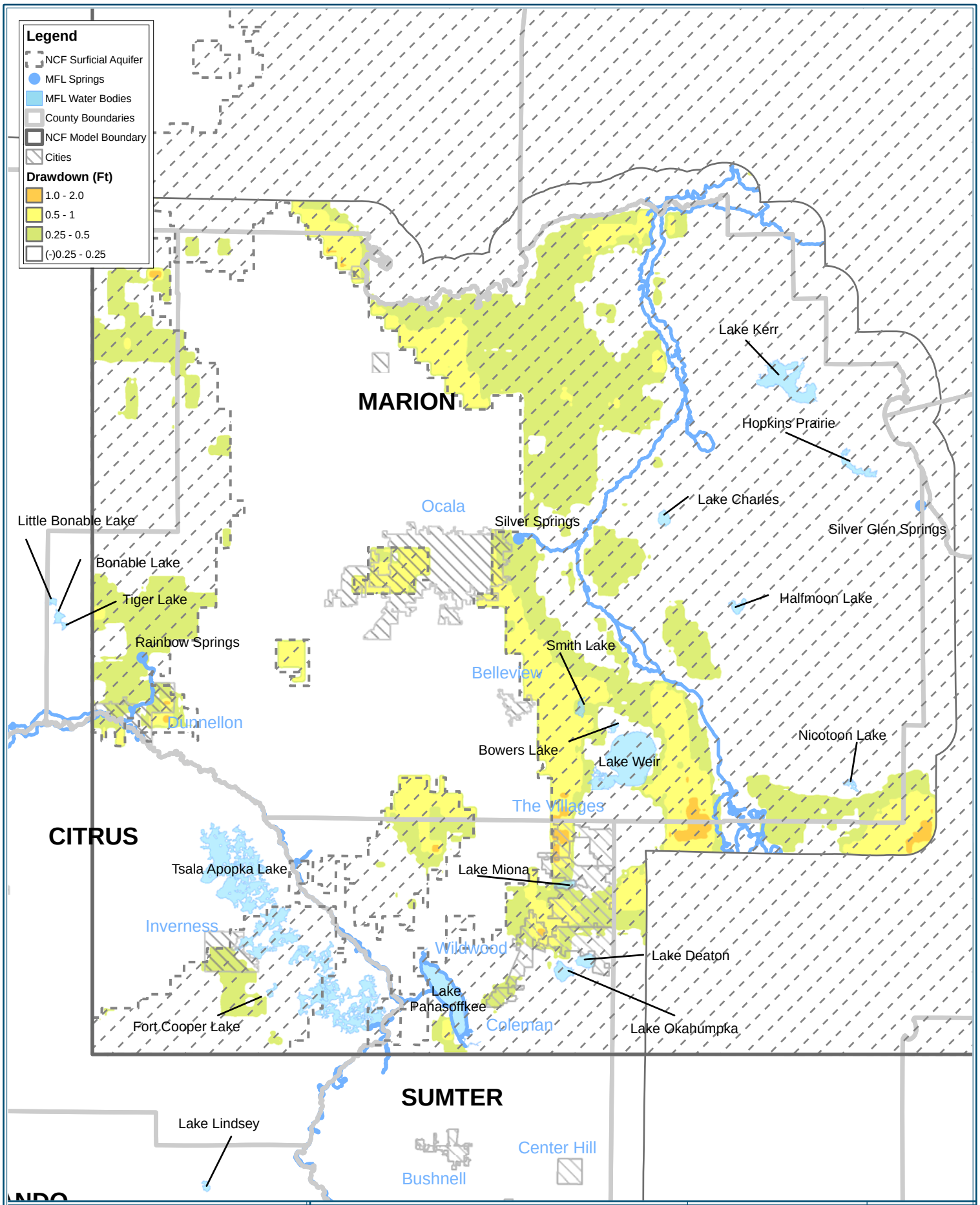

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Figure 3-30
NCF Model SA Change Due to Recharge 1995-2030

ORIGINAL DATE: 07-08-08
REVISION DATE: 2-10-10
JOB NUMBER: 0468
FILE NAME: Figure 3-29.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 7.7 Miles

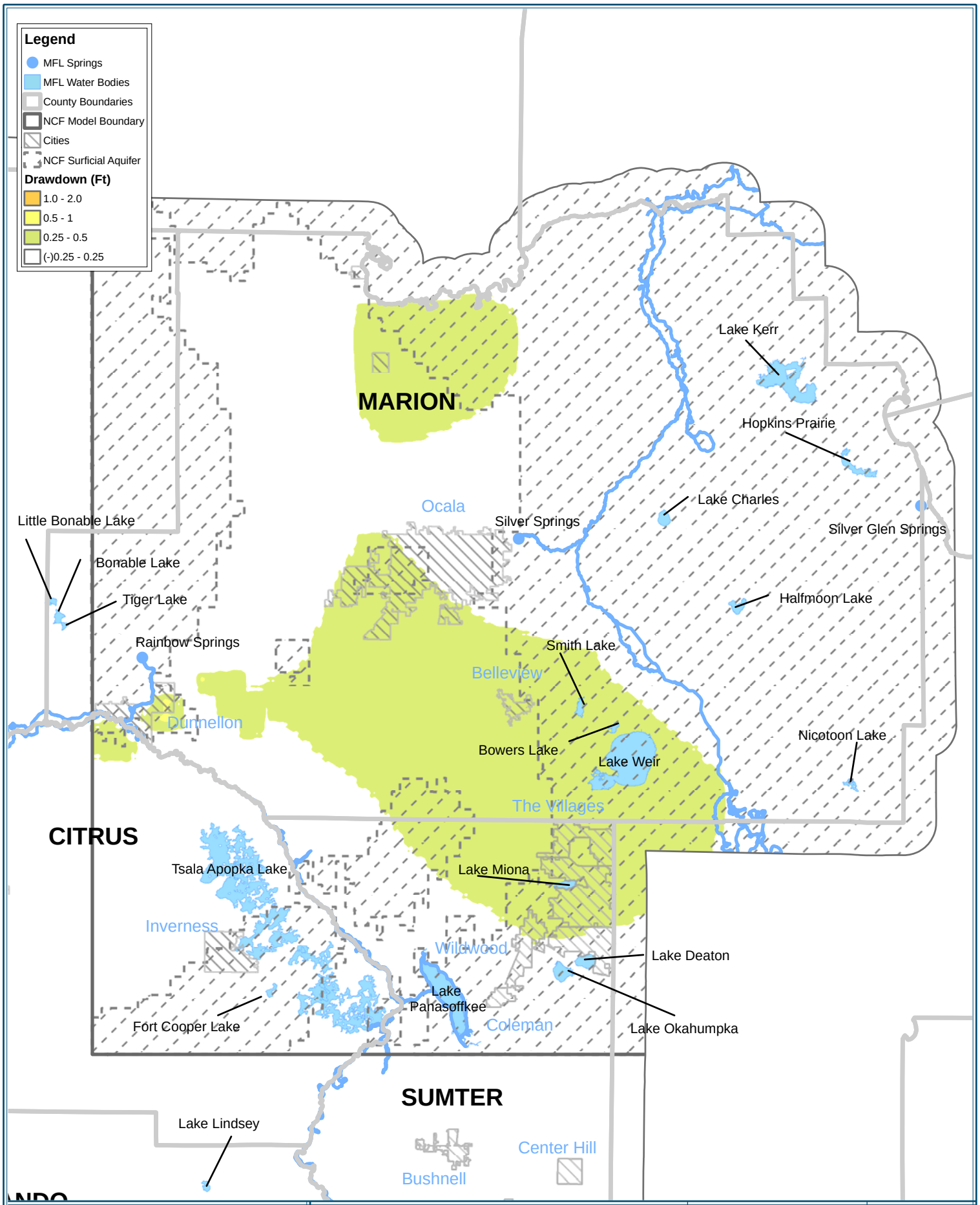

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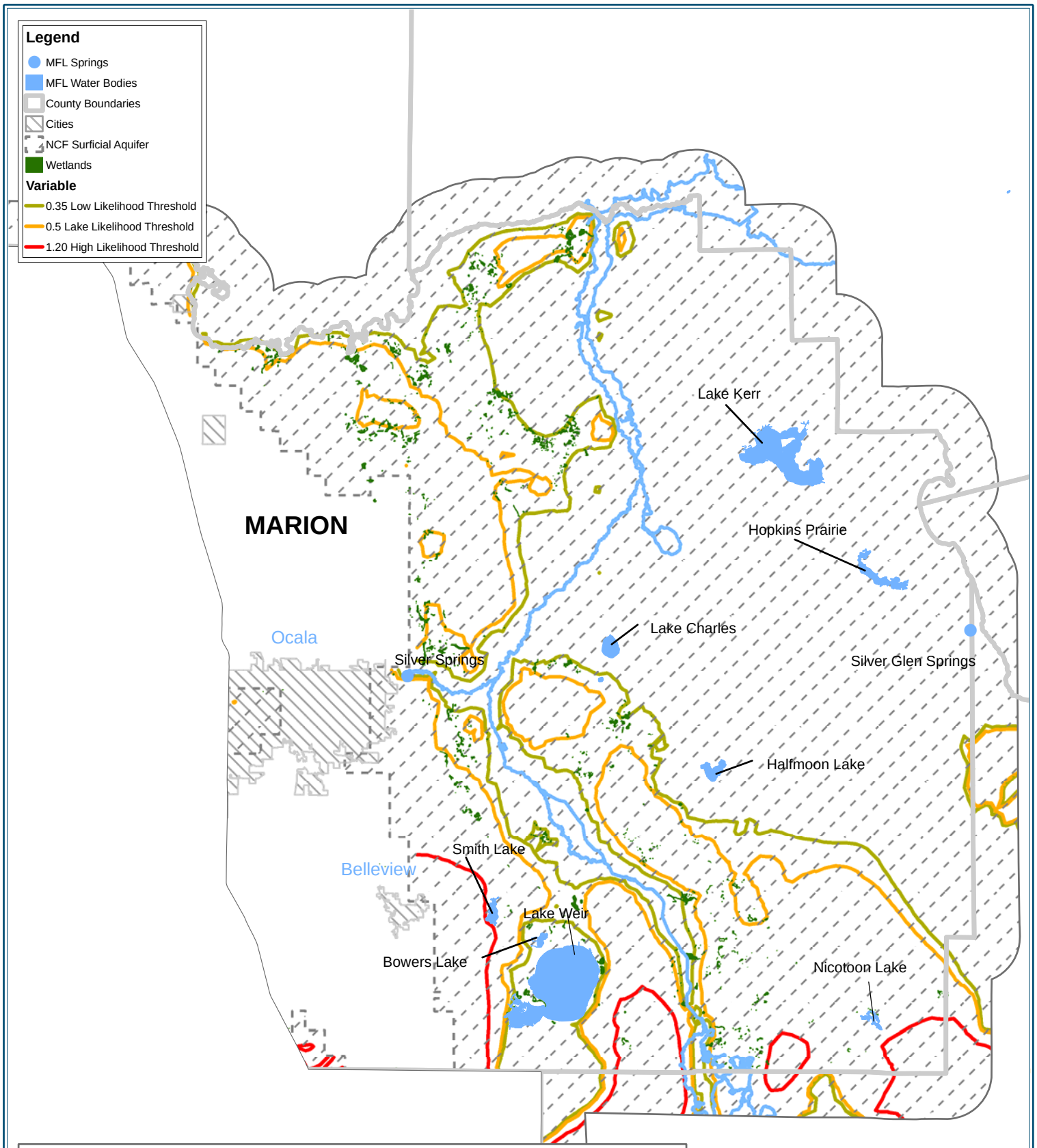
Figure 3-31
NCF Model UFA Change Due to Recharge 1995-2030

ORIGINAL DATE: 01-05-10
REVISION DATE: NA
JOB NUMBER: 0468
FILE NAME: Figure 3-31.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 7.7 Miles



Notes:
1. SWFWMD does not employ likelihood of harm analysis.
2. Likelihood of harm thresholds are not applicable to MFL water bodies, which have separate criteria.

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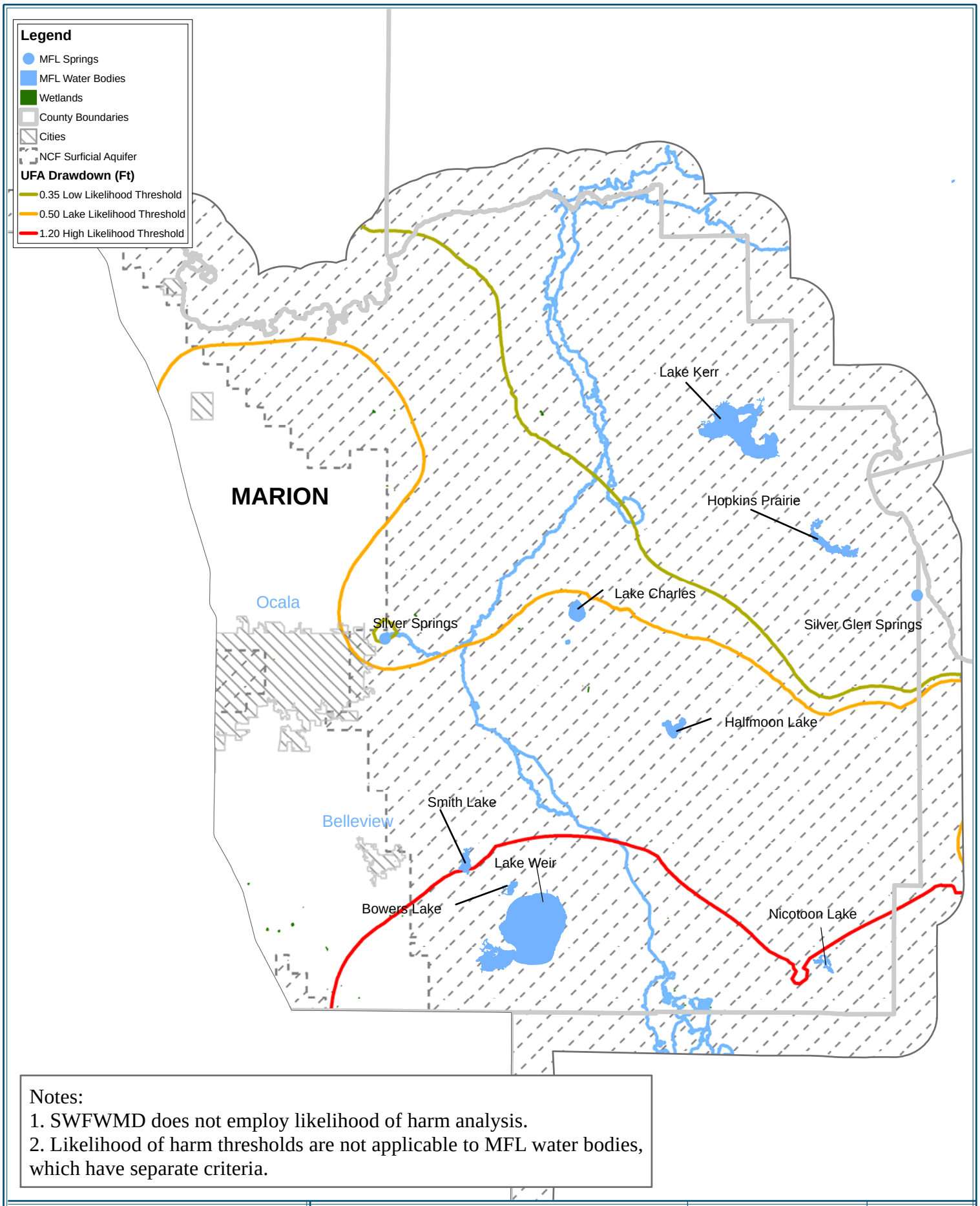
Figure 3-32
NCF Model SA
Likelihood of Harm Analysis

ORIGINAL DATE: 07-08-08
REVISION DATE: 12-17-09
JOB NUMBER: 0468
FILE NAME: Figure 3-32.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 5.8 Miles



Notes:
1. SWFWMD does not employ likelihood of harm analysis.
2. Likelihood of harm thresholds are not applicable to MFL water bodies, which have separate criteria.

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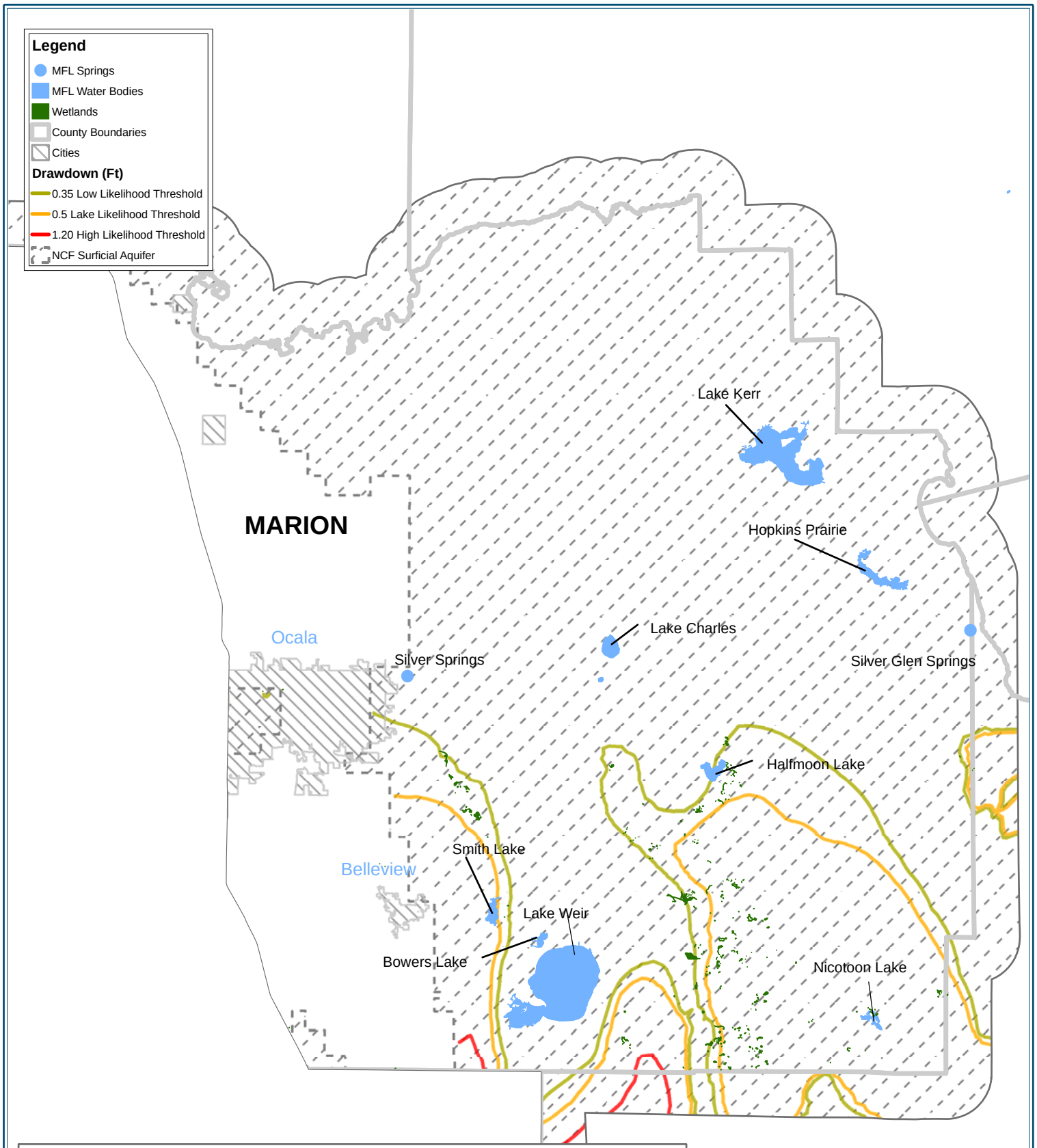
Figure 3-33
NCF Model Unconfined UFA
Likelihood of Harm Analysis

ORIGINAL DATE: 07-08-08
REVISION DATE: 12-17-09
JOB NUMBER: 0468
FILE NAME: Figure 3-33.mxd
GIS OPERATOR: DR

N W E S
1 Inch = 5.8 Miles



Notes:
1. SWFWMD does not employ likelihood of harm analysis.
2. Likelihood of harm thresholds are not applicable to MFL water bodies, which have separate criteria.

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Figure 3-34
NCF Model SA Likelihood of Harm Analysis
Sensitivity to Constant Recharge

ORIGINAL DATE: 07-08-08
REVISION DATE: 12-17-09
JOB NUMBER: 0468
FILE NAME: Figure 3-34.mxd
GIS OPERATOR: DR

N W E S
1 Inch = 5.8 Miles

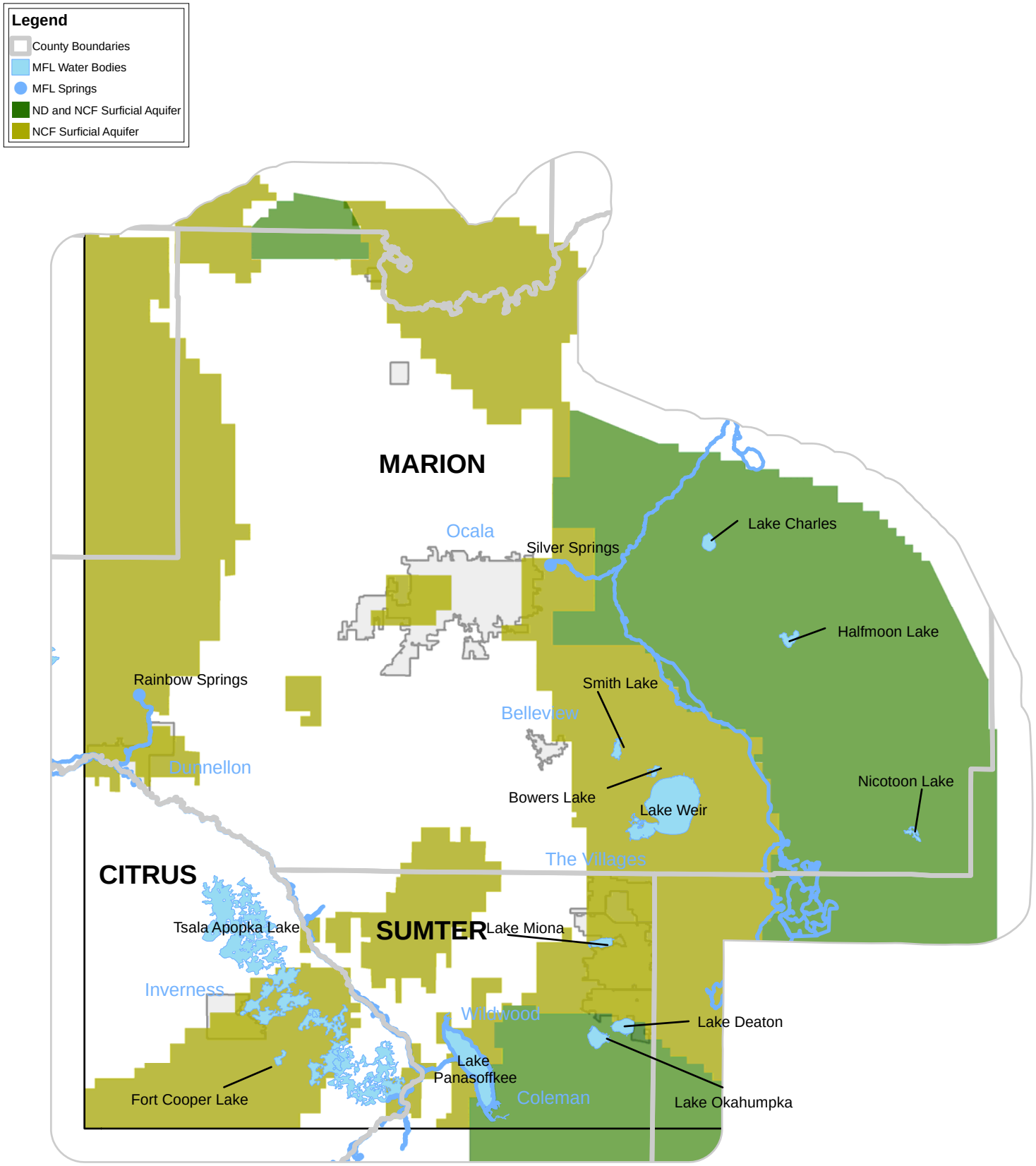

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Figure 3-35
Variation in NCF and ND Model Conceptualization of SA

ORIGINAL DATE: 01-05-10
REVISION DATE: 02-11-10
JOB NUMBER: 0468
FILE NAME: Figure 3-35.mxd
GIS OPERATOR: DR

N W E S

1 Inch = 9.5 Miles

Chapter Number 4 – The Role of Water Conservation within the WRWSA

4.0 Key Points

Key Points

- Conservation is an essential, cost-effective water supply management tools ranging from Florida Friendly Landscaping to conservation rate structures.
- A variety of ad-hoc conservation efforts are currently in place among WRWSA members.
- Water conservation should be considered one of the first of the potential water planning and water supply options to handle future water demands in the region.
- SWFWMD has implemented, and the SJRWMD plans to implement a mandatory per capita requirement for the water users in their respective districts.
- SWFWMD adopted rules to standardize water conservation and water use permitting district-wide. Enhancements include: conservation rate structures, water billing requirements, water audits, wholesale permits and annual reports for public supply utilities.
- The WRWSA has directly funded water conservation programs in Hernando, Citrus, Marion and Sumter Counties.
- This report includes an updated inventory of conservation measures, but also discuses and includes recent modeling completed by SWFWMD that quantifies the potential savings and benefits of new water conservation programs.
- Water conservation efforts are categorized in three categories: Regulation, Education and Incentives.
- Additional water conservation measures can help reduce the future public supply water demands projected for the WRWSA.
- Potential conservation savings from indoor and outdoor uses are significant in the WRWSA region.

4.1 Introduction

Water conservation within the WRWSA is and will continue to be an essential element of water supply planning. Conservation is considered to be the first step in the determination of current and future water demands and future water supply development. With national residential water consumption rate of 83 gallons per capita per day (gpcpd) (USGS, 2005), many parts of the WRWSA demonstrate excessive water usage when compared to this U.S. average. Unadjusted gross per capita within the WRWSA ranges from 56 gpcpd to 536 gpcpd. The determination of whether this rate is considered to be wasteful has been a focus of the SWFWMD for a number of years. Collaborative water conservation programs with local governments to reduce water demand have been ongoing for over two-decades.

Water conservation applies and benefits all water uses within the WRWSA including agriculture, commercial, industrial, mining, recreational and public supply users. Water supply savings in all aspects of water use is required and attainable through implementation of water conservation regulation, public education, best management practices and water saving devices. The focus of this chapter is water conservation within the public supply sector, including domestic self supply, private utilities and public utilities within the WRWSA. Although overall existing water

use from water users other than public water supply is significant (53%), water demand growth in this water use sector is significantly higher over the planning horizon.

Water conservation was discussed in detail as an important element of water supply planning in the WRWSA-RWSPU-2005. Local governments were inventoried regarding water conservation practices and the information was portrayed through narrative and tabular forms. This made a distinction between communities and their individual involvement in water conservation in three major areas: public education, regulation and incentives. This information was more qualitative in nature than quantitative. For example, there was little in the WRWSA-RWSPU-2005 that allowed the local governments to determine actual water savings from existing water conservation programs and the potential benefits of new programs. This report will not only include an updated inventory but will discuss and include recent modeling completed by the SWFWMD that quantifies the potential savings and benefits of new water conservation programs. This modeling took into consideration the specific demographics of individual communities to further refine the costs, benefits and quantify potential savings of water conservation initiatives.

This chapter also discusses the need for water conservation and per capita demand reduction from a regulatory perspective. The SWFWMD has implemented and the SJRWMD is considering mandatory per capita requirements for water users within their respective districts. The two districts are coordinating regularly on potential conservation rulemaking in each district. Conservation is no longer being considered a goal to achieve but a requirement through the water management district regulatory programs regarding water use.

Unlike the format of the WRWSA-RWSPU-2005 where conservation was considered late in the report, this chapter is located as the first of the potential water planning and water supply options to handle future water demands in the region. The significance of water conservation to sustainable water supply planning and development in the region cannot be understated. As mentioned, the ability to reduce excessive and wasteful water use must be the first step in the planning process before more expensive traditional and alternative water supply projects are considered by local governments, the WRWSA and the water management districts.

4.2 Regulatory Requirements for Enhanced Conservation

Areas covered by the WRWSA have historically been rural, slow-growing, and presumed to have adequate groundwater supplies to deal with future water demand. However, since the early 1990s, Citrus, Hernando, Marion and Sumter Counties have experienced significant population growth. As water demand has increased in the area, the development of MFL's in the area has further restricted access to remaining groundwater sources. Groundwater withdrawals currently occurring throughout the central Florida region may also increase the potential for cumulative environmental impacts in these northern counties. All of these issues have created concern over the long-term availability of traditional groundwater supplies to meet new demands for water. The region's unique geology provides a connection between groundwater, surface water, and surface activities, which makes it necessary to develop and adopt management strategies that prevent the occurrence of adverse impacts to the water resources.

In the fall of 2009, SWFWMD proposed rules to standardize water conservation and water use permitting district-wide. The new proposed rules are intended to be adopted in 2012, and establish water conservation standards and criteria consistent with those previously adopted for

the Southern Water Use Caution Area (SWUCA) for public supply, recreation and aesthetic water uses and to enhance and add conservation measures district-wide for public supply, agriculture, industrial, mining, recreation and aesthetic water uses.

These enhancements to the rules include conservation rate structures, water billing requirements, water audits, wholesale permits and annual reports for public supply utilities. Other district-wide additions and enhancements include, limiting unaccounted water to a maximum of ten percent of production, requiring utilities to report conservation programs and initiatives within their service areas, information regarding reclaimed water generation, use and rate structure information, landscape codes, efficient irrigation of common areas and water conservation projects/programs. Amendments also include SWUCA conservation requirements for recreation and aesthetic water use permits, including a phased elimination of irrigation of golf course roughs and adding identification and repair of system water losses (Northern District Strategy, 2009).

Another major change in the rule is setting consistent per capita rate standards throughout the SWFWMD. This standard applies for both new and existing water users. New users will be held to a maximum compliance rate of 150 gpcd. Existing water users will be held to the same standard. Both new and existing users can utilize conservation initiatives such as beneficial use of reclaimed water to adjust their compliance per capita rate downward. Also, significant water users such as golf courses can be backed out of water use in calculating compliance per capita rates (Northern District Strategy, 2009).

The impact of compliance per capita rates on the water demand projections is significant.

4.3 WRWSA Water Conservation Programs and Initiatives

The WRWSA has had a joint program since fiscal year 1999-2000 with its members for the funding of water supply projects including water conservation initiatives. Since its inception this grant program has appropriated $1,117,131 to local government projects in the region including $100,000 in fiscal year 2008-2009. Proposals are considered from any member local government in the Authority's jurisdiction.

The WRWSA has also developed a Regional Water Conservation Program. As part of this program the Regional Water Conservation Public Information Program, the WRWSA maintains a website (www.wrwsa.org) with links to water conservation information and programs. The Authority has also directly funded water conservation programs in Hernando, Citrus, Marion and Sumter Counties. This includes the co-funding of water conservation coordinator staff positions for local governments. The Authority continues to support water conservation by placing the highest priority on local government grants that focus on water conservation programs and initiatives

The Water Supply Authorities within the SWFWMD also play a significant role in the review and selection of projects for the Cooperative Funding Initiative of the SWFWMD. SWFWMD Governing Board Policy 130-4 and Staff Procedure 13-4 address the policies, guidelines and procedures of the Cooperative Funding Procedure. The Water Supply Authorities have a direct role in the prioritization of alternative water supply projects of both members and non-members of the authority within their regions.

Water conservation programs and initiatives supported by Regional Water Supply Authorities can also be a positive role for the WRWSA. In the policy guidelines it is stated, "The Board(s) will give priority consideration to those projects designed to further the implementation of the District Strategic Plan, Water Management Plan, Comprehensive Watershed Management Plans, Surface Water Improvement and Management Plans, and Regional Water Supply Plan." The conservation initiatives identified in the WRWSA Phase II – Detailed Water Supply Feasibility plan, are consistent with the districts RWSP for their Northern Planning Region. Conservation projects submitted by a Water Supply Authority are given a higher priority in accordance with SWFWMD Policy 130-4 which states: "Consistent with Florida Statutes Chapter 373.1961(3), the District shall prioritize funding for alternative water supply projects as follows:

- Highest priority – Alternative water supply projects owned, operated and controlled, or perpetually controlled by a Regional Water Supply Authority (RWSA).

- Medium priority – Alternative water supply projects that are not owned, operated and controlled, or perpetually controlled by a RWSA, but meet the definition of multijurisdictional.

- Lowest priority - Projects that do not meet the multijurisdictional criteria. Funding for these projects would be limited to consideration by the appropriate Basin Board(s)."

4.4 WRWSA Member Government Water Conservation Programs and Initiatives

This section of the conservation chapter catalogs ongoing water conservation programs and initiatives by local governments throughout the WRWSA. Close coordination with local governments has provided information that outlines current programs and helps identify where potential opportunities are for further water savings and per capita rate reductions (Table 4-1). This is a qualitative review of programs and not an attempt to quantify either the present or anticipated benefits of the conservation initiatives. Section 4.5 details a SWFWMD initiative to model and quantify potential water savings for local governments specific to the particular demographics of that entity.

4.4.1 Regulation

The RSWPU regulation category includes watering restrictions, inverted rate structures, mandatory dual lines for new development, water audits, metering programs, leak detection, prevention and repair, pressure monitoring and control, and landscape ordinances. These items are inventoried below with respect to local governments within and including Marion County.

Citrus County

Citrus County has adopted a tiered rate structure for water and wastewater. The rate structure for Citrus County varies depending on the utility's specific service area. Base charges vary by service area, water use and by the meter size. Although the base rate structure varies for commercial and residential use, the usage charges are the same for both commercial and residential use. The inverted rate structure has 5 tiers for the residential and commercial water use: 0-10,000 gallons, 10,001-20,000 gallons, 20,001-30,000 gallons, 30,001-50,000 and greater than 50,000 gallons.

The County does not currently have an ordinance that requires the use of Florida Friendly Landscaping. However it does promote developments to use Florida Friendly Landscaping practices in its Land Development Code, such as using xeriscaping and drought resistant plants. The County currently adheres to, and enforces SWFWMD watering restrictions with penalties up to five hundred dollars.

The County performs periodic water audits that compare water sales, metered and estimated usages to water pumpage data. These audits ensure the county, that there isn't a loss of water (i.e. leaks) in their distribution system. The County performs a pressure control test in the distribution line to ensure that leaks leading to high percentage loss rates are avoided. The County also requires that new developments that have more than 100 lots must install dual lines to provide reclaimed water for irrigation when it becomes available.

City of Crystal River

The City of Crystal River has adopted a tiered rate structure for water. The inverted rate structure has 4 tiers for the residential and commercial water use: 0-5,999 gallons, 6,000-10,999 gallons, 11,000-15,999 gallons, and greater than 16,000 gallons.

The City currently adheres to, and enforces SWFWMD watering restrictions, with penalties up to five hundred dollars. The City performs periodic water audits that compare water sales, metered and estimated usages to water pumpage data. These audits ensure the City, that there isn't a loss of water (i.e. leaks) in their distribution system. The City performs a pressure control test in the distribution line to ensure that leaks and high flow rates are avoided.

City of Inverness

The City of Inverness has adopted a tiered rate structure for water. The inverted rate structure has 3 tiers for the residential and commercial water use: 0-10,000 gallons, 10,001-20,000 gallons, and greater than 20,000 gallons. For commercial water use, the City maintains the same tier system, but has a base charge for water use that depends on the meter size.

The City currently adheres to, and enforces SWFWMD watering restrictions through the individual code enforcement process. The City has a landscape ordinance that requires Florida Friendly Landscaping. The City performs periodic water audits that compare water sales, metered and estimated usages to water pumpage data. The City performs a pressure control test in the distribution line to ensure that leaks and high flow rates are avoided.

Hernando County

Hernando County has adopted a tiered rate structure for water and wastewater. The inverted rate structure has 6 tiers, but the tiers vary depending on meter size, and the water use. Hernando County's rate structure differentiates residential, commercial, and irrigation water use.

Hernando County does not have a landscape ordinance that requires Florida Friendly Landscaping, but has a landscape ordinance that promotes it. The landscape ordinance requires having only a 50% high water use area in the landscape. The County currently adheres to, and enforces SWFWMD watering restrictions through Hernando Counties Code Enforcement Department.

The County performs periodic water audits that compare water sales, metered and estimated usages to water pumpage data. These audits ensure the County, that there isn't a loss of water (i.e. leaks) in their distribution system. The County performs a pressure control test in the distribution line to ensure that leaks and high flow rates are avoided.

City of Brooksville

The City of Brooksville has recently increased the cost of water in their adopted tiered rate structure for residential water use. The inverted rate structure has 3 tiers for the residential water use: 0-3,999 gallons, 4,000-8,000 gallons, and greater than 8,000 gallons.

The City currently adheres to SWFWMD watering restrictions. Although the City does not have a landscape ordinance requiring Florida Friendly Landscaping, the City does encourage new developments to use Florida Friendly practices.

Marion County

Marion County has put into place a tiered rate structure for their water users which went into effect in the spring of 2009. Marion County does not currently have a uniform rate structure for all of their customers. The Silver Springs Regional service area has a different rate structure than the rest of Marion County service areas. The rate structure differentiates residential, non residential, and irrigation users and takes into account the meter size of each user. However, only residential and irrigation water use are on a tiered rate structure. The inverted rate structure for the Silver Springs Regional service area has 5 tiers: 1-6,000 gallons, 6,001-10,000 gallons, 10,001-13,000 gallons, and greater than 13,001 gallons. The inverted rate structure for the rest of the county also has five tiers but varies in the quantity of water in tier: 1-6,000 gallons, 6,001-12,000 gallons, 12,001-20,000, and greater than 20,001 gallons.

Marion County currently enforces SJRWMD watering restrictions which dictate the time and days for outdoor watering. To enforce watering restrictions, the county has set up penalties for those users who violate the restrictions. Marion County does not currently require dual lines for new developments to provide reclaimed water for irrigation when it is available, however many of the developments within Marion County have made concessions to add reuse distribution lines based on recommendations from the county during the entitlement process.

Marion County has a landscape ordinance that supports and encourages the use of Florida Friendly Landscaping but it is not required. The landscape ordinance does not allow Homeowner Associations and Developers to prevent the use of Florida friendly Landscaping.

Marion County currently conducts annual water audits to measure leakage in their distribution system. The County also has planned to upgrade to a fully automated meter reading system that will allow them to better monitor small leaks in the distribution system. The County currently performs pressure tests in their water system to prevent leaks.

City of Belleview

The City of Belleview has recently increased the cost of water in their adopted tiered rate structure for water and wastewater. This rate structure is the same for residential and commercial users; however the City of Belleview has classified water used for construction and

water used for irrigation, separate from the rate structure for commercial users. The cost of construction and irrigation water is higher than the cost of water for residential and commercial users. The inverted rate structure has 4 tiers for the residential and commercial water use: 0-7,999 gallons, 8,000-20,999 gallons, 21,000-30,000 gallons, and greater than 30,000 gallons. The City also conducts water audits to ensure there are no leaks in the distribution system.

The City currently has an ordinance that requires the use of Florida Friendly Landscaping, and requires developments to use Florida Friendly Landscaping practices. The City currently has in place lawn watering restrictions for the users it serves, and it adheres to SJRWMD watering restrictions.

The City performs periodic water audits that compare water sales, metered and estimated usages to water pumpage data. These audits ensure the City, that there isn't a loss of water (i.e. leaks) in their distribution system. The City performs a pressure control test in the distribution line to ensure that leaks and high flow rates are avoided.

City of Dunnellon

The City of Dunnellon has recently increased the cost of water in their adopted rate structure for water and wastewater. This new structure went into effect on November 1, 2008. The rate structure differentiates residential customers, commercial, and industrial customers, and takes into account the meter size. The inverted rate structure for residential users has 5 tiers: 0-4,000 gallons, 4,001-8,000 gallons, 8,001-12,000 gallons, 12,001-20,000 gallons, and greater than 20,000 gallons.

The City performs periodic water audits to minimize the loss of water in their distribution system. The City is also currently monitoring unusually high meter readings to ensure there are no leaks in individual user's water systems.

City of Ocala

The City of Ocala has adopted a tiered rate structure for their water users. Although the rate structure does not differentiate for the type of users, it does take into account the meter size when determining a base charge for water use. The inverted rate structure is set up in 5 tiers: 0-1,400 cubic feet, 1,401-2,000 cubic feet, 2,001-5,000 cubic feet, 5,001-10,000 cubic feet, and greater than 10,000 cubic feet. The City currently requires that dual lines for development to provide reclaimed water for irrigation be installed within a prescribed distance of areas where existing reuse lines are available. The City also plans on constructing more reuse lines to provide other parts of the City with reclaimed water when it is available.

The City of Ocala currently enforces SJRWMD watering restrictions. The City adopted in 2009 a Florida Friendly Landscaping code.

The City is currently developing a plan to account for water loss in their distribution system. It is also implementing an automatic meter reading program that detects leaks in their distribution system, which will be on-line by the first of the year. The City also monitors unusual water use quantities to ensure that there are no leaks in the distribution system.

Town of McIntosh

The Town of McIntosh has adopted an inverted rate structure in which water rates increase for consumer uses that are higher than normal. The inverted rate structure has 3 tiers: 0-5,000 gallons, 5,001-10,000 gallons, and greater than 10,000 gallons.

The Town of McIntosh also conducts water audits. The Town also regularly monitors meter readings to ensure there isn't a leak in the Town distribution system, and performs pressure control tests in the system to prevent leaks.

Sumter County

City of Bushnell

The City currently has an ordinance that requires the use of Florida Friendly landscaping. The City performs periodic water audits that compare water sales, metered and estimated usages to water pumpage data. These audits ensure the City, that there isn't a loss of water (i.e. leaks) in their distribution system. The City is currently working on a plan to require new developments to install dual lines to receive reclaimed water for irrigation when it becomes available.

City of Center Hill

The City of Center Hill currently monitors unusually high meter readings to ensure there are no leaks in individual user's water systems, and performs a pressure control test in the distribution line to ensure that leaks and high flow rates are avoided.

City of Wildwood

The City of Wildwood has adopted a tiered rate structure for residential and commercial water use. Base charges vary by the meter size. The tiered rate structure has 2 tiers: 0-6,999 gallons, and greater than 7,000 gallons.

The City currently has an ordinance that requires the use of Florida Friendly Landscaping. The City currently adheres to, and enforces SWFWMD watering restrictions.

The City performs periodic water audits that compare water sales, metered and estimated usages to water pumpage data. These audits ensure the City, that there isn't a loss of water (i.e. leaks) in their distribution system. The City performs a pressure control test in the distribution line to ensure that leaks and high flow rates are avoided.

The Villages

The Villages has adopted tiered rate structures for water and wastewater. The rate structures for The Villages vary depending on the water use type and by utility. In general, the rate structure for residential use has three tiers. For example, The Village Water Conservations Authority has tiers of 0-7,000 gallons, 7,001-14,000 gal, and greater than 14,000 gallons.

The Villages is not a municipality, which does not allow them to develop a landscape ordinance requiring Florida Friendly Landscaping. However, the deed restrictions do not allow the removal

of the Florida Friendly Landscaping that was installed during the construction period of the development. The Villages currently adheres to SWFWMD watering restrictions.

The Villages performs periodic water audits that compare water sales, metered and estimated usages to water pumpage data. The Villages performs a pressure control test in the distribution line to ensure that leaks and high flow rates are avoided. The Villages has installed dual lines for reclaimed water, and provides non-potable irrigation water to commercial and residential customers.

4.4.2 Education Programs

Education and outreach are essential elements to a successful conservation program. The RSWPU public education categories include bill stuffers, education programs and dedicated conservation staff. Details and proposed measures are inventoried and discussed below.

Citrus County

Citrus County holds workshops, and has event booths during the year to promote water conservation. The County also uses bills stuffers to inform their high water customers on ways to conserve water, and save money. In the previous years, over 1,200 pieces of educational information have been provided by the county regarding water conservation. The County has a staff that is dedicated to water conservation.

City of Crystal River

The City of Crystal River has posted on their website ways in which their water customers can conserve water and save money.

City of Inverness

The City of Inverness sends informational materials regarding water conservation to their users on ways they can conserve water.

Hernando County

As presented in the RWSP, Hernando County continues to carry out its educational and outreach programs to conserve water. Hernando County is applying to the WRWSA for funding assistance in the continued development and expansion of its water conservation and quality protection program. With this funding, the programs will include all water users of the county. These programs include:

- Outreach groups (Citizens for W.A.T.E.R. and Spring Hill Communications Advisory Committee);
- County-wide user advisory committee (Groundwater Guardian Team);
- In-school education program (Hernando County Environmental Education Center);
- Statewide Water Conservation Campaign (partnership with SJRWMD and SWFWMD);and
- Customer and Residents Incentive Programs.

Outreach and Citizens Groups

Citizens for W.A.T.E.R. is a citizen awareness and education group that was first organized in the late 1990's. Water Awareness Through Education and Research (W.A.T.E.R.) is the component that initiated a series of public forums in 1997, with speakers from various agencies. The facilitators held classroom style presentations with audiovisual support and interaction with the audience. The presentations were videotaped for viewing on Channel 19, Hernando County's Government Channel, and are available for borrowing from the HCUD. Another valuable volunteer organization is the Hernando County Citizen's Utilities Advisory Committee (formerly the Spring Hill Communications Advisory Committee); this group meets quarterly on specific countywide water issues. The Spring Stewards will reach out into their communities and educate others about the importance and protection of our area springs.

Groundwater Guardian Team

This group is authorized by the Hernando County Board of County Commissioners and is organized under the auspices of the National Groundwater Foundation. Members represent the major water users of Hernando County. The user groups represented are power industry, agriculture, development, manufacturing, and recreational industries as well as representatives from the school system, city and county governments, and the SWFWMD and citizens. This group has developed, in accordance with the national foundation requirements, a "Result Oriented Plan" and implemented activities to communicate the importance of ground water protection in the community. The Team received its designation as a Groundwater Guardian Community in 2002, 2003, 2004, 2005 and again in 2006. The extraordinary efforts of this committee have received attention by the National Groundwater Foundation and the coordinator has been appointed to a national office. Additionally, the coordinator has been summoned to Tallahassee to meet with Department of Health and Department of Environmental Protection officials to discuss ways to bring similar Groundwater Guardian committees to other communities. In order to retain its designation, the Team and the community must apply its plan and submit an annual report on the progress of implementation. The Hernando County Groundwater Guardians also bring groundwater protection issues to the Planning and Zoning Commission and Board of County Commissioners.

Springs Coast Environmental Education Center (SCEEC)

The SWFWMD purchased Weekiwachee Springs and the attraction property to be part of the Weekiwachee Preserve. The SWFWMD has committed approximately $750,000 to construct an environmental education center on the property, under the condition that the Hernando County School District supply teachers, curriculum and equipment. The Hernando County Water and Sewer District (HCW&SD) Board and the Hernando County Board of County Commissioners have pledged to support this endeavor and have authorized a contribution to the Education Center. The doors of the unique learning center opened in April 2005. Initially it will serve fourth grade students of Hernando County, with plans to increase participation to 8th grade students, and will be use for specialized workshops. This past year the SCEEC hosted over 3000 Hernando County students. The Hernando County Utilities Department has specifically provided support for the development of a water quality protection and water conservation module of the curriculum. By providing support to the center, the Utilities Department is allocating its resources to those skilled in working with students - teachers. In addition, creation of the curriculum module ensures that a consistent and continuing message will be embedded in the educational process. The Environmental Education Center Coordinator is an active member of the Groundwater Guardian Team.

Florida Friendly Landscaping "Grow-Smart" SWFWMD marketing campaign:
This campaign includes radio and television advertisements. By partnering with the SWFWMD, the HCUD speaks with one voice in furthering its educational efforts in the best management practices for our Florida landscapes. Its innovative and instructional media messages broaden public awareness and heighten the acceptance of water conservation as a way of life. As a partner in the Florida Friendly Landscaping campaign the HCUD has the opportunity to "tag" each message with its own contact information. The "tag" features both the HCUD and Withlacoochee Regional Water Supply Authority. The Hernando County Utilities Department, by working with the same media buyer as the SWFWMD, purchased airtime for broadcast of the water conservation message throughout Hernando County at discounted rates.

City of Brooksville

The City of Brooksville does not have educational and outreach programs in place for water conservation.

Sumter County

City of Bushnell

The City of Bushnell uses bills stuffers to inform their customers on ways to conserve water, and save money. The City also targets high volume water users, and informs them of ways in which they can reduce their water consumption.

City of Center Hill

The City of Center Hill uses bills stuffers to inform their high water customers on ways to conserve water, and save money.

City of Wildwood

The City of Wildwood has an education program in which they visit schools throughout the City, teaching students ways that they can help conserve water. During water conservation month in April, the City hands outs information and runs a video in city hall, educating the residents on ways they can conserve water and the benefits of conservation.

The Villages

The Villages has continued it's educational and outreach programs that were presented in the RWSP. The following summarizes the various education programs and procedures in place:

- Resident surveys are performed periodically to assess knowledge on water conserving practices and to determine areas to target with additional conservation programs;
- Purchasers of newly constructed homes are provided with water conservation information;
- Water conservation information is included with the monthly water billing statements;
- Water conservation presentations to community groups and clubs;

- Multimedia Public Educational Initiatives (newspaper articles, website, PSA's, telephone book information page);
- Landscape demonstration plots to encourage residents to convert to water conserving landscaping;
- Incentive program to encourage residents to reduce water usage by publicly recognizing water conscious individuals;
- Door hanger program carried out by Neighborhood Watch that notifies residents of noncompliance with watering restrictions;
- On-site irrigation training and installation manual to all residential construction irrigation contractors;
- Utility company contacts individual high usage customers in an effort to encourage a reduction in water usage;
- Periodic irrigation schedule mail-outs to all residents;
- IFAS extension lectures at The Villages Lifelong Learning College;
- Residents undergo a walk-through orientation of the irrigation system within 30 days of closing on newly constructed homes;
- Newly constructed home buyers are given a DVD/VHS explaining how their irrigation system works; and
- No private wells are allowed (all water use is metered and accounted).

Marion County

Marion County holds workshops for high water use housing developments, the general public, and promotes conservation during other public events. The county has hired a landscape irrigation consultant that is working on an irrigation evaluation and education program for residents designated as high water users.

The County has one person dedicated to water conservation. The water conservation coordinator sends personal letters to water users that exceed 30,000 gallons per minute (gpm). The County has also gone through a water conservation media campaign. The County uses bill stuffers for their water customers, purchased space for 22 billboards across the county emphasizing water conservation, and placed conservation information on newspapers, television commercials, as well as on radio broadcasts.

City of Belleview

The City of Belleview is working with SJRWMD to develop a water conservation campaign. Its focus is to educate water customers on the importance and benefits of water conservation. The City has posted on their website ways in which citizens may reduce their water consumption.

The City of Belleview currently does not have dedicated staff for water conservation. The City also does not send any educational materials or bill stuffers to their customers, and doesn’t participate in any other educational or outreach activities to promote conservation.

City of Dunnellon

The City of Dunnellon is not currently participating in any educational or outreach programs that promote conservation.

City of Ocala

The City of Ocala is partnering with SJRWMD in its water conservation campaign. The City targets high consumption water users, and users who violate watering restrictions for outdoor watering, and informs them of conservation. The City currently has a conservation program with dedicated staff primarily focused on water and electrical conservation. The City sends educational material regarding water conservation to certain water users, but relies mainly on the conservation coordinators to inform its users on water conservation.

Town of McIntosh

The Town of McIntosh has posted water conservation techniques on their website. The town has also posted links to the SJRWMD website which explain current watering restrictions.

4.4.3 Incentives

This section inventories incentives as a conservation initiative. Incentives include toilet rebates, rain sensors and plumbing retrofit programs. The following sections discuss information that was provided by the WRWSA governments on current and proposed incentive programs.

Citrus County

Citrus County currently provides plumbing retrofit kits to its water customers. These kits can include low-flow shower heads, low-volume toilets, and low-flow faucets. The county also provides rain sensors to retrofit irrigation systems.

City of Crystal River

The City of Crystal River is not participating in any incentive programs that promote conservation.

City of Inverness

The City of Crystal River is not participating in any incentive programs that promote conservation.

Hernando County

Hernando County currently provides plumbing retrofit kits to its water customers. The county currently has a low-flow toilet program, rain sensor installation project, and an irrigation evaluation and water audit program.

City of Brooksville

The City of Brooksville is not participating in any incentive programs that promote conservation.

Sumter County

City of Bushnell

The City of Bushnell is not participating in any incentive programs that promote conservation.

City of Center Hill

The City of Center Hill is not participating in any incentive programs that promote conservation.

City of Wildwood

The City of Wildwood is not participating in any incentive programs that promote conservation.

The Villages

The Villages does not have incentive programs in place, however, all constructed homes are already fitted with water efficient plumbing fixtures.

Marion County

Marion County is not participating in any incentive programs that promote conservation. However, the county is working on a new irrigation evaluation and education program where they will be providing rain sensors to serve 150 high water use homes.

City of Belleview

The City of Belleview is not participating in any incentive programs that promote conservation.

City of Dunnellon

The City of Dunnellon is not participating in any incentive programs that promote conservation.

Town of McIntosh

The Town of McIntosh is not participating in any incentive programs that promote conservation.

City of Ocala

The City of Ocala provides low flow shower heads, low-volume toilets, and low-flow shower heads when funding is available, and is not participating in any other incentive programs to promote conservation.

4.5 SWFWMD Non-Agricultural Water Conservation Modeling

The SWFWMD has completed a tool to enhance and quantify water conservation initiatives at the local utility level. The effort produced the "SWFWMD Non-Agricultural Water Conservation Modeling" report and modeling tool (SWFWMD Model). Past water conservation quantitative efforts have relied on literature review and monitored conservation projects to give general estimates of potential water savings. These estimates were applied to water conservation initiatives proposed by local governments. These estimates were generally given in ranges and were highly variable depending on the specific utility that it was being analyzed. The SWFWMD Model uses specific utility and local government demographics and other related data to determine potential water savings for potential water conservation initiatives for each simulated utility. The SWFWMD Model also develops a cost for the initiatives and translates those into cost per thousand gallons of water savings.

The SWFWMD developed a Microsoft Excel water conservation model to quantify and optimize the potential contribution of non-agricultural water conservation options to water supplies to meet demand. This project has been organized into two phases, with Phase I focused on developing a fully functioning conservation model (model) and associated methodologies for District-wide application and Phase II for data collection and input into the model including quantifying water savings for all water use sectors. The primary goal of the modeling effort is to estimate the district-wide water conservation potential for use in the Regional Water Supply Planning process, but secondary goals were also identified by the project team. The model that was developed as part of Phase I of this project is fully functional and is capable of producing results needed for input into the Regional Water Supply Plan.

The model developed in Phase I uses Polk County as a pilot area to test modeling assumptions, logic, and data availability. The model includes a wide variety of features including the ability to model conservation over a 20-year period and aggregate and disaggregate results at the county and planning area. The modeling approach uses an Excel model based on linear programming to maximize water savings for a user-defined set of circumstances. The basic approach is also 'device-based', meaning that the results are calculated by summing water conservation savings associated with the implementation of a set of various conservation devices (e.g. high efficiency toilets, large landscape evaluations).

The model is intended to assist with calculating water conservation potential in the SWFWMD, and specifically the model can be used to estimate conservation potential for use in long-term water supply planning such as the development of the Regional Water Supply Plan.

In this case the term "optimization" refers to a feature of the model that allows the user to identify the "optimal" mix of water conservation measures given a set of user-defined constraints such as the number of conservation opportunities in a given area and the total budget available for conservation.

SWFWMD accelerated the output results from the SWFWMD Model for the region covering the WRWSA. This effort was undertaken to coincide with the publication of this report as an aid in the selection of conservation initiatives by local governments within the WRWSA. Unlike the previous conservation section in the RWSP, and the qualitative conservation information presented above, SWFWMD's water conservation model is "device based". The implementation potential of these devices and the savings potential of the devices have been summarized here

for the local governments in the WRWSA. Additional model information is included as Appendix CONSERVATION MODEL in the Appendices section of this report.

Quantifying the conservation potential will play an important role in identifying initiatives that will demonstrate an effective water demand reduction. The information summarized in this model will allow water conservation to be compared to other water supply projects (i.e. groundwater, surfacewater, reclaimed and desalination water projects). This will also be relevant justification to assist in qualifying for cooperative funding by the SWFWMD and the WRWSA.

4.5.1 Methodology

Using specific utility and local government demographic data, the model developed by the SWFWMD reviews ten (10) water conservation devices and quantifies the potential savings of the water conservation devices for each utility. The water conservation device programs that were modeled are:

- Clothes washers,
- Plumbing retro-fit kits,
- Ultra Low Volume (ULV) toilet rebates,
- Landscape irrigation evaluations,
- Rain sensors,
- Water budgets,
- Pre-rinse spray valves,
- Industrial Commercial and Institutional (ICI) facility assessments[1], and
- Large landscaping surveys.

A Microsoft Excel™- based spreadsheet planning model was developed to estimate the potential for future water savings and the cost of the identified conservation measures for all utilities and non-public supply categories, including domestic self supply, I/C, M/D, PG and recreational/aesthetic within the Planning Region. The water savings potential is based on the implementation of the above conservation measures provided the current and projected population, which equates to the number of accounts and estimated level of participation for the conservation programs, is accurate. Parameters considered in the conservation planning model as the basis for predicting the water savings that could be obtained from various conservation programs included 1) the number and type of accounts, 2) projected population and water demands, and 3) time frame. The model results were optimized by the SWFWMD to assist with identifying conservation efforts that will support compliance with the SWFWMD's proposed enhanced water conservation rule.

4.5.2 WRWSA Member Government Water Conservation Savings Potential

This section of the conservation chapter provides the savings potential from the SWFWMD Non-Agricultural Water Conservation modeling. This is a quantitative review of potential water conservations programs and is meant to assist local governments in deciding which water

[1] ICI facilities served by public suppliers.

conservation program is most beneficial to them. Table 4-2 summarizes the modeled water savings potential (mgd), for the WRWSA region.

Table 4-2. Water Conservation Savings Potential in WRWSA Based on SWFWMD Non-Agricultural Conservation Model.

County	Projected Water Savings Potential in 2030 (MGD)	Average Cost Per Thousand Gallons of Water Saved
Hernando	3.99	$0.47
Citrus	6.05	$0.47
Marion	3.92	$0.34
Sumter	6.99	$0.45
Total	20.95	$0.44

Citrus County

Based on the water conservation model, public supply and domestic self-supply users in Citrus County have a total savings potential of 6.05 mgd if modeled water conservation devices are implemented by 2030 assuming water demand increases occur according to the current projections. In Citrus County, the rain sensor, landscape and irrigation evaluation rebate, and ICI facility assessment programs provide the greatest savings (mgd) in the County. These three measures combine for a total savings of 4.5 mgd, out of the total 6.05 mgd savings potential simulated in Citrus County.

The rain sensor program has the potential to save 1.8 mgd based on model simulations in Citrus County. The model simulates the effect of 18,235 rain sensor fixtures in 2030. Each rain sensor is anticipated to cost $80, for a total measure cost of $1,458,800. This would mean that by 2030 the cost of this measure per 1,000 gallons of water saved is $0.51.

The landscape and irrigation evaluation rebate program has the potential to save 1.5 mgd based on model simulations in Citrus County. The model simulates the effect of 10,600 landscape and irrigation rebates in 2030. Each landscape and irrigation evaluation rebate is anticipated to cost $460, for a total measure cost of $4,876,000. This would mean that by 2030 the cost of this measure per 1,000 gallons of water is $2.09.

The ICI facility assessment program has the potential to save 1.2 mgd based on model simulations in Citrus County. The model simulates the effect of 499 ICI facility assessments in 2030. Each ICI facility assessment is anticipated to cost $3,450, for a total measure cost of $1,721,550. This would mean that by 2030 the cost of this measure per 1,000 gallons of water is $0.35.

Hernando County

Based on the water conservation model, public supply and domestic self-supply users in Hernando County have a total savings potential of 3.99 mgd if modeled water conservation

devices are implemented by 2030 assuming water demand increases occur according to the current projections. In Hernando County, the rain sensor, ULV toilet rebate, and the landscape and irrigation evaluation rebate programs provide the greatest savings (mgd) in the County. These three measures combine for a total savings of 3.1 mgd, out of the total 3.99 mgd savings potential simulated in Hernando County.

The rain sensor program has the potential to save 1.98 mgd based on model simulations in Hernando County. The model simulates the effect of 19,750 rain sensor fixtures in 2030. Each rain sensor is anticipated to cost $80, for a total measure cost of $1,580,000. This would mean that by 2030 the cost of this measure per 1,000 gallons of water is $0.51.

The ULV toilet rebate program has the potential to save 0.70 mgd based on model simulations in Hernando County. The model simulates the effect of 25,735 ULV toilet rebates in 2030. Each rebate is anticipated to cost $135, for a total measure cost of $3,474,225. This would mean that by 2030 the cost of this measure per 1,000 gallons of water is $1.18.

The landscape and irrigation evaluation rebate program has the potential to save 0.45 mgd based on simulations in Hernando County. The model simulates the effect of 3,185 landscape and irrigation evaluation rebates in 2030. Each rebate is anticipated to cost $460, for a total measure cost of $1,465,100. This would mean that by 2030 the cost of this measure per 1,000 gallons of water is $2.09.

Sumter County

Based on the water conservation model, public supply and domestic self-supply users in Sumter County have a total savings potential of 6.99 mgd if modeled water conservation programs are implemented by 2030 assuming water demand increases occur according to the current projections. In Sumter County, the rain sensor, the landscape and irrigation evaluation rebate, and the ICI facility assessment programs provide the greatest savings (mgd) in the County. These three measures combine for a total savings of 5.95 mgd, out of the total 6.99 mgd savings potential simulated in Sumter County.

The rain sensor program has the potential to save 3.19 mgd based on model simulations in Sumter County. The model simulates the effect of 31,945 rain sensor fixtures in 2030. Each rain sensor is anticipated to cost $80, for a total measure cost of $2,555,600. This would mean that by 2030 the cost of this measure per 1,000 gallons of water is $0.51.

The landscape and irrigation evaluation rebate program has the potential to save 2.38 mgd based on model simulations in Sumter County. The model simulates the effect of 17,030 landscape and irrigation evaluation rebates in 2030. Each rebate is anticipated to cost $460, for a total measure cost of $7,833,800. This would mean that by 2030 the cost of this measure per 1,000 gallons of water is $2.09.

The ICI facility assessment program has the potential to save 0.37 mgd based on model simulations in Sumter County. The model simulates the effect of 160 assessments in 2030. Each ICI facility assessment is anticipated to cost $3,450, for a total measure cost of $552,000. This would mean that by 2030 the cost of this measure per 1,000 gallons of water is $0.35.

Marion County

Based on the water conservation model, public supply and domestic self-supply users in Marion County have a total savings potential of 3.92 mgd if modeled water conservation programs are implemented by 2030 assuming water demand increases occur according to the current projections. In Marion County, the rain sensor, the landscape and irrigation evaluation rebate, and the ICI facility assessment programs provide the greatest savings (mgd) in the County. These three measures combine for a total savings of 2.91 mgd, out of the total 3.92 mgd savings potential simulated in Marion County.

The rain sensor program has the potential to save 1.87 mgd based on model simulations in Marion County. The model simulates the effect of 11,260 rain sensor fixtures in 2030. Each rain sensor is anticipated to cost $80, for a total measure cost of $900,800. This would mean that by 2030 the cost of this measure per 1,000 gallons of water is $1.87.

The landscape and irrigation evaluation rebate program has the potential to save 0.75 mgd based on model simulations in Marion County. The model simulates the effect of 5,377 rebates 2030. Each landscape and irrigation rebate is anticipated to cost $460 for a total measure cost of $2,473,420. This would mean that by 2030 the cost of this measure per 1,000 gallons of water is $2.09.

The ICI facility assessment program has the potential to save 0.28 mgd based on model simulations in Sumter County. The model simulates the effect of 122 assessments in 2030. Each ICI facility assessment is anticipated to cost $3,450, for a total measure cost of $420,900. This would mean that by 2030 the cost of this measure per 1,000 gallons of water is $0.28.

4.6 Rate Structures

In service areas where significant commercial users are not present, high per capita rates in the WRWSA are generally attributable to outdoor water use. An example is Sugarmill Woods in Citrus County, where seasonal increases in demand correlate with dry periods and excessive rates of water use and high rates of domestic well construction have been observed by the SWFWMD.

As discussed in Chapter 1, the projected 2030 public supply demand in the WRWSA is 147.77 mgd. The projected 2030 public supply population is 851,734. The projected 2030 public supply gross per capita (including commercial use where present) is 173.5 gpcd.

4.6.1 Inverted Conservation Rate Structures

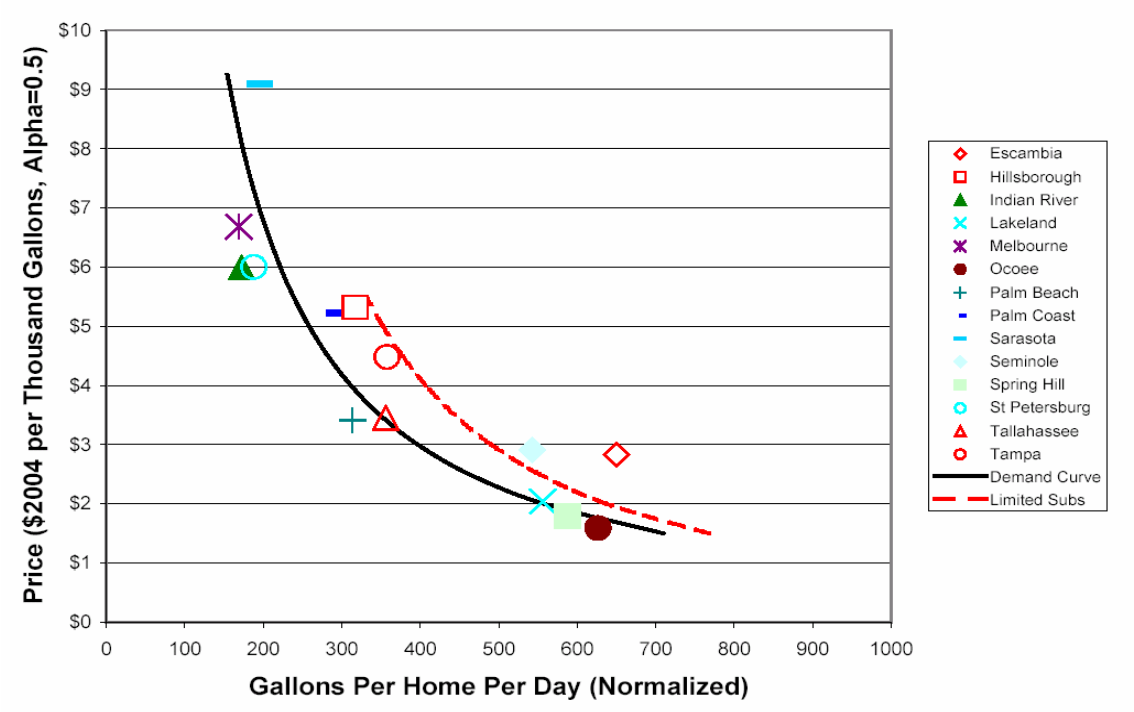
Inverted conservation rate structures are one of the most effective public supply conservation elements, and are particularly effective in reducing discretionary outdoor use. A well designed inclined structure targets high and medium volume residential water users, not low volume users. The decreases in water usage due to pricing are relatively well understood and predictable in Florida. Access to substitute sources, such as domestic wells, affects the amount of demand reduction as does the discretionary income of the customer (Whitcomb, 2005).

Figure 4-1 shows existing residential rate structures for WRWSA members. As shown, WRWSA members taken as a group cluster rates in the $1.00 to $3.00 per thousand gallons range for

approximately the first 40,000 gallons used per month. Compared to other effective rate structures, such as Orange County, Sarasota County, and City of Tampa, many existing rate structures in the WRWSA are relatively low and shallowly inclined. For reference, consumption of 40,000 gallons per month, for a single family home with 2.5 persons, equates to a residential per capita rate of 516 gpcd.

Figure 4-2 shows the general effect of conservation rate pricing on residential water consumption. As shown, significant reductions in water demand begin to occur when rates exceed $3.00 per thousand gallons. However, rates in the WRWSA generally do not exceed $3.00 per thousand gallons until consumption exceeds 40,000 gallons per month (roughly equivalent to a per capita of 516 gpcd). Figure 4-2 also shows that allowing source substitution causes the water use curve to shift towards greater water consumption at the same charge.

Figure 4-2. Water Demand Curve and Rate Structure Effectiveness.



Source: Yingling G. and Whitcomb, J. "Rate Structure and Single Family Residential Water Use in Florida" (2005).

Since many existing residential rate structures in the WRWSA are relatively low and shallowly inclined up to the 40,000 gallons per month threshold, significant demand reductions could be achieved through widespread implementation of more steeply inclined rate structures and elimination of source substitution opportunities. Commercial use is a relatively modest component of overall public supply demand in the WRWSA, so the widespread implementation of these tools will have a direct impact on per capita rates in the WRWSA. Based on a projected overall 2030 gross per capita in the region of 173.5 gpcd (which includes some commercial use), a potential overall gross per capita rate reduction ranging from 9 to 18 gpcd (range of 5% to 10%) should be achievable through implementation of well designed rate structures with

elimination of source substitution opportunities. This equates to a potential overall 2030 public supply demand reduction in the WRWSA ranging from 7.4 to 14.8 mgd.

The implementation of improved rate structures normally requires a rate study by the utility and adoption by individual members' Boards. The WMDs do not have the statutory ability to restrict domestic well construction, so elimination of these source substitutes must be done through individual member ordinance.

4.7 Watering Restriction Enforcement

WMD rules limit lawn watering to specific days and times to improve irrigation efficiency**. For** example, houses with addresses ending in an odd number are allowed to water on one or two specific days, and houses with addresses ending in an even numbers are allowed to water on one or two different days. Watering is not allowed in the hottest part of the day, in order to reduce water loss due to evaporation.

Watering restrictions are an effective outdoor conservation element when sufficient enforcement programs are in place (Davis, 1996; Tampa Bay Water, 1999). Currently, Citrus County, City of Crystal River, City of Inverness, Hernando County, Marion County, City of Ocala, and City of Wildwood have watering restriction enforcement programs in the WRWSA. Most of these are relatively new programs.

As with many other conservation elements, watering restriction enforcement must be an ongoing process to improve the effectiveness of enforcement and reinforce the shift in customer water use patterns as it occurs. The effect of this conservation element is seen with progressive decreases in seasonal use over time. Since watering restriction enforcement programs are relatively new in the WRWSA, their overall effect on region-wide gross per capita rates has not fully materialized to date. Potentially, this effect will be greater than that of enhanced inverted rate structures because it reaches domestic self-supply. However, based on current and ongoing implementation and improvement of these programs, an overall potential gross per capita rate reduction ranging from 9 to 18 gpcd (range of 5% to 10%) can occur through enforcement of watering restrictions. This equates to a potential overall 2030 public supply demand reduction in the WRWSA ranging from 7.4 to 14.8 mgd.

4.8 WRWSA Regional Outdoor Irrigation Audit Program

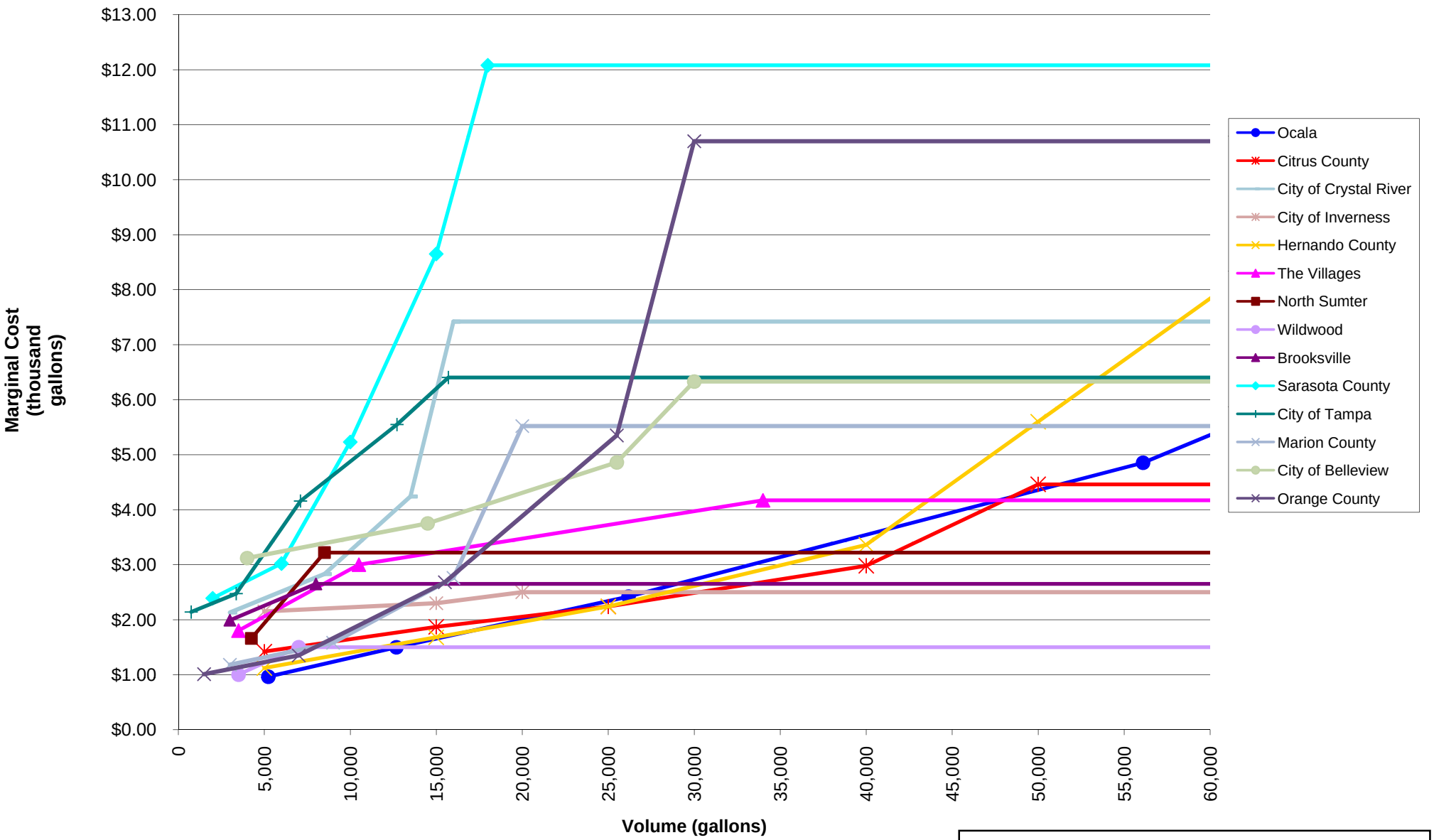
The WRWSA and water conservation coordinators in the region have formulated, with input from SWFWMD, an incentive-based regional irrigation audit pilot program. The program will consist of three main elements:

- Training and certification of irrigation auditors;
- Field audits of residential irrigation systems and conservation education through the audit process; and,
- Follow-up surveys to determine whether program recommendations have been implemented.

The program will seek to undertake 250 site-specific evaluations of inefficient landscaping practices and irrigation devices. Local water conservation coordinators will focus on residential users with monthly usage greater than 30,000 gallons. Soil moisture and rain sensors will be

provided and installed for participants who do not have functioning devices. It is anticipated that 60,000 gpd will be saved during the pilot phase of the program. The program may be expanded over time as there are over 270,000 residential water customers in the region.

Participants in the pilot program include Marion, Citrus, and Hernando Counties; and the Villages. The WRWSA has submitted a Cooperative Funding Application to SWFWMD for consideration towards a 50% cost-share match.



Note: Data points show the marginal cost of water consumption applied at the midpoint of each rate tier. The rate structures shown are for illustrative purposes only and are approximate based on the indicated data points.

Figure 4-1 - Selected Residential Public Supply Rate Structures

	REGULATION								EDUCATION			INCENTIVES		
	Watering Restrictions	Inverted Rate Structure	Mandatory Dual Lines for New Development	Metering Programs	Leak detection, Prevention, and repair	Water Audits	Pressure Monitoring and Control	Landscape Ordinances/ Florida Friendly Landscaping	Dedicated Staff	Bill Stuffers, Door Hangers, etc.	Education Programs	Toilet Rebates	Rain Sensors	Retrofit Packages (Aerators, Toilet Dams, Shower Heads, etc.)
Citrus County														
Citrus County Utilities	✓	✓	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓
Crystal River	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×
Inverness	✓	×	×	✓	✓	✓	✓	✓	×	✓	✓	×	×	×
Hernando County														
Hernando County Utilities	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Brooksville	✓	✓	✓	×	✓	×	×	✓	×	✓	×	×	×	×
Sumter County														
Bushnell	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	×	✓	×
Center Hill	×	×	×	×	✓	✓	✓	✓	×	✓	×	×	×	×
Coleman *														
Villages	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	N/A	✓	N/A
Wildwood	✓	✓	×	✓	✓	✓	✓	✓	×	×	✓	×	×	×
Marion County														
Marion County Utilities	✓	✓	×	✓	✓	✓	×	✓	✓	✓	✓	×	✓	✓
City of Ocala	✓	✓	✓	✓	✓	×	✓	×	✓	×	✓	✓	✓	✓
Dunnellon	×	×	×	✓	✓	✓	×	×	×	×	×	×	×	×
Belleview	✓	✓	×	✓	✓	✓	✓	✓	×	×	✓	×	×	×
McIntosh	×	✓	×	✓	✓	✓	✓	×	×	×	✓	×	×	×
Reddick *														

✓ Indicates existing programs or programs planned to be implemented
× Indicates programs not currently implemented or planned

* Water conservation surveys were not received from these cities, and conservation information was not readily available for the Phase II report.

Table 4-1 - Conservation Program Inventory

Chapter 9
Capital Improvements Element
Data and Analysis

Unified Sumter County/Center Hill/Webster Comprehensive Plan

Insert following pages

Table 9-4
Consolidated 5 Year Capital Improvements Plan for Unincorporated County, City of Center Hill, and City of Webster

Parks and Recreation	Project	Required for Concurrency	County or City	Funding Source*	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/2015	FY 2015/16	Prior Years Funding	Futue Years Funding	Total
	Gant Lake Park Restroom Improvements	No	County	FBIP	$55,000							$55,000
	Lake Panasoffkee Recreation Park Walking Trail	No	County	COR		$112,000						$112,000
	Lake Panasoffkee Recreation Park Skate Park	No	County	COR		$115,000						$115,000
	Lake Panasoffkee Recreation Park Handball/Racquetball Court	No	County	COR		$85,000						$85,000
	No Projects	No	Center Hill, Webster	No Projects								

Solid Waste	Project	Required for Concurrency	County or City	Funding Source*	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/2015	FY 2015/16	Prior Years Funding	Futue Years Funding	Total
	Citizens Drop-Off Area/Animal Control Joint Use Facility	No	County	COR		$1,600,000				$87,000		$1,687,000

Stormwater	Project	Required for Concurrency	County or City	Funding Source*	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/2015	FY 2015/16	Prior Years Funding	Futue Years Funding	Total
	Panacoochee Project	No	County	GF/CDBG/CBIR	$438,000	$437,000				$20,000		$895,000
	Big Prairie-Gant Lake	No	County	GF		$114,802						$114,802
	Jumper Creek	No	County	GF/CBIR		$140,000	$347,234	$347,908	$233,412			$1,068,554
	CR 647N Drainage Improvements	No	County	GF			$300,000					$300,000
	Miscellaneous Stormwater Projects	No	County	GF		$250,000	$200,000	$130,000	$130,000		$130,000	$840,000
	No Projects	No	Center Hill, Webster	No Projects								

Potable Water	Project	Required for Concurrency	County or City	Funding Source*	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/2015	FY 2015/16	Prior Years Funding	Futue Years Funding	Total
	Central Beef Potable Water Line Extension	No	Center Hill	CDBG	$357,357							$357,357

Wastewater	Project	Required for Concurrency	County or City	Funding Source*	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/2015	FY 2015/16	Prior Years Funding	Futue Years Funding	Total
	No Projects	No	County, Center Hill, Webster	No Projects								

Transportation	Project	Required for Concurrency	County or City	Funding Source*	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/2015	FY 2015/16	Prior Years Funding	Futue Years Funding	Total
	C-468 & Florida Turnpike Interchange	No	County	RIF		$1,566,000	$829,000	$5,345,000	$4,000,000			$11,740,000
	C-462 - Widening from US 301 to C-466A	No	County	RIF		$900,000	$5,800,000					$6,700,000
	C-466 -Widening from US 301 to CR 209	No	County	RIF		$450,000	$2,000,000	$3,500,000				$5,950,000
	C-466A - Phase III from US 301 to Powell Road	No	County	RIF	$2,300,000	$2,468,438	$2,200,000					$6,968,438
	C-468 - Widening from SR 44 to Florida Turnpike	No	County	RIF				$5,000,000	$4,100,000			$9,100,000
	C-468 - Widening from US 301 to Florida Turnpike	No	County	RIF							$20,200,000	$20,200,000
	C-475 - Improve exsiting road from C-470 to CR 542	No	County	ST/SCOP							$2,200,000	$2,200,000
	C-469 - Improve existing road from C-48 to SR 50	No	County, Center Hill	ST/CIGP		$2,730,000						$2,730,000
	C-466 - Improve existing road from CR 209 to C-475	No	County	CIGP	$1,200,000					$28,000		$1,228,000
	C-470 - Improve existing road from I-75 to CSX ROW	No	County	CTT	$211,000					$20,000		$231,000
	C-673 - Improve existing road from US 301 to West 4,500 feet	No	County	CTT/SCRAP	$380,000					$25,000		$405,000
	US 301 - Langely turn lanes	No	County	CTT	$417,775					$62,000		$479,775
	CR 542 W - Resurface from US 301 to C-475	No	County	ST/CIGP		$388,000						$388,000
	C Roads Miscellaneous Resurfacing	No	County	ST	$3,054,525	$400,000	$1,000,000	$1,000,000	$1,000,000			$6,454,525
	CR Roads Miscellaneous Resurfacing	No	County	CTT	$145,475	$2,520,000	$2,000,000	$2,000,000	$1,000,000	$1,399,201		$9,064,676
	US 301 - Intersection improvement at C-466 (FDOT Item # 430187-1)	No	County	FDOT			$624,924					$624,924
	C-466 - Resurfacing from US 301 to CR 475 (FDOT Item # 428443-1)	No	County	FDOT				$1,612,903				$1,612,903
	SR 48 - Traffic Operations Improvement from 300 feet west of CR 475 to CR 475 (FDOT Item # 240418-3	No	County	FDOT		$506,547						$506,547
	SR 48 - Widening from I-75 to CR 475 (FDOT Item # 240418-2)	No	County	FDOT		$11,017,594	$4,200,000		$10,087,256			$25,304,850
	SR 50 - Resurfacing from Hernando County line to SR 471 (FDOT Item # 424884-1)	No	County, Webster	FDOT		$76,942						$76,942
	I-75 - Resurfacing from Hernando County line to North of Panasoffkee Bridge (FDOT Item # 427375-1)	No	County, Center Hill, Webster	FDOT		$2,493,608						$2,493,608
	I-75 - Right of Way Acquisition from Hernando County line to C-470 (FDOT Item # 242626-2)	No	County, Center Hill, Webster	FDOT		$8,039,333	$7,724,000					$15,763,333
	I-75 - Right of Way Acquisition from C-470 to Florida Turnpike (FDOT Item # 242626-3)	No	County, Center Hill, Webster	FDOT		$1,485,541	$1,847,490	$1,567,241				$4,900,272
	I-75 - ITS Communication System Hernando County to SR 44 (FDOT Item # 428212-1)	No	County	FDOT			$1,644,734					$1,644,734
	SE 471 - Resurfacing from Polk County to 1.83 miles south of Unnamed Canal (FDOT Item # 430653-1)	No	County, Webster	FDOT		$10,000	$240,000	$2,897,837				$3,147,837
	US 301 - PD&E from C-48 to C-470 (FDOT Item # 430133-1)	No	County	FDOT		$10,000	$1,000,000					$1,010,000
	US 301 - PD&E from C-470 to SR 44 (FDOT Item # 430-132-1)	No	County	FDOT		$10,000	$1,000,000					$1,010,000
	SR 44 - PD&E from CR 475 to I-75 (FDOT Item # 430134-1)	No	County	FDOT		$10,000	$860,000					$870,000
	US 301- Resurfacing from SR 48 to South of SE 13th Avenue (FDOT Item # 424883-1)	No	County	FDOT		$49,880						$49,880
	US 301 - Intersection improvement at SR 44 (FDOT Item # 430188-1)	No	County	FDOT			$10,008	$174,030	$65,557		$471,279	$720,874
	US 301 - Widening from CR 204 to Marion County line (Final Utility Issues) (FDOT Item # 411257-4)	No	County	FDOT		$1,363,372						$1,363,372
	US 301 - Widening from CR 232 to NE 110th Road (Final ROW Issues) (FDOT Item # 411257-3)	No	County	FDOT		$198,370						$198,370

*Key to Funding Sources:

FBIP - State of Florida Boating Improvement Fund
COR - Sumter County Capital Reserves
GF - Sumter County General Fund
CDBG - Federal Community Development Block Grant
CBIR - Southwet Florida Water Management District Community Budget Issues Request
RIF - Sumter County Road Impact Fee
ST - Sumter County Secondary Trust
SCOP - Florida Department of Transportation Small County Outreach Program
CTT - Sumter County Community Transportation Trust
SCRAP - Florida Department of Transportation Small County Road Assistance Program
FDOT - Florida Department of Transportation
CIGP - County Incentive Grant Program

Source: Sumter County Capital Improvement Plan Adopted for FY 2011/12 Annual Budget; Updated with Tentative FY 2012/13 Annual Budget Capital Improvement Plan (September 7, 2012)
Florida Department of Transportation 5 Year Work Program FY 2013-2017, dated July 1, 2012 and Updated September 7, 2012
Lake-Sumter Metropolitan Planning Organization FY 2012/13 - 2016/17 Transportation Improvement Program, dated June 27, 2012 and Amended on August 22, 2012.