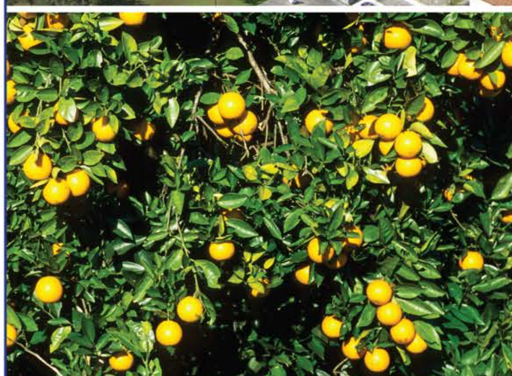
Central Florida Water Initiative

Appendices, Volume IA





REGIONAL WATER SUPPLY PLAN APPENDICES TO VOLUME I

2015

A comprehensive plan for Orange, Osceola, Polk, Seminole, and southern Lake counties

This document is the Central Florida Water Initiative (CFWI) Regional Water Supply Plan (RWSP), Volume IA, Appendices. Staff from the South Florida Water Management District (SFWMD), St. Johns River Water Management District (SJRWMD), and Southwest Florida Water Management District (SWFWMD) worked together and in conjunction with members of various Central Florida Water Initiative technical teams and other stakeholders to generate the CFWI RWSP. Section 373.709, Florida Statutes (F.S.), details the components of regional water supply plans.

In November 2015, the respective governing boards of the three water management districts approved the 2015 CFWI RWSP, Volumes I and II with their associated appendices. These documents are available at cfwiwater.com.

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Acronyms and Abbreviations

AFSIRS	Agricultural Field Scale Irrigation Requirements Simulation
AG	agriculture
AGMOD	Agricultural Water Use Model
ASR	aquifer storage and recovery
AWEP	Agriculture Water Enhancement Program
AWS	alternative water supply
BEBR	University of Florida's Bureau of Economic and Business Research
BMPs	best management practices
CII	commercial/industrial/institutional
CERP	Comprehensive Everglades Restoration Plan
CFCA	Central Florida Coordination Area
CFI	Cooperative Funding Initiative
cfs	cubic feet per second
CFWI	Central Florida Water Initiative
CUP	consumptive use permit
DDN	drawdown
DEO	Department of Economic Opportunity
DO	dissolved oxygen
DSS	domestic self-supply and small utility
DWSP	District Water Supply Plan
ECFT	East Central Florida Transient Groundwater Model
ECFT(sf)	East Central Florida Transient Groundwater Model (model used previously by the South Florida Water Management District)
EDR	electrodialysis reversal

EMT	Environmental Measures Team
EOP	end of permit
EPA	United States Environmental Protection Agency
EQIP	Environmental Quality Incentive Program
F.A.C.	Florida Administrative Code
FARMS	Facilitating Agricultural Resource Management Systems
FAS	Floridan aquifer system
FASS	Florida Agricultural Statistics Service
FAWCET	Florida Automated Water Conservation Estimation Tool
FAWN	Florida Automated Weather Network
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FEMA	Federal Emergency Management Agency
FFL	Florida-Friendly Landscaping™
FGBC	Florida Green Building Coalition
FGLP	Florida Green Lodging Program
FGUA	Florida Government Utility Authority
F.S.	Florida Statute
ft	foot or feet
ft bls	feet below land surface
FWS	Florida Water Star℠
FY	Fiscal Year
GAT	Groundwater Assessment Team
GIS	Geographic Information System
gpcd	gallons per capita per day
gpd	gallons per day

gpdpp	gallons per person per day
gpm	gallons per minute
HAT	Hydrologic Assessment Team
IFAS	Institute of Food and Agricultural Services
IGCC	International Green Construction Code
KBWSP	Kissimmee Basin Water Supply Plan
KCOL	Kissimmee Chain of Lakes
LRA	landscape/recreational/aesthetic
LEED	Leadership in Energy and Environmental Design
LFA	Lower Floridan aquifer
M/D	mining/dewatering
MAC	minimal aquifer connection
MAMF	median of annual median flows
MFL	Minimum Flow and Level
MFLs	Minimum Flows and Levels
MFLRT	Minimum Flows and Levels and Reservations Team
MFR	Minimum Flow Regime
mg/L	milligrams per liter
mgd	million gallons per day
MIL	mobile irrigation laboratory
MODFLOW	Modular groundwater flow model
ND	Not determined
NGVD	National Geodetic Vertical Datum of 1929
NRCS	Natural Resource Conservation Service
OCU	Orange County Utilities
OUC	Orlando Utility Commission

PPH	persons per household
PRMRWSA	Peace River Manasota Regional Water Supply Authority
RC	Reference Condition
RCID	Reedy Creek Improvement District
RIB	Rapid Infiltration Basin
RO	reverse osmosis
ROMP	Regional Observation and Monitor-well Program
RT	Regulatory Team
RWSP	Regional Water Supply Plan
SAS	surficial aquifer system
SFR	single-family residential
SFWMD	South Florida Water Management District
SHA	significantly hydrologically altered
SJRWMD	St. Johns River Water Management District
SPT	Solutions Planning Team
STAG	State and Tribal Assistance Grants
STOPR	St. Cloud, Tohopekaliga Water Authority, Orange County, Polk County, Reedy Creek Improvement District
Subgroup	Population and Water Demand Subgroup
SWFWMD	Southwest Florida Water Management District
SWIMAL	Saltwater Intrusion Minimum Aquifer Level
SWUCA	Southern Water Use Caution Area
TAZ	traffic analysis zone
TBW	Tampa Bay Water
TDS	total dissolved solids
TWA	Tohopekaliga Water Authority

UF	University of Florida
UFA	Upper Floridan aquifer
USACE	U.S. Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
Water CHAMP℠	Water Conservation Hotel and Motel Program
Water PRO	Water conservation program for restaurants
WaterSIP	Water Savings Incentive Program
WCCF	Water Cooperative of Central Florida
WPCG	Water Planning Coordination Group
WPSP	Water Protection and Sustainability Program
WRAP	Water Restoration Action Plan
WRD	Water Resource Development
WSIS	Water Supply Impact Study
WTP	water treatment plant
WWTP	wastewater treatment plant

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A

Population and Water Demand Estimates

METHODOLOGY

As noted in **Volume I**, **Chapter 2**, the methodologies used to project demands were only briefly summarized; complete and detailed methodologies can be found in the references cited (published or online documents) for the CFWI RWSP or in this appendix.

Public Supply

SFWMD Methodology for Public Supply Current Population Estimates and Future Population Projections

Maps – Currently Served Area and Area to Be Served at End of Planning Period

A Geographic Information System (GIS) map of a utility's currently served area is the first step in the development of the current estimated population. Work with each public supply utility to develop a detailed map that delineates their area currently served (water is being delivered to homes and buildings within the area).

- Many utilities have areas within their boundaries that are not served. These are often referred to as donut holes and also need to be delineated on the map in order to have the most accurate numbers.
- Compare maps of adjacent utilities to identify any overlap. When this occurs, communicate with both utilities to come to agreement.
- Map must be reviewed and approved by the utility prior to the map being finalized.
- If the utility is 'owned' by a local government, it is prudent to also coordinate the final map with the local government planning staff.
- Identify (on the map) areas that are sent bulk water.
- Insert a date (completion) on the map.

Using the currently served area map, prepare a map of the area to be served at the end of the planning period. For some utilities, there will be no changes but for many the areas will be expanded. Information regarding the future plans of a utility may be found on their web page, consumptive use permit, or local government Comprehensive Plan or Water Supply Facilities Work Plan. Follow the same procedure as for the currently served area maps.

Current Population Estimation

Using the updated currently served area map, overlay each utility boundary with the census blocks or Traffic Analysis Zone (TAZ) data. Define queries for distributing the census blocks into the Utilities they overlay using an aerial image background. For those census blocks that are not completely within a single service area, overlay the census blocks and utility boundary onto the aerial image background to determine to which utility service area the population should be assigned. Add up the census blocks for the utility to establish a current population.

When using TAZs rather than census blocks, the same process is applied with one difference. Because census blocks have smaller populations they are generally assigned to one specific service area. For a TAZ that is not completely within the boundaries of a single service area, the geographer should look at the TAZ boundary over the aerial photography to assign a percentage to each service area.

List all utilities within a county on an Excel spreadsheet along with their associated population. When the populations for all utilities in a county have been completed, add the total population served by the utilities. Subtract this total from the census total for the county. The remaining population is considered to be in the use category Domestic Self-supply (DSS).

For the utilities that plan to expand the currently served area by the end of the planning period, determine the population of the future expanded area. At the appropriate planning year, this population will be added to the utility and taken from the DSS area (or a utility, if appropriate). For example, Utility A is adding additional water mains to be able to serve an area of 500 persons that is currently served by Utility B though a contractual agreement. This area would be added to the future service area map of Utility A and the residents added to the Utility A population. The area would be removed from the Utility B future service area and the population removed from the Utility B future population.

Future Population Projections

On the population spreadsheet, add a column for percentage of the county. Then, take the population of each service area (and DSS population) and divide it by the county population to obtain a percentage. This represents the percentage of the county that is served by each utility/DSS.

Make a column for each five-year increment and list the county medium BEBR population for that year. Multiply the county population by the utility county percentage to determine and estimated population for the utility. The total of the utility and DSS projected populations should add up to the medium UF Bureau of Economic and Business Research (BEBR) county population. This result gives the draft population projections (see **Table X**).

The next step is to look at the factors that will affect the future growth or demonstrate need to have the growth more or less than the medium BEBR growth rate. There is science and art to this. The factors that need to be reviewed include but are not limited to

- Large projects approved by Florida Department of Economic Opportunity (DEO) that will substantially add residents to an area
- Large projects not required to be submitted to DEO that will substantially add residents to an area
- Area has reached (or is close to) build-out
- Changing residential base – more retirees (smaller PPH) or more young families (greater PPH)
- Schools within the service area more crowded or less crowded than average schools in the county
- Expanded service areas
- Annexing areas
- Plans/schedule to provide service to donut hole areas
- Plans/schedules to provide reclaimed water to an area (to get irrigation users off potable water)
- Other input from the utility and local government(s) in the service area

Using this information, adjust future populations, generally taking care to keep the county total population the same. When population is added to a service area, it should come from a different utility or DSS. However, it may be appropriate for projects with substantial anticipated population growth to require increasing the future county population to a level higher than medium BEBR. These increases should be well documented and generally footnoted on the specific utility summary (in the water supply plan).

Table X. Example County with Population Projections

	2010 Population	% of County - 2010	% of County	Future % of county	2015	2020	2025	2030
Wayne County*	800,100				872,100	968,000	1,058,100	1,152,300
Farmington Water Utility	178,234	0.2228			194,273	215,636	235,707	256,692
Farmington Hills PWS	246,836	0.3085			269,048	298,634	326,431	355,492
Oakland Hills Water Utility	152,007	0.1900			165,686	183,905	201,023	218,920
Cedar Beach Utility	104,299	0.1304			113,685	126,186	137,931	150,211
Rio Rancho PWS	44,045	0.0550						
add in 2015	4,285		0.0054					
Expanded Rio Rancho PWS				0.0604	52,679	58,472	63,914	69,605
Total Served by Utilities	725,421				795,371	882,834	965,007	1,050,919
DSS	74,679	0.0933						
DSS less areas newly served	70,394				76,729	85,166	93,093	101,381
		1.00						

***From 2010 census data; from medium BEBR in all other years**

SJRWMD and SWFWMD Synopsis for Public Water Supply Current Population Estimates and Future Population Projections

SJRWMD and SWFWMD use a proprietary model that projects future permanent population growth at the census block level, distributes that growth based on growth drivers and inhibitors to parcels within each block, and normalizes those projections to BEBR medium county projections. These methods are described in published reports (Doty 2009a, 2009b, 2011).

Agriculture

CFWI Planning Area Agricultural Acreage and Demand Projection Synopsis

- SFWMD Current and Projected acreage and demand by crop type and by county
- Projected acreage based on historical trends by crop type and input from AG industry groups and individual permit holder projections.
  - 2010 estimated base year acreage, base year acreage determined by interpretation of 2008 aerial photography, land use/land cover analysis, and input from sources including FASS, IFAS, permitting, FDACS, and other agricultural stakeholder groups
- Projected demand estimated using crop irrigation requirements by crop type and county
  - AFSIRS – both average and 1-in-10 drought year demand projections were made.

SJRWMD

- Projected acreage and demand by county
- County acreage estimates based on 2005 AG spatial layer and estimated irrigated acres lost due to population growth
  - GIS parcel based model, developed by GIS Associates, Inc.
  - Calculated as: AG acres lost = acres ([AG intersect growth parcel]) × [parcel growth build-out ratio]. AG intersect growth parcel = 2005 AG layer intersected with parcels expected to have population in 2030. Parcel growth build-out ratio = ([2030 population] – [2005 population]) ÷ [build-out population]
- Projected demand calculated as: percent change of 2005 – 2030 irrigated AG acres applied to estimated 2005 county AG water use to determine 2030 AG water use

SWFWMD

- Projected acreage and demand by crop type and by county
- Projected acreage determined by "best line fit" used to determine the rate of increase or decrease over the 20-year period.
  - 2006 base year acreage
  - Sources included Florida Agricultural Statistics Service (FASS) reports, Florida Commercial Citrus Inventory (1998 - 2008) Johns, Grace M. "Update of Irrigation Agricultural Acreage Projections by County." Memorandum. Hazen and Sawyer, October 9, 2007.

- Projected demand estimated using crop irrigation requirements by crop type and county
    - Includes location, climatology, soil type, irrigation system type, and growing season.
    - Projected acreage ran in agricultural water use allocation program (AGMOD)

Stakeholder Review Comments

Based on comments received in the CFWI Planning Area Population and Water Demand Subgroup meetings, the projected agricultural acres and demands for the portion of Osceola County in **SJRWMD** were updated as follows:

It was determined that the base year water use of 2005 represented all of Osceola County, not just the portion within SJRWMD.

- Base year updated to 2010
    - 2010 Acreage by crop
        - Percent of total for each crop calculated
        - Source of data: extension agents
    - Water use by crop
        - Modified Blaney-Criddle Model
        - Water use by acre by crop estimated
    - Historic growth rates for irrigated acres obtained from FAS, 2007 agricultural census.
        - 2002 – 2007 growth rate
- Projected acreage
    - 2002 – 2007 growth rate used for each 5-year planning horizon: county total
        - By crop: 2010 percent of total estimated for each crop multiplied to county total
- Projected demand
    - 2010 water use by acre by crop applied to projected acreage by crop
- ECFS sod acreage and associated demand increased to reflect currently issued permit

Based on comments received in the CFWI Planning Area Population and Water Demand Subgroup meetings, the projected agricultural acres and demands for the portion of Osceola County in **SFWMD** were updated as follows:

Acreage and demands for issued permit Latt Maxcy were added to the projections for Osceola County (23,055 acres and 31.40 mgd).

Landscape / Recreational / Aesthetic (LRA)

The LRA category includes self-supplied water use associated with the irrigation, maintenance, and operation of golf courses, cemeteries, parks, medians, attractions, and other large self-supplied green areas. This category also includes projections for miscellaneous irrigation or additional irrigation demand for wells that have a diameter of less than 6 inches, those uses which have a permit by rule, and are used for irrigation at residences that receive potable water for indoor use from a utility. Miscellaneous irrigation use is only projected for those areas within the CFWI Planning Area boundaries within SWFWMD boundaries. The methodology for projecting the number of wells is addressed in the report by Smith (2004). SWFWMD estimates that approximately 300 gallons per day are used for each well.

PUBLIC WATER SUPPLY PROJECTION TABLES

Tables A-1 to A-8, were developed in support of the projected water demand summary tables found in **Volume I**, **Chapter 2**. These tables provide public supply projections by utility and projections by District by county for each of the water use categories, including miscellaneous irrigation.

Table A-1. CFWI Planning Area Public Supply Population and Water Demand Projections by Utility: BEBR medium scenario.

Utility	Population Projections [j]						Demand Projections (5-in-10) (mgd)						GPCD Used [a]	2035[k] 1-in-10 Demand (mgd)
	2010[i]	2015	2020	2025	2030	2035	2010[i]	2015	2020	2025	2030	2035		
City of Cocoa	173,445	183,644	194,956	205,230	215,019	224,781	23.76	25.16	26.71	28.12	29.46	30.79	137	32.64
Lake County (SJRWMD & SWFWMD [c])														
City of Leesburg (CUP 94)	28,937	31,747	34,944	38,110	41,273	44,410	9.12	10.00	11.01	12.00	13.00	13.99	315	14.83
Southlake Utilities Inc. [b] (CUP 2392)	7,204	8,925	8,925	11,237	13,548	15,860	1.34	1.66	1.66	2.09	2.52	2.95	186	3.13
City of Mascotte (CUP 2453)	4,413	5,031	5,770	6,574	7,408	8,264	0.53	0.60	0.69	0.79	0.89	0.99	120	1.05
City of Clermont (CUP 2478)	25,422	29,858	34,298	36,922	38,550	39,849	4.47	5.26	6.04	6.50	6.78	7.01	176	7.43
Thousand Trails (CUP 2531)	655	655	655	655	655	655	0.04	0.04	0.04	0.04	0.04	0.04	55	0.04
Town of Montverde (CUP 2671)	2,533	2,993	3,557	3,924	4,132	4,331	0.43	0.50	0.60	0.66	0.69	0.73	168	0.77
Lake Utility Services Inc. (CUP 2700)	22,836	27,268	34,322	41,890	47,897	51,791	7.47	8.92	11.22	13.70	15.66	16.94	327	17.96
City of Groveland (CUP 2796, 2913)	7,592	10,639	13,933	16,901	19,674	22,379	0.97	1.36	1.78	2.16	2.52	2.86	128	3.03
Woodlands Church Lake LLC (CUP 2840)	363	365	368	372	376	382	0.13	0.13	0.13	0.14	0.14	0.14	365	0.15
City of Minneola (CUP 2886)	9,535	10,480	11,619	12,876	14,251	15,868	1.48	1.62	1.80	2.00	2.21	2.46	155	2.61
Ginn La Pine Island LTD LLLP (CUP 2900)	162	391	733	827	847	852	0.03	0.07	0.14	0.15	0.16	0.16	185	0.17
Clerbrook Golf & RV Resort (CUP 6398)	956	956	956	956	956	956	0.05	0.05	0.05	0.05	0.05	0.05	54	0.05
Barrington Estates (CUP 10846)	51	120	214	324	446	596	0.01	0.02	0.04	0.06	0.08	0.10	174	0.11
Ginn Pine Island II LLLP (CUP 50115)	14	25	42	64	89	120	0.00	0.01	0.01	0.02	0.03	0.04	330	0.04
City of Mount Dora (CUP 50147)	19,554	20,457	21,378	22,235	26,411	30,975	3.01	3.15	3.29	3.42	4.07	4.77	154	5.06
Colina Bay Water Company (CUP 103822)	2	4	8	13	19	26	0.00	0.00	0.01	0.01	0.01	0.02	693	0.02
Total CFWI Planning Area Lake County [c]	**130,229**	**149,914**	**171,722**	**193,880**	**216,532**	**237,314**	**29.08**	**33.39**	**38.51**	**43.79**	**48.85**	**53.25**	**NA**	**56.45**

Table A-1. CFWI Planning Area public supply population and water demand projections by utility: BEBR medium scenario (continued).

Utility	Population Projections [j]						Demand Projections (5-in-10) (mgd)						GPCD Used [a]	2035[k] 1-in-10 Demand (mgd)
	2010[i]	2015	2020	2025	2030	2035	2010[i]	2015	2020	2025	2030	2035		
Orange County (SJRWMD & SFWMD)														
Zellwood Station Community Assoc. - SJRWMD	1,928	1,939	1,941	1,942	2,498	3,119	0.32	0.32	0.32	0.32	0.41	0.52	166	0.55
Orlando Utilities Commission - (CUP 3159 - SJRWMD & SFWMD)	414,431	426,737	457,110	494,569	524,720	532,337	85.78	88.33	94.62	102.38	108.62	110.19	207	116.80
Clarcona Resorts Condominium Association - (CUP 3203) SJRWMD	1,678	1,678	1,678	1,678	1,678	1,678	0.11	0.11	0.11	0.11	0.11	0.11	68	0.12
City of Ocoee - (CUP 3216) SJRWMD	32,091	32,977	34,009	35,502	36,713	37,770	4.04	4.16	4.29	4.47	4.63	4.76	126	5.05
City of Apopka - (CUP 3217) SJRWMD	60,098	67,502	82,305	100,700	121,505	139,135	8.77	9.86	12.02	14.70	17.74	20.31	146	21.53
Zellwood Water Users Inc. - (CUP 3301) SJRWMD	1,037	1,148	1,933	2,274	2,422	2,565	0.11	0.12	0.20	0.24	0.26	0.27	106	0.29
Wedgefield Utilities Inc. - (CUP 3302) SJRWMD	4,402	4,618	4,706	4,730	4,737	4,744	0.48	0.50	0.51	0.51	0.51	0.51	108	0.54
Orange County Public Utilities - (CUP 3317 - SJRWMD & SFWMD)	491,789	574,038	642,663	697,436	749,498	817,776	66.88	78.07	87.40	94.85	101.93	111.22	136	117.89
Town of Oakland - (CUP 3347) SJRWMD	2,101	2,186	2,401	2,597	2,708	2,779	0.36	0.38	0.42	0.45	0.47	0.48	173	0.51
City of Winter Garden - (CUP 3368) SJRWMD	35,285	38,941	44,027	48,069	53,977	61,053	4.16	4.60	5.20	5.67	6.37	7.20	118	7.63
Rock Springs Palm Isles MHC LLC - (CUP 3370) SJRWMD	2,010	2,033	2,066	2,111	2,167	2,176	0.40	0.40	0.41	0.42	0.43	0.43	199	0.46
Town of Eatonville - (CUP 3407) SJRWMD	2,277	2,332	2,628	2,734	2,787	2,846	0.32	0.33	0.37	0.39	0.39	0.40	141	0.42
City of Winter Park - (CUP 7624) SJRWMD	57,987	58,279	58,279	58,279	58,279	58,279	10.09	10.14	10.14	10.14	10.14	10.14	174	10.75
City of Maitland - (CUP 50258) SJRWMD	11,738	11,906	12,200	12,311	12,369	12,437	2.58	2.62	2.68	2.71	2.72	2.74	220	2.90
Florida Governmental Utility Authority, Inc. - (CUP 51073) SJRWMD	2,853	3,563	9,174	14,486	18,628	22,750	0.39	0.49	1.26	1.98	2.55	3.12	137	3.31
Starlight Ranch MHC - (CUP 86536) SJRWMD	2,067	2,067	2,067	2,067	2,067	2,067	0.17	0.17	0.17	0.17	0.17	0.17	81	0.18
Sun Communities Inc - (CUP 92244) SJRWMD	580	580	580	580	580	580	0.09	0.09	0.09	0.09	0.09	0.09	149	0.10

Table A-1. CFWI Planning Area public supply population and water demand projections by utility: BEBR medium scenario (continued).

Utility	Population Projections [j]						Demand Projections (5-in-10) (mgd)						GPCD Used [a]	2035 [k] 1-in-10 Demand (mgd)
	2010 [i]	2015	2020	2025	2030	2035	2010 [i]	2015	2020	2025	2030	2035		
Orange County (SJRWMD & SFWMD) continued														
Reedy Creek Improvement District (SFWMD) [b,d]	0	0	0	0	0	0	16.50	18.20	20.60	22.50	23.60	24.70	NA	26.18
Taft Water Association (SFWMD)	2,746	2,684	2,836	2,981	3,110	3,195	0.29	0.29	0.30	0.31	0.29	0.30	2006 - 2010 GPCD Average with reduction	0.32
Total CFWI Planning Area Orange County	**1,127,098**	**1,235,208**	**1,362,603**	**1,485,046**	**1,600,443**	**1,707,286**	**201.84**	**219.18**	**241.11**	**262.41**	**281.43**	**297.66**	**NA**	**315.53**
Osceola County (SJRWMD & SFWMD)														
East Central FLA Services Inc - (CUP 3426 - SJRWMD & SFWMD)	2,305	15,657	26,324	33,069	34,136	35,367	0.30	2.07	3.47	4.37	4.51	4.67	132	4.95
St. Cloud Utility (SFWMD)	37,979	51,942	65,723	79,489	93,273	106,374	5.20	7.12	9.00	10.89	12.78	14.57	137	15.44
Tohopekaliga Water Authority (TWA) (SJRWMD & SFWMD)	161,914	185,509	211,671	242,103	278,529	312,010	32.55	37.24	42.46	48.55	55.83	62.59	202 (TWA) / 118 (O&S Utility)	66.35
Total CFWI Planning Area Osceola County	**202,198**	**253,108**	**303,718**	**354,661**	**405,938**	**453,751**	**38.05**	**46.43**	**54.93**	**63.81**	**73.12**	**81.83**	**NA**	**86.74**
Polk County (SFWMD & SWFWMD)														
Mountain Lake Corporation (WUP 143) - SWFWMD	345	351	357	364	370	377	0.13	0.13	0.13	0.13	0.14	0.14	369	0.15
City of Bartow (WUP 341) [e] - SWFWMD	24,281	25,734	27,722	30,219	32,997	35,850	3.28	3.47	3.74	4.08	4.45	4.84	135	5.13
City of Fort Meade - (WUP 645) SWFWMD	7,988	8,158	8,406	8,750	9,155	9,613	0.83	0.85	0.87	0.91	0.95	1.00	104	1.06
Four Lakes Mobile Home Park - (WUP 1616) SWFWMD	1,191	1,191	1,192	1,192	1,193	1,193	0.37	0.37	0.37	0.37	0.37	0.37	309	0.39
Lake Hamilton (WUP 2332) - SWFWMD	1,260	1,261	1,266	1,281	1,303	1,331	0.19	0.19	0.19	0.19	0.19	0.20	148	0.21
Park Water Company (WUP 4005) - SWFWMD	2,527	2,795	3,123	3,469	3,822	4,175	0.29	0.32	0.36	0.40	0.44	0.48	116	0.51

Table A-1. CFWI Planning Area public supply population and water demand projections by utility: BEBR medium scenario (continued).

Utility	Population Projections [j]						Demand Projections (5-in-10) (mgd)						GPCD Used [a]	2035[k] 1-in-10 Demand (mgd)
	2010[i]	2015	2020	2025	2030	2035	2010[i]	2015	2020	2025	2030	2035		
Polk County (SFWMD & SWFWMD) continued														
City of Winter Haven (WUP 4607) [e] - SWFWMD	67,596	72,542	78,444	84,566	90,168	95,203	10.75	11.53	12.47	13.45	14.34	15.14	159	16.05
City of Lake Wales (WUP 4658) [f] - SWFWMD	23,588	25,310	27,431	29,653	31,907	34,162	3.18	3.42	3.70	4.00	4.31	4.61	135	4.89
City of Lakeland Electric and Water (WUP 4912) [e] - SWFWMD	158,608	166,521	175,480	184,846	194,676	203,345	24.43	25.64	27.02	28.47	29.98	31.32	154	33.20
Grenelefe Resort Utility, Inc. (WUP 5251) - SWFWMD	2,520	2,529	2,541	2,553	2,564	2,576	0.87	0.87	0.87	0.88	0.88	0.89	355	0.94
City of Davenport (WUP 5750) [f] - SWFWMD	5,284	5,900	6,667	7,485	8,317	9,141	0.79	0.89	1.00	1.12	1.25	1.37	150	1.45
City of Frostproof (WUP 5870) [e] - SWFWMD	4,516	4,538	4,578	4,648	4,740	4,852	0.77	0.78	0.78	0.79	0.81	0.83	171	0.88
Town of Dundee (WUP 5893) - SWFWMD	4,868	5,200	5,620	6,085	6,571	7,067	0.69	0.74	0.80	0.86	0.93	1.00	142	1.06
City of Mulberry (WUP 6124) - SWFWMD	4,528	4,528	4,528	4,528	4,528	4,528	0.38	0.38	0.38	0.38	0.38	0.38	85	0.40
Polk County Utilities - NWRSA (WUP 6505) - SWFWMD [g]	42,779	47,263	52,726	58,236	63,092	67,667	5.35	5.91	6.59	7.28	7.89	8.46	125	8.97
Polk County Utilities - SWRSA (WUP 6506) - SWFWMD	38,214	43,591	49,796	54,959	58,649	61,849	4.05	4.62	5.28	5.83	6.22	6.56	106	6.95
Polk County Utilities - CRSA WUP 6507) - SWFWMD	11,422	12,204	13,275	14,700	16,336	18,109	0.99	1.06	1.15	1.28	1.42	1.58	87	1.67
Polk County Utilities - SERSA (WUP 6508) [f, h] - SWFWMD	5,606	5,670	5,803	6,064	6,412	6,836	0.68	0.69	0.70	0.73	0.78	0.83	121	0.88
Polk County Utilities - NERSA (WUP 6509) [f] (SWFWMD & SFWMD)	34,290	40,100	46,918	51,855	55,399	58,237	6.55	7.66	8.96	9.90	10.58	11.12	191	11.79
City of Lake Alfred (WUP 6624) - SWFWMD	8,049	8,746	9,382	10,008	10,632	11,230	1.30	1.42	1.52	1.62	1.72	1.82	162	1.93
City of Eagle Lake (WUP 6920) - SWFWMD	6,248	6,610	7,078	7,620	8,197	8,794	0.67	0.71	0.76	0.82	0.89	0.95	108	1.01

Table A-1. CFWI Planning Area public supply population and water demand projections by utility: BEBR medium scenario (continued).

Utility	Population Projections [j]						Demand Projections (5-in-10) (mgd)						GPCD Used [a]	2035[k] 1-in-10 Demand (mgd)
	2010[i]	2015	2020	2025	2030	2035	2010[i]	2015	2020	2025	2030	2035		
Polk County (SFWMD & SWFWMD) continued														
City of Auburndale (WUP 7119) - SWFWMD	32,014	33,507	35,388	37,614	39,535	41,472	5.79	6.06	6.41	6.81	7.16	7.51	181	7.96
CHCVII Lake Henry MHP (WUP 7187) - SWFWMD	1,086	1,124	1,169	1,214	1,258	1,260	0.22	0.23	0.24	0.25	0.26	0.26	204	0.28
Florida Governmental Utility Authority - Lake Gibson (WUP 7878) - SWFWMD	1,828	1,857	1,889	1,913	1,933	1,953	0.22	0.23	0.23	0.23	0.24	0.24	122	0.25
Polk County Utilities - ERSA (WUP 8054) [f, g] - SWFWMD	5,863	8,037	10,187	12,349	14,497	16,597	0.53	0.72	0.92	1.11	1.30	1.49	90	1.58
CHCIII Swift Village MHP (WUP 8344) - SWFWMD	900	900	900	900	900	900	0.13	0.13	0.13	0.13	0.13	0.13	144	0.14
City of Polk City (WUP 8468) - SWFWMD	7,177	7,676	8,305	9,024	9,791	10,577	0.66	0.71	0.76	0.83	0.90	0.97	92	1.03
City of Haines City (WUP 8522) [f] - SWFWMD	26,207	29,462	32,952	36,624	40,314	43,153	3.98	4.48	5.01	5.57	6.13	6.56	152	6.95
Utilities, Inc - Cypress Lakes Utilities Inc. (WUP 13043) - SWFWMD	2,731	2,753	2,782	2,820	2,863	2,910	0.14	0.14	0.14	0.14	0.15	0.15	51	0.16
River Ranch (SFWMD)	1,433	1,433	1,433	1,433	1,433	1,433	0.11	0.11	0.11	0.11	0.11	0.11	70	0.12
Tohopekaliga Water Authority (Poinciana) (SFWMD)	12,397	14,591	16,786	18,980	21,175	23,370	2.33	2.74	3.16	3.57	3.98	4.40	188	4.66
Total CFWI Planning Area Polk County	**547,344**	**592,082**	**644,124**	**695,952**	**744,727**	**789,760**	**80.65**	**87.20**	**94.75**	**102.24**	**109.28**	**115.71**	**NA**	**122.65**
Seminole County (SJRWMD)														
Sanlando Utilities Corp. (CUP 160)	33,507	34,445	35,268	35,455	36,699	37,176	10.49	10.78	11.04	11.10	11.49	11.64	313	12.34
City of Sanford (CUP 162)	58,225	61,235	67,456	69,352	70,815	71,318	7.98	8.39	9.24	9.50	9.70	9.77	137	10.36
Seminole County Environmental Services (CUPs 3766, 3769, 8213, 8356, 8359, 8361, 50281, 95581)	121,978	129,370	136,757	142,569	143,481	147,828	20.25	21.48	22.70	23.67	23.82	24.54	166	26.01

Table A-1. CFWI Planning Area public supply population and water demand projections by utility: BEBR medium scenario (continued).

Utility	Population Projections [j]						Demand Projections (5-in-10) (mgd)						GPCD Used [a]	2035[k] 1-in-10 Demand (mgd)
	2010[i]	2015	2020	2025	2030	2035	2010[i]	2015	2020	2025	2030	2035		
Seminole County (SJRWMD) Continued														
City of Winter Springs (8238)	33,776	35,313	36,623	40,988	42,230	42,678	3.88	4.06	4.21	4.71	4.86	4.91	115	5.20
City of Oviedo (CUP 8252)	32,224	34,493	36,790	37,544	38,584	38,981	3.77	4.04	4.30	4.39	4.51	4.56	117	4.83
Palm Valley Manufactured Home Community (CUP 8266)	1,062	1,104	1,123	1,123	1,123	1,123	0.04	0.05	0.05	0.05	0.05	0.05	42	0.05
Mullet Lake Water Association Inc (CUP 8271)	692	709	791	1,498	2,022	2,213	0.05	0.05	0.06	0.12	0.16	0.17	77	0.18
City of Longwood (CUP 8274)	13,755	15,302	16,574	16,705	18,559	19,264	2.13	2.37	2.57	2.59	2.88	2.99	155	3.17
City of Lake Mary (CUP 8282)	14,548	15,350	16,180	18,125	18,491	18,624	3.49	3.68	3.88	4.35	4.44	4.47	240	4.74
City of Casselberry (CUP 8284)	45,457	46,793	48,024	48,168	49,324	49,758	4.45	4.59	4.71	4.72	4.83	4.88	98	5.17
Utilities Inc. of Florida (CUP 8345)	477	486	496	498	513	519	0.06	0.06	0.06	0.06	0.07	0.07	128	0.07
Utilities Inc. of Florida (CUP 8346)	3,200	3,252	3,299	3,307	3,409	3,447	0.30	0.30	0.31	0.31	0.32	0.32	93	0.34
Utilities Inc. of Florida (CUP 8352)	835	842	890	897	936	951	0.08	0.08	0.08	0.08	0.09	0.09	91	0.10
Florida Governmental Utility Authority (CUP 8362)	4,155	4,587	5,153	5,265	5,315	5,332	0.66	0.73	0.82	0.84	0.85	0.85	160	0.90
City of Altamonte Springs (CUP 8372)	46,896	49,170	51,692	52,064	53,569	54,121	5.02	5.26	5.53	5.57	5.73	5.79	107	6.14
Total CFWI Planning Area Seminole County	**410,787**	**432,451**	**457,116**	**473,558**	**485,070**	**493,333**	**62.65**	**65.92**	**69.56**	**72.06**	**73.80**	**75.10**	**NA**	**79.60**
Total CFWI Planning Area All Counties	**2,591,101**	**2,846,407**	**3,134,239**	**3,408,327**	**3,667,729**	**3,906,225**	**436.03**	**477.28**	**525.57**	**572.43**	**615.94**	**654.34**	**NA**	**693.61**

Source: Population projections - Doty 2009a, 2009b, 2011; Smith and Rayer 2011 for BEBR. Demand projections - WDPS 1998 a, b

Note:

CFWI	=	Central Florida Water Initiative
CUP	=	consumptive use permit
GCPD	=	gallons per capita per day
mgd	=	million gallons per day
NA	=	not applicable
O&S	=	O & S Utility, Osceola County
SFWMD	=	South Florida Water Management District
SJRWIM	=	St. Johns River Water Management District
SWFWMD	=	Southwest Florida Water Management District
TWA	=	Tohopekaliga Water Authority, Osceola County
WUP	=	water use permit

[a] Per capita used to calculate demand projections is an average from 2006 - 2010 and is calculated as (Total Water Use / Total Estimated Population). This per capita is commonly referred to as a gross per capita, as it includes all uses within a utility. All three Districts agreed to use the Uniform Statewide DEP gross per capita method.

[b] Population and demand projections based on Utility discussions.

[c] There are no projected PS demands in the SWFWMD portion of Lake County. All PS demands are Domestic self-supply.

[d] The population associated with Reedy Creek Improvement District Demand is all transient / tourist. There is less than 1 % permanent population and as such for this planning document, the population is shown as 0.

[e] WUP 341 - City of Bartow; WUP – 4912 City of Lakeland; WUP 5870 - City of Frostproof; and WUP 4607 - City of Winter Haven reflect permanent population projections only and do not account for any functional population cohorts agreed to during the permit process and current permitted values. These values are only used for planning purposes, not permitting.

[f] WUPs 4658 (Lake Wales), 5750 (Davenport), 6508 (Polk County - SERUSA), 6509 (Polk County- NERUSA), 8054 (ERSA), and 8522 (Haines City) include populations within their service areas that are outside the SWFWMD boundary.

[g] The service area GIS polygons for WUPs 8054 and 6505 are in the process of being updated which will require a projection update.

[h] The WUP 6508 (Polk County-SERUSA) service area was updated by Polk County on 4/25/2011.

[i] Values shown for 2010 are projections and are not actual 2010 water use or 2010 population values.

[j] Population projections shown here are permanent population projections only and do not include any factors such as seasonal residents, tourist population, or net commuter population.

[k] The 2035 1-in-10 rainfall year demand includes an additional 6 percent of 2035 average demand.

Table A-2. CFWI Planning Area public supply population and water demand projections by District by county/city.

County/City	Population Projections						Water Demand Projections (mgd)						1-in-10 Demand[c]
	2010	2015	2020	2025	2030	2035	2010	2015	2020	2025	2030	2035	2035
SJRWMD Estimates													
City of Cocoa[a]	173,445	183,644	194,956	205,230	215,019	224,781	23.76	25.16	26.71	28.12	29.46	30.79	32.64
Lake [b]	130,229	149,914	171,722	193,880	216,532	237,314	29.08	33.39	38.51	43.79	48.85	53.25	56.45
Orange	795,464	892,593	985,280	1,066,887	1,106,587	1,184,704	128.12	141.53	154.90	166.51	172.32	183.32	194.33
Osceola	276	591	1,171	1,967	2,912	4,004	0.04	0.08	0.15	0.26	0.38	0.53	0.56
Seminole	410,787	432,451	457,116	473,558	485,070	493,333	62.65	65.92	69.56	72.06	73.80	75.10	79.60
Total SJRWMD	**1,510,201**	**1,659,193**	**1,810,245**	**1,941,522**	**2,26,120**	**2,144,136**	**243.65**	**266.08**	**289.83**	**310.74**	**324.81**	**342.99**	**363.58**
SWFWMD Estimates													
Lake [b]	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Polk	533,514	576,058	625,905	675,539	722,119	764,967	78.21	84.35	91.48	98.56	105.19	111.20	117.87
Total SWFWMD	**533,514**	**576,058**	**625,905**	**675,539**	**722,119**	**764,967**	**78.21**	**84.35**	**91.48**	**98.56**	**105.19**	**111.20**	**117.87**
SFWMD Estimates													
Orange	331,634	342,615	377,323	418,159	493,856	522,582	73.72	77.65	86.21	95.90	109.11	114.34	121.20
Osceola	201,922	252,517	302,547	352,694	403,026	449,747	38.01	46.35	54.78	63.55	72.74	81.30	86.18
Polk	13,830	16,024	18,219	20,413	22,608	24,803	2.44	2.85	3.27	3.68	4.09	4.51	4.78
Total SFWMD	**547,386**	**611,156**	**698,089**	**791,266**	**919,490**	**997,132**	**114.17**	**126.85**	**144.26**	**163.13**	**185.94**	**200.15**	**212.16**
Total All Districts	**2,591,101**	**2,846,407**	**3,134,239**	**3,408,327**	**3,667,729**	**3,906,225**	**436.03**	**477.28**	**525.57**	**572.43**	**615.94**	**654.34**	**693.61**

Note: mgd = million gallons per day

[a] City of Cocoa in Brevard County is included because the wells are located in Orange County and are within the CFWI Planning Area boundary.

[b] Lake County % within CFWI Planning Area estimated using ratio of end of permit allocation for consumptive use permits within Lake County and within Lake County CFWI Planning Area boundary

[c] 1-in-10 rainfall year demand for 2035 calculated as an additional 6 percent of 2035 average water demand (mgd)

Table A-3. CFWI Planning Area domestic self-supply and small utility population and water demand projections by District by county.

County	Population Projections						Water Demand Projections (mgd)						1-in-10 Demand[b]
	2010	2015	2020	2025	2030	2035	2010	2015	2020	2025	2030	2035	2035
SJRWMD Estimates													
Lake (% within CFWI Planning Area)[a]	12,458	14,703	16,289	18,700	21,197	22,845	1.65	1.97	2.20	2.55	2.90	3.14	3.33
Orange	12,329	10,408	8,791	7,508	6,265	4,671	1.23	1.03	0.87	0.74	0.61	0.45	0.48
Osceola	3,249	3,509	3,489	3,201	2,695	1,971	0.33	0.35	0.35	0.32	0.27	0.20	0.21
Seminole	11,931	12,849	15,084	24,642	37,230	50,667	1.15	1.26	1.48	2.48	3.75	5.12	5.43
Total SJRWMD	**39,967**	**41,469**	**43,653**	**54,051**	**67,387**	**80,154**	**4.36**	**4.61**	**4.90**	**6.09**	**7.53**	**8.91**	**9.45**
SWFWMD Estimates													
Lake (% within CFWI Planning Area)[a]	1,028	1,247	1,500	1,745	1,993	2,235	0.10	0.12	0.14	0.16	0.19	0.21	0.22
Polk	41,418	46,868	53,891	60,527	68,064	76,409	4.16	4.66	5.30	5.90	6.59	7.35	7.79
Total SWFWMD	**42,446**	**48,115**	**55,391**	**62,272**	**70,057**	**78,644**	**4.26**	**4.78**	**5.44**	**6.06**	**6.78**	**7.56**	**8.01**
SFWMD Estimates													
Orange	6,529	6,384	6,206	6,046	5,892	5,743	1.14	1.12	1.09	1.06	1.03	1.01	1.07
Osceola	63,238	53,783	50,593	46,138	39,367	33,278	8.47	7.21	6.78	6.18	5.28	4.46	4.73
Polk	13,333	15,650	15,885	15,821	15,709	15,531	2.13	2.50	2.54	2.53	2.51	2.48	2.63
Total SFWMD	**83,100**	**75,817**	**72,684**	**68,005**	**60,968**	**54,552**	**11.74**	**10.83**	**10.41**	**9.77**	**8.82**	**7.95**	**8.43**
Total All Districts	**165,513**	**165,401**	**171,728**	**184,328**	**198,412**	**213,350**	**20.36**	**20.22**	**20.75**	**21.92**	**23.13**	**24.42**	**25.89**

Note: mgd = million gallons per day

[a] Lake County % within CFWI Planning Area estimated using ratio of end of permit allocation for consumptive use permits within Lake County and within Lake County CFWI Planning Area boundary

[b] 1-in-10 rainfall year demand for 2035 calculated as an additional 6 percent of 2035 average demand

Table A-4. CFWI Planning Area agricultural acreage and water demand projections by District by county.

County	Total Acres Projected						Water Demand Projections (mgd)						1-in-10 Demand
	2010	2015	2020	2025	2030	2035	2010	2015	2020	2025	2030	2035	2035
SJRWMD Agricultural Estimates [b, c, d]													
Lake (% within CFWI Planning Area) [a]	15,828	15,422	15,016	14,610	14,205	13,795	9.47	9.23	8.98	8.74	8.50	8.25	12.02
Orange	9,191	8,340	7,488	6,637	5,785	4,930	12.04	10.93	9.82	8.69	7.58	6.46	10.41
Osceola	8,442	9,696	10,638	11,677	12,825	14,091	26.18	30.59	33.48	36.67	40.19	44.07	70.41
Seminole	4,591	3,950	3,310	2,669	2,029	1,388	7.36	6.34	5.31	4.28	3.26	2.23	3.40
Total SJRWMD	**38,052**	**37,408**	**36,452**	**35,593**	**34,844**	**34,204**	**55.05**	**57.09**	**57.59**	**58.38**	**59.53**	**61.01**	**96.24**
SWFWMD Agricultural Estimates [e]													
Lake (% within CFWI Planning Area) [a]	1,447	1,354	1,260	1,166	1,073	987	1.70	1.60	1.40	1.30	1.20	1.10	1.60
Polk	84,196	83,841	83,841	83,841	83,841	83,841	87.38	87.03	87.03	87.03	87.03	87.03	119.89
Total SWFWMD	**85,643**	**85,195**	**85,101**	**85,007**	**84,914**	**84,828**	**89.08**	**88.63**	**88.43**	**88.33**	**88.23**	**88.13**	**121.49**
SFWMD Agricultural Estimates [f, g]													
Orange	3,557	2,161	1,730	1,406	1,521	965	5.17	4.51	3.84	3.17	2.51	1.84	2.91
Osceola	19,951	42,334	41,905	41,499	41,336	40,682	27.57	60.44	59.52	58.60	57.68	56.76	89.74
Polk	4,418	4,301	4,185	4,069	3,953	3,836	8.37	8.11	7.86	7.61	7.35	7.10	10.80
Total SFWMD	**27,926**	**48,796**	**47,820**	**46,974**	**46,810**	**45,483**	**41.11**	**73.06**	**71.22**	**69.38**	**67.54**	**65.70**	**103.45**
Total All Districts	**151,621**	**171,399**	**169,373**	**167,574**	**166,568**	**164,515**	**185.24**	**218.78**	**217.24**	**216.09**	**215.30**	**214.84**	**321.18**

Notes: mgd = million gallons per day

[a] Lake County % within CFWI Planning Area estimated using ratio of end of permit allocation for CUPs within Lake County and within Lake County CFWI Planning Area boundary.

[b] SJRWMD 2010 - 2025 irrigated AG acres linearly interpolated from 2005 and 2030 irrigated AG acres. Osceola County adjusted for 2006 - 2010 average use and 2002 - 2007 average growth and ECFS sod permit increase, CUP 109142.

[c] SJRWMD 2035 irrigated AG acres estimated using 2030 irrigated Ag acres and 2030 MGD ratio. Osceola County adjusted for 2006 - 2010 average use and 2002 - 2007 average growth and ECFS sod permit increase, CUP 109142.

[d] SJRWMD 1-in-10 rainfall year demand for 2035 calculated using SFWMD and SWFWMD respective ratios (Lake = 45.69, Orange = 61.21, Osceola = 59.76, Seminole = 52.50).

[e] SWFWMD 1-in-10 rainfall year demand for 2035 is actually a 2-in-10 rainfall year calculated using AGMOD (ratios from 2030 2-in-10)(Lake = 45.69, Polk = 37.76).

[f] SFWMD 1-in-10 rainfall year demand for 2035 calculated using AFSIRS (ratios from 2025)(Orange = 61.21, Osceola = 59.76, Polk = 58.07).

[g] Agricultural demands for SFWMD do not include any acreage for irrigated improved pasture. As a result, when comparing the acreages and demands shown for Osceola County for SFWMD and SJRWMD, the results may appear skewed.

Table A-5. CFWI Planning Area Commercial/Industrial/Institutional and Mining/Dewatering water demand projections by District by county.

County	Water Demand Projections (mgd)						1-in-10 Demand[c]
	2010	2015	2020	2025	2030	2035	2035
SJRWMD Estimates [b]							
Lake [a] (% within CFWI Planning Area)	7.75	9.96	12.17	14.38	16.60	18.82	18.82
Orange	4.86	5.62	6.38	7.14	7.91	8.67	8.67
Osceola	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Seminole	0.36	0.32	0.29	0.25	0.22	0.19	0.19
Total SJRWMD	**12.97**	**15.90**	**18.84**	**21.77**	**24.73**	**27.68**	**27.68**
SWFWMD Estimates							
Lake [a] (% within CFWI Planning Area)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Polk	54.89	48.19	49.07	50.49	51.95	53.51	53.51
Total SWFWMD	**54.89**	**48.19**	**49.07**	**50.49**	**51.95**	**53.51**	**53.51**
SFWMD Estimates							
Orange	5.45	6.51	7.78	9.30	11.11	12.92	12.92
Osceola	0.64	0.76	0.92	1.11	1.33	1.55	1.55
Polk	0.10	0.11	0.13	0.15	0.17	0.19	0.19
Total SFWMD	**6.19**	**7.38**	**8.83**	**10.56**	**12.61**	**14.66**	**14.66**
Total All Districts	**74.05**	**71.47**	**76.74**	**82.82**	**89.29**	**95.85**	**95.85**

Notes: mgd = million gallons per day.

[a] Lake County % within CFWI Planning Area estimated using ratio of end of permit allocation for CUPs within Lake County and within Lake County CFWI Planning Area boundary.

[b] SJRWMD 2035 demand projections are based on linear extrapolation.

[c] 1-in-10 rainfall year demand for 2035 is equal to 2035 average demand.

Table A-6. CFWI Planning Area Power Generation water demand projections by District by county.

County	Water Demand Projections (mgd)						1-in-10 Demand
	2010	2015	2020	2025	2030	2035	2035
SJRWMD Estimates							
Lake (% within CFWI Planning Area) [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Orange	0.89	1.02	1.16	1.29	1.42	1.55	1.55
Osceola	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Seminole	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total SJRWMD	**1.39**	**1.52**	**1.66**	**1.79**	**1.92**	**2.05**	**2.05**
SWFWMD Estimates							
Lake (% within CFWI Planning Area) [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Polk	15.35	15.95	16.81	17.75	18.80	19.90	19.90
Total SWFWMD	**15.35**	**15.95**	**16.81**	**17.75**	**18.80**	**19.90**	**19.90**
SFWMD Estimates							
Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Osceola	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Polk	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total SFWMD	**0.46**	**0.46**	**0.46**	**0.46**	**0.46**	**0.46**	**0.46**
Total All Districts	**17.20**	**17.93**	**18.93**	**20.00**	**21.18**	**22.41**	**22.41**

Notes: mgd = million gallons per day.

[a] Lake County % within CFWI Planning Area estimated using ratio of end of permit allocation for CUPs within Lake County and within Lake County CFWI Planning Area boundary.

[b] SJRWMD 2035 demands are based on linear extrapolation.

[c] 1-in-10 rainfall year demand for 2035 is equal to 2035 average demand.

Table A-7. CFWI Planning Area Landscape / Recreational / Aesthetic acreage and water demand projections by District by county.

County	Total Acres Projected						Water Demand Projections (mgd)						1-in-10 Demand
	2010	2015	2020	2025	2030	2035	2010	2015	2020	2025	2030	2035	2035
SJRWMD Estimates [b, c, d]													
Lake (% within CFWI Planning Area) [a]	1,491	1,706	1,919	2,132	2,348	2,558	3.80	4.35	4.89	5.43	5.98	6.52	8.40
Orange	1,541	1,742	1,943	2,147	2,348	2,546	4.83	5.46	6.09	6.73	7.36	7.98	9.35
Osceola	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Seminole	667	830	991	1,154	1,315	1,478	3.89	4.84	5.78	6.73	7.67	8.62	11.10
Total SJRWMD	**3,699**	**4,278**	**4,853**	**5,433**	**6,011**	**6,582**	**12.52**	**14.65**	**16.76**	**18.89**	**21.01**	**23.12**	**28.85**
SWFWMD Estimates [e]													
Lake	N/D	N/D	N/D	N/D	N/D	N/D	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Polk	N/D	N/D	N/D	N/D	N/D	N/D	15.64	17.36	18.94	20.50	22.07	23.76	30.32
Total SWFWMD	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**15.64**	**17.36**	**18.94**	**20.50**	**22.07**	**23.76**	**30.32**
SFWMD Estimates [f]													
Orange	3,407	3,394	4,018	4,713	5,493	6,245	7.02	6.99	8.28	9.71	11.32	14.61	17.11
Osceola	1,156	1,299	1,689	2,111	2,573	2,773	2.71	3.04	3.95	4.94	6.02	6.49	7.60
Polk	142	194	246	299	352	405	0.42	0.58	0.73	0.89	1.05	1.30	2.10
Total SFWMD	**4,705**	**4,887**	**5,953**	**7,123**	**8,418**	**9,423**	**10.15**	**10.61**	**12.96**	**15.54**	**18.39**	**22.40**	**26.81**
Total All Districts	**8,404**	**9,165**	**10,806**	**12,556**	**14,429**	**16,005**	**38.31**	**42.62**	**48.66**	**54.93**	**61.47**	**69.28**	**85.98**

Notes: mgd = million gallons per day; N/D = Not determined.

[a] Lake County % within CFWI Planning Area estimated using ratio of end of permit allocation for CUPs within Lake County and within Lake County CFWI Planning Area boundary.

[b] SJRWMD 2035 demands are based on linear extrapolation.

[c] SJRWMD 2010-2025 acres linearly interpolated from 2005 and 2030 acres

[d] SJRWMD 1-in-10 rainfall year demand for 2035 calculated using SFWMD and SJRWMD respective ratios (Lake = 28.79, Orange = 17.11, Seminole = 28.79).

[e] SWFWMD 1-in-10 rainfall year demand for 2035 calculated as 30 percent for golf courses and 26 percent for landscape irrigation.

[f] SFWMD 1-in-10 rainfall year demand for 2035 calculated as 25.0 inches for Orange County, 27.5 inches for Osceola County, and 28.8 inches for Polk County.

Table A-8. CFWI Planning Area miscellaneous irrigation water demand[a,b,c] projections by District by county.

County	Total Wells Projected						Water Demand Projections (mgd)						1-in-10 Demand [d]
	2010	2015	2020	2025	2030	2035	2010	2015	2020	2025	2030	2035	2035
SJRWMD Estimates													
Lake (% within CFWI Planning Area)	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Orange	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Osceola	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Seminole	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Total SJRWMD	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**
SWFWMD Estimates													
Lake	17	18	18	19	19	19	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Polk	6,283	7,164	7,927	8,664	9,417	9,615	1.89	2.15	2.38	2.60	2.83	2.89	3.06
Total SWFWMD	**6,300**	**7,182**	**7,945**	**8,683**	**9,436**	**9,634**	**1.90**	**2.16**	**2.39**	**2.61**	**2.84**	**2.90**	**3.07**
SFWMD Estimates													
Orange	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Osceola	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Polk	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Total SFWMD	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**	**N/D**
Total All Districts	**6,300**	**7,182**	**7,945**	**8,683**	**9,436**	**9,634**	**1.90**	**2.16**	**2.39**	**2.61**	**2.84**	**2.90**	**3.07**

Notes: mgd = million gallons per day; N/D = Not determined.

[a] Miscellaneous (additional) Irrigation Demand is defined as water demand from residential irrigation wells utilized by residents that depend upon a centralized system for indoor water needs.

[b] Residential irrigation well data was developed by a consultant (Southwest Florida Water Management District Irrigation Well Inventory , August 12, 2004, D.L. Smith and Associates). The results of the study included the estimated number of residential irrigation wells and associated withdrawal within the District as of 2002. To develop an estimate of the number of residential irrigation wells in 2005, it was assumed that the number of irrigation wells and associated withdrawal is increasing proportionally with county population from the 2005 to 2010 time frame.

[c] SWFWMD is the only District that projects for additional irrigation wells and associated demand.

[d] 1-in-10 rainfall year demand for 2035 calculated as an additional 6 percent of 2035 average demand.

Public Supply

As noted in **Volume I**, **Chapter 2**, the Districts updated their respective existing population projections based solely on projected permanent population (BEBR medium) (Smith and Rayer 2011), which may not incorporate some of the important demand drivers inherent to public supply service areas such as seasonal population, short-term rental population and tourist population. A scenario was created for the public supply utilities which involved updating their respective existing population projections proportionally by county based on the BEBR high population projections published in 2011 (Smith and Rayer 2011). **Tables A-9 to A-16**, provide the BEBR high scenario and comparisons created by the Subgroup and depicts that projected population and demand for the CFWI Planning Area region in 2035 has the potential to be 15 and 14 percent higher, respectively, than for BEBR medium controlled projections.

Table A-9. CFWI Planning Area public supply population and water demand projections by utility - BEBR high scenario.

Utility	Population Projections [j]						Demand Projections (5-in-10) (mgd)						GPCD Used [a]	2035[k] 1-in-10 Demand (mgd)
	2010[i]	2015	2020	2025	2030	2035	2010[i]	2015	2020	2025	2030	2035		
City of Cocoa	173,445	183,644	194,956	205,230	215,019	224,781	23.76	25.16	26.71	28.12	29.46	30.79	137	32.64
Lake County (SJRWMD)														
City of Leesburg (CUP 94)	28,937	33,539	38,620	44,028	49,873	56,122	9.12	10.56	12.17	13.87	15.71	17.68	315	18.74
Southlake Utilities Inc. [b] (CUP 2392)	7,204	9,429	9,863	12,982	16,368	20,043	1.34	1.75	1.83	2.41	3.04	3.73	186	3.95
City of Mascotte (CUP 2453)	4,413	5,315	6,377	7,592	8,955	10,439	0.53	0.64	0.77	0.91	1.07	1.25	120	1.33
City of Clermont (CUP 2478)	25,422	31,542	37,907	42,654	46,575	50,364	4.47	5.55	6.67	7.51	8.20	8.86	176	9.39
Thousand Trails (CUP 2531)	655	693	722	758	787	822	0.04	0.04	0.04	0.04	0.04	0.05	55	0.05
Town of Montverde (CUP 2671)	2,533	3,162	3,931	4,536	4,990	5,476	0.43	0.53	0.66	0.76	0.84	0.92	168	0.98
Lake Utility Services Inc. (CUP 2700)	22,836	28,808	37,935	48,394	57,874	65,459	7.47	9.42	12.40	15.82	18.92	21.41	327	22.69
City of Groveland (CUP 2796, 2913)	7,592	11,239	15,399	19,522	23,767	28,286	0.97	1.44	1.97	2.50	3.04	3.62	128	3.84
Woodlands Church Lake LLC (CUP 2840)	363	386	407	430	451	478	0.13	0.14	0.15	0.16	0.16	0.17	365	0.18
City of Minneola (CUP 2886)	9,535	11,072	12,840	14,872	17,221	20,051	1.48	1.72	1.99	2.31	2.67	3.11	155	3.30
Ginn La Pine Island LTD LLLP (CUP 2900)	162	414	812	846	846	846	0.03	0.08	0.15	0.16	0.16	0.16	185	0.17
Clerbrook Golf & RV Resort (CUP 6398)	956	956	956	956	956	956	0.05	0.05	0.05	0.05	0.05	0.05	54	0.05
Barrington Estates (CUP 10846)	51	128	238	376	540	750	0.01	0.02	0.04	0.07	0.09	0.13	174	0.14
Ginn Pine Island II LLLP (CUP 50115)	14	27	46	77	108	146	0.00	0.01	0.02	0.03	0.04	0.05	330	0.05
City of Mount Dora (CUP 50147)	19,554	21,611	23,628	25,687	31,909	39,147	3.01	3.33	3.64	3.96	4.91	6.03	154	6.39
Colina Bay Water Company (CUP 103822)	2	4	8	13	19	39	0.00	0.00	0.01	0.01	0.01	0.03	693	0.03
Total CFWI Planning Area Lake County [c]	130,229	158,325	189,689	223,723	261,239	299,424	29.08	35.28	42.56	50.57	58.95	67.25	NA	71.28

Table A-9 CFWI Planning Area public supply population and water demand projections by utility - BEBR high scenario (continued).

Utility	Population Projections [j]						Demand Projections (5-in-10) (mgd)						GPCD Used [a]	2035[k] 1-in-10 Demand (mgd)
	2010[i]	2015	2020	2025	2030	2035	2010[i]	2015	2020	2025	2030	2035		
Orange County (SJRWMD & SFWMD)														
Zellwood Station Community Assoc. - SJRWMD	1,928	2,024	2,103	2,184	2,901	3,209	0.32	0.34	0.35	0.36	0.48	0.53	166	0.56
Orlando Utilities Commission - (CUP 3159 - SJRWMD & SFWMD)	414,431	445,958	495,599	545,161	545,161	545,161	85.79	92.31	102.59	112.85	112.85	112.85	207	119.62
Clarcona Resorts Condominium Association - (CUP 3203) SJRWMD	1,678	1,678	1,678	1,678	1,678	1,678	0.11	0.11	0.11	0.11	0.11	0.11	68	0.12
City of Ocoee - (CUP 3216) SJRWMD	32,091	34,460	36,874	39,920	40,029	40,029	4.04	4.34	4.65	5.03	5.04	5.04	126	5.34
City of Apopka - (CUP 3217) SJRWMD	60,098	70,542	89,230	113,226	141,738	166,559	8.77	10.30	13.03	16.53	20.69	24.32	146	25.78
Zellwood Water Users Inc. - (CUP 3301) SJRWMD	1,037	1,199	2,095	2,541	2,541	2,541	0.11	0.13	0.22	0.27	0.27	0.27	106	0.29
Wedgefield Utilities Inc. - (CUP 3302) SJRWMD	4,402	4,636	4,636	4,636	4,636	4,636	0.48	0.50	0.50	0.50	0.50	0.50	108	0.53
Orange County Public Utilities - (CUP 3317 - SJRWMD & SFWMD)	491,789	599,897	696,777	784,187	874,390	965,062	66.88	81.59	94.76	106.65	118.92	131.25	136	139.13
Town of Oakland - (CUP 3347) SJRWMD	2,101	2,282	2,598	2,728	2,728	2,728	0.36	0.39	0.45	0.47	0.47	0.47	173	0.50
City of Winter Garden - (CUP 3368) SJRWMD	35,285	40,695	47,739	54,052	62,978	73,940	4.16	4.80	5.63	6.38	7.43	8.72	118	9.24
Rock Springs Palm Isles MHC LLC - (CUP 3370) SJRWMD	2,010	2,123	2,124	2,124	2,124	2,124	0.40	0.42	0.42	0.42	0.42	0.42	199	0.45
Town of Eatonville - (CUP 3407) SJRWMD	2,277	2,439	2,797	2,797	2,797	2,797	0.32	0.34	0.39	0.39	0.39	0.39	141	0.41
City of Winter Park - (CUP 7624) SJRWMD	57,987	58,279	58,279	58,279	58,279	58,279	10.09	10.14	10.14	10.14	10.14	10.14	174	10.75
City of Maitland - (CUP 50258) SJRWMD	11,738	12,167	12,167	12,167	12,167	12,167	2.58	2.68	2.68	2.68	2.68	2.68	220	2.84
Aqua Utilities Florida, Inc. - (CUP 51073) SJRWMD	2,853	3,721	9,951	16,294	21,745	23,166	0.39	0.51	1.36	2.23	2.98	3.17	137	3.36
Starlight Ranch MHC - (CUP 86536) SJRWMD	2,067	2,067	2,067	2,067	2,067	2,067	0.17	0.17	0.17	0.17	0.17	0.17	81	0.18
Sun Communities Inc - (CUP 92244) SJRWMD	580	580	580	580	580	580	0.09	0.09	0.09	0.09	0.09	0.09	149	0.10

Table A-9 CFWI Planning Area public supply population and water demand projections by utility - BEBR high scenario (continued).

Utility	Population Projections [j]						Demand Projections (5-in-10) (mgd)						GPCD Used [a]	2035[k] 1-in-10 Demand (mgd)
	2010[i]	2015	2020	2025	2030	2035	2010[i]	2015	2020	2025	2030	2035		
Orange County (SJRWMD & SFWMD) continued														
Reedy Creek Improvement District (SFWMD) [b,d]	0	0	0	0	0	0	16.50	18.20	20.60	22.50	23.60	24.70	0	26.18
Taft Water Association (SFWMD)	2,746	2,684	2,836	2,981	3,110	3,195	0.29	0.29	0.30	0.31	0.29	0.30	2006 – 2010 GPCD Average	0.32
Total CFWI Planning Area Orange County	1,127,098	1,287,431	1,470,130	1,647,602	1,781,649	1,909,918	201.84	227.65	258.44	288.07	307.50	326.12	NA	345.69
Osceola County (SJRWMD & SFWMD)														
East Central FLA Services Inc - (CUP 3426 - SJRWMD & SFWMD)	2,305	16,725	29,651	39,244	42,663	46,566	0.30	2.21	3.91	5.18	5.63	6.15	132	6.52
St. Cloud Utility (SFWMD)	37,979	55,489	74,026	94,328	116,571	140,065	5.20	7.60	10.14	12.92	15.97	19.19	137	20.34
Tohopekaliga Water Authority (TWA) (SJRWMD & SFWMD)	161,914	198,178	238,411	287,290	348,097	410,852	32.54	39.83	47.92	57.75	69.97	82.58	202 (TWA) / 118 (O&S Utility)	87.53
Total CFWI Planning Area Osceola County	202,198	270,392	342,088	420,862	507,331	597,483	38.04	49.64	61.97	75.85	91.57	107.92	**NA**	114.39
Polk County (SFWMD & SWFWMD)														
Mountain Lake Corporation (WUP 143) - SWFWMD	345	366	387	412	425	451	0.13	0.14	0.14	0.15	0.16	0.17	369	0.18
City of Bartow (WUP 341) [e] - SWFWMD	24,281	26,885	30,042	33,965	38,485	43,428	3.28	3.63	4.06	4.59	5.20	5.86	135	6.21
City of Fort Meade - (WUP 645) SWFWMD	7,988	8,524	9,112	9,833	10,686	11,643	0.83	0.89	0.95	1.02	1.11	1.21	104	1.28
Four Lakes Mobile Home Park - (WUP 1616) SWFWMD	1,191	1,193	1,193	1,193	1,193	1,193	0.37	0.37	0.37	0.37	0.37	0.37	309	0.39
Lake Hamilton (WUP 2332) - SWFWMD	1,260	1,317	1,374	1,444	1,524	1,610	0.19	0.19	0.20	0.21	0.23	0.24	148	0.25
Park Water Company (WUP 4005) - SWFWMD	2,527	2,921	3,386	3,900	4,456	5,050	0.29	0.34	0.39	0.45	0.52	0.59	116	0.63

Table A-9 Continued CFWI Planning Area public supply population and water demand projections by utility - BEBR high scenario (continued).

Utility	Population Projections [j]						Demand Projections (5-in-10) (mgd)						GPCD Used [a]	2035[k] 1-in-10 Demand (mgd)
	2010[i]	2015	2020	2025	2030	2035	2010[i]	2015	2020	2025	2030	2035		
Polk County (SFWMD & SWFWMD) continued														
City of Winter Haven (WUP 4607) [e] - SWFWMD	67,596	75,788	85,016	95,056	105,172	115,313	10.75	12.05	13.52	15.11	16.72	18.33	159	19.43
City of Lake Wales (WUP 4658) [f] - SWFWMD	23,588	26,444	29,727	33,332	37,216	41,368	3.18	3.57	4.01	4.50	5.02	5.58	135	5.91
City of Lakeland Electric and Water (WUP 4912) [e] - SWFWMD	158,608	173,975	190,179	207,771	227,083	246,283	24.43	26.79	29.29	32.00	34.97	37.93	154	40.21
Grenelefe Resort Utility, Inc. (WUP 5251) - SWFWMD	2,520	2,643	2,680	2,680	2,680	2,680	0.89	0.94	0.95	0.95	0.95	0.95	355	1.01
City of Davenport (WUP 5750) [f] - SWFWMD	5,284	6,164	7,223	8,414	9,696	11,077	0.79	0.92	1.08	1.26	1.45	1.66	150	1.76
City of Frostproof (WUP 5870) [e] - SWFWMD	4,516	4,740	4,961	5,223	5,526	5,876	0.77	0.81	0.85	0.89	0.94	1.00	171	1.06
Town of Dundee (WUP 5893) - SWFWMD	4,868	5,431	6,092	6,842	7,660	8,557	0.69	0.77	0.87	0.97	1.09	1.22	142	1.29
City of Mulberry (WUP 6124) - SWFWMD	4,528	4,538	4,538	4,538	4,538	4,538	0.38	0.39	0.39	0.39	0.39	0.39	85	0.41
Polk County Utilities - NWRSA (WUP 6505) - SWFWMD [g]	42,779	49,378	57,145	65,459	73,600	81,949	5.35	6.17	7.14	8.18	9.20	10.24	125	10.85
Polk County Utilities - SWRSA (WUP 6506) - SWFWMD	38,214	45,542	53,970	61,780	68,412	71,707	4.05	4.83	5.72	6.55	7.25	7.60	106	8.06
Polk County Utilities - CRSA WUP 6507) - SWFWMD	11,422	12,749	14,387	16,520	19,053	21,926	0.99	1.11	1.25	1.44	1.66	1.91	87	2.02
Polk County Utilities - SERSA (WUP 6508) [f, h] - SWFWMD	5,606	5,925	6,287	6,821	7,474	8,288	0.68	0.72	0.76	0.83	0.90	1.00	121	1.06
Polk County Utilities - NERSA (WUP 6509) [f] (SWFWMD & SFWMD)	34,290	41,896	50,847	58,283	64,625	70,545	6.55	8.00	9.71	11.13	12.34	13.47	191	14.28
City of Lake Alfred (WUP 6624) - SWFWMD	8,049	9,139	10,165	11,253	12,397	13,595	1.30	1.48	1.65	1.82	2.01	2.20	162	2.33
City of Eagle Lake (WUP 6920) - SWFWMD	6,248	6,906	7,670	8,568	9,562	10,656	0.67	0.75	0.83	0.93	1.03	1.15	108	1.22

Table A-9 CFWI Planning Area public supply population and water demand projections by utility - BEBR high scenario (continued).

Utility	Population Projections [j]						Demand Projections (5-in-10) (mgd)						GPCD Used [a]	2035[k] 1-in-10 Demand (mgd)
	2010[i]	2015	2020	2025	2030	2035	2010[i]	2015	2020	2025	2030	2035		
Polk County (SFWMD & SWFWMD) continued														
City of Auburndale (WUP 7119) - SWFWMD	32,014	35,007	38,354	42,279	46,113	50,223	5.79	6.34	6.94	7.65	8.35	9.09	181	9.64
CHCVII Lake Henry MHP (WUP 7187) - SWFWMD	1,086	1,174	1,260	1,260	1,260	1,260	0.22	0.24	0.26	0.26	0.26	0.26	204	0.28
Aqua Utilities Florida, Inc. - Lake Gibson (WUP 7878) - SWFWMD	1,828	1,939	1,966	1,966	1,966	1,966	0.22	0.24	0.24	0.24	0.24	0.24	122	0.25
Polk County Utilities - ERSA (WUP 8054) [f, g] - SWFWMD	5,863	8,397	11,042	13,882	16,910	20,098	0.53	0.76	0.99	1.25	1.52	1.81	90	1.92
CHCIII Swift Village MHP (WUP 8344) - SWFWMD	900	900	900	900	900	900	0.13	0.13	0.13	0.13	0.13	0.13	144	0.14
City of Polk City (WUP 8468) - SWFWMD	7,177	8,019	8,999	10,145	11,418	12,811	0.66	0.74	0.83	0.93	1.05	1.18	92	1.25
City of Haines City (WUP 8522) [f] - SWFWMD	26,207	30,781	35,715	41,165	47,030	52,258	3.98	4.68	5.43	6.26	7.15	7.94	152	8.42
Utilities, Inc - Cypress Lakes Utilities Inc. (WUP 13043) - SWFWMD	2,731	2,876	3,015	3,174	3,346	3,524	0.14	0.15	0.15	0.16	0.17	0.18	51	0.19
River Ranch (SFWMD)	1,433	1,433	1,433	1,433	1,433	1,433	0.10	0.10	0.10	0.10	0.10	0.10	70	0.11
Tohopekaliga Water Authority (Poinciana) (SFWMD)	12,397	15,244	18,191	21,337	24,705	28,304	2.33	2.87	3.42	4.01	4.64	5.32	188	5.64
Total CFWI Planning Area Polk County	547,344	618,234	697,256	780,828	866,544	950,510	80.66	91.11	102.62	114.73	127.12	139.32	NA	147.68
Seminole County (SJRWMD)														
Sanlando Utilities Corp. (CUP 160)	33,507	35,923	37,343	37,343	37,343	37,343	10.49	11.24	11.69	11.69	11.69	11.69	313	12.39
City of Sanford (CUP 162)	58,225	63,861	71,641	71,641	71,641	71,641	7.98	8.75	9.81	9.81	9.81	9.81	137	10.40
Seminole County Environmental Services (CUPs 3766, 3769, 8213, 8356, 8359, 8361, 50281, 95581)	121,978	134,919	148,051	148,485	148,485	148,485	20.25	22.40	24.58	24.65	24.65	24.65	166	26.13

Table A-9 CFWI Planning Area public supply population and water demand projections by utility - BEBR high scenario (continued).

Utility	Population Projections [j]						Demand Projections (5-in-10) (mgd)						GPCD Used [a]	2035[k] 1-in-10 Demand (mgd)
	2010[i]	2015	2020	2025	2030	2035	2010[i]	2015	2020	2025	2030	2035		
Seminole County (SJRWMD) Continued														
City of Winter Springs (8238)	33,776	36,828	39,649	42,870	42,870	42,870	3.88	4.24	4.56	4.93	4.93	4.93	115	5.23
City of Oviedo (CUP 8252)	32,224	35,973	39,158	39,158	39,158	39,158	3.77	4.21	4.58	4.58	4.58	4.58	117	4.85
Palm Valley Manufactured Home Community (CUP 8266)	1,062	1,152	1,128	1,128	1,128	1,128	0.04	0.05	0.05	0.05	0.05	0.05	42	0.05
Mullet Lake Water Association Inc (CUP 8271)	692	740	857	1,682	2,222	2,222	0.05	0.06	0.07	0.13	0.17	0.17	77	0.18
City of Longwood (CUP 8274)	13,755	15,959	17,943	18,755	19,350	19,350	2.13	2.47	2.78	2.91	3.00	3.00	155	3.18
City of Lake Mary (CUP 8282)	14,548	16,009	17,518	18,707	18,707	18,707	3.49	3.84	4.20	4.49	4.49	4.49	240	4.76
City of Casselberry (CUP 8284)	45,457	48,800	49,979	49,979	49,979	49,979	4.45	4.78	4.90	4.90	4.90	4.90	98	5.19
Utilities Inc. of Florida (CUP 8345)	477	507	521	521	521	521	0.06	0.06	0.07	0.07	0.07	0.07	128	0.07
Utilities Inc. of Florida (CUP 8346)	3,200	3,391	3,461	3,461	3,461	3,461	0.30	0.32	0.32	0.32	0.32	0.32	93	0.34
Utilities Inc. of Florida (CUP 8352)	835	878	955	955	955	955	0.08	0.08	0.09	0.09	0.09	0.09	91	0.10
Aqua Utilities of Florida, Inc. (CUP 8362)	4,155	4,784	5,355	5,355	5,355	5,355	0.66	0.77	0.86	0.86	0.86	0.86	160	0.91
City of Altamonte Springs (CUP 8372)	46,896	51,279	54,365	54,365	54,365	54,365	5.02	5.49	5.82	5.82	5.82	5.82	107	6.17
Total CFWI Planning Area Seminole County	410,787	451,003	487,924	494,405	495,540	495,540	62.65	68.76	74.38	75.30	75.43	75.43	**NA**	79.95
Total CFWI Planning Area All Counties	**2,591,101**	**2,969,029**	**3,382,043**	**3,772,650**	**4,127,322**	**4,477,656**	**436.03**	**497.60**	**566.68**	**632.64**	**690.03**	**746.83**	**NA**	**791.63**

Source: Doty 2009a, 2009b, 2011; Smith and Rayer 2011 for BEBR; BEBR adjusted to High Projections. Is WDPS 1998 a, b

Note:

CFWI Planning Area	=	Central Florida Water Initiative
CUP	=	consumptive use permit
GCPD	=	gross per capita demand
mgd	=	million gallons per day
NA	=	not applicable
O&S	=	O & S Utility, Osceola County
SFWMD	=	South Florida Water Management District
SJRWIM	=	St. Johns River Water Management District
SWFWMD	=	Southwest Florida Water Management District
TWA	=	Tohopekaliga Water Authority, Osceola County
WUP	=	water use permit

[a] Per capita used to calculate demand projections is an average from 2006 - 2010 and is calculated as (Total Water Use / Total Estimated Population). This per capita is commonly referred to as a gross per capita, as it includes all uses within a utility. All three Districts agreed to use the Uniform Statewide DEP gross per capita method.

[b] Population and Demand projections based on Utility discussions [C] There are no projected PS demands in the SWFWMD portion of Lake County. All PS demands are Domestic self-supply.

[d] The population associated with Reedy Creek Improvement District Demand is all transient / tourist. There is less than 1 % permanent population and as such for this planning document, the population is shown as 0.

[e] WUP 341 - City of Bartow; WUP – 4912 City of Lakeland; WUP 5870 - City of Frostproof; and WUP 4607 - City of Winter Haven reflect permanent population projections only and do not account for any functional population cohorts agreed to during the permit process and current permitted values. These values are only used for planning purposes, not permitting.

[f] WUPs 4658 (Lake Wales), 5750 (Davenport), 6508 (Polk County - SERUSA), 6509 (Polk County- NERUSA), 8054 (ERSA), and 8522 (Haines City) include populations within their service areas that are outside the SWFWMD boundary.

[g] The service area GIS polygons for WUPs 8054 and 6505 are in the process of being updated which will require a projection update.

[h] The WUP 6508 (Polk County-SERUSA) service area was updated by Polk County on 4/25/2011.

[i] Values shown for 2010 are projections and are not actual 2010 water use or 2010 population values.

[j] Population projections shown here are permanent population projections only and do not include any factors such as seasonal residents, tourist population or net commuter population.

[k] The 2035 1-in-10 rainfall year demand includes an additional 6 percent of 2035 average demand.

Table A-10. CFWI Planning Area public supply population and water demand projections by District by county - BEBR high scenario.

County / City	Population Projections						Water Demand Projections (mgd)						1-in-10 Demand
	2010	2015	2020	2025	2030	2035	2010	2015	2020	2025	2030	2035	2035
SJRWMD Estimates													
City of Cocoa	173,445	183,644	194,956	205,230	215,019	224,781	23.76	25.16	26.71	28.12	29.46	30.79	32.64
Lake	130,229	158,325	189,689	223,723	261,239	299,424	29.08	35.28	42.56	50.57	58.95	67.25	71.28
Orange	795,464	929,504	1,061,274	1,182,973	1,239,237	1,334,894	128.12	147.33	166.73	184.16	191.08	204.19	216.45
Osceola	276	1,659	4,498	8,142	11,439	15,203	0.04	0.08	0.15	0.26	0.38	0.53	0.56
Seminole	410,787	451,003	487,924	494,405	495,540	495,540	62.65	68.76	74.38	75.30	75.43	75.43	79.95
Total SJRWMD	**1,510,201**	**1,724,135**	**1,938,341**	**2,114,473**	**2,222,474**	**2,369,842**	**243.65**	**276.61**	**310.53**	**338.41**	**355.30**	**378.19**	**400.88**
SWFWMD Estimates													
Lake	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Polk	533,514	601,557	677,632	758,058	840,406	920,773	78.21	88.14	99.10	110.62	122.38	133.90	141.93
Total SWFWMD	**533,514**	**601,557**	**677,632**	**758,058**	**840,406**	**920,773**	**78.21**	**88.14**	**99.10**	**110.62**	**122.38**	**133.90**	**141.93**
SFWMD Estimates													
Orange	331,634	357,927	408,856	464,629	542,412	575,024	73.72	80.32	91.71	103.91	116.42	121.93	129.24
Osceola	201,922	268,733	337,590	412,720	495,892	582,280	38.01	49.56	61.82	75.59	91.19	107.39	113.83
Polk	13,830	16,677	19,624	22,770	26,138	29,737	2.44	2.97	3.52	4.11	4.74	5.42	5.75
Total SFWMD	**547,386**	**644,405**	**769,397**	**906,294**	**1,072,969**	**1,198,240**	**114.17**	**132.85**	**157.05**	**183.61**	**212.35**	**234.74**	**248.82**
Total All Districts	**2,591,101**	**2,970,097**	**3,385,370**	**3,778,825**	**4,135,849**	**4,488,855**	**436.03**	**497.60**	**566.68**	**632.64**	**690.03**	**746.83**	**791.63**

Table A-11. CFWI Planning Area public supply population and water demand projections by county - BEBR high scenario.

County / City	Population Projections						Water Demand Projections (mgd)						1-in-10 Demand
	2010	2015	2020	2025	2030	2035	2010	2015	2020	2025	2030	2035	2035
City of Cocoa	173,445	183,644	194,956	205,230	215,019	224,781	23.76	25.16	26.71	28.12	29.46	30.79	32.64
Lake	130,229	158,325	189,689	223,723	261,239	299,424	29.08	35.28	42.56	50.57	58.95	67.25	71.28
Orange	1,127,098	1,287,431	1,470,130	1,647,602	1,781,649	1,909,918	201.84	227.65	258.44	288.07	307.50	326.12	345.69
Osceola	202,198	270,392	342,088	420,862	507,331	597,483	38.05	49.64	61.97	75.85	91.57	107.92	114.39
Polk	547,344	618,234	697,256	780,828	866,544	950,510	80.65	91.11	102.62	114.73	127.12	139.32	147.68
Seminole	410,787	451,003	487,924	494,405	495,540	495,540	62.65	68.76	74.38	75.30	75.43	75.43	79.95
Total	**2,591,101**	**2,969,029**	**3,382,043**	**3,772,650**	**4,127,322**	**4,477,656**	**436.03**	**497.60**	**566.68**	**632.64**	**690.03**	**746.83**	**791.63**

Table A-12. CFWI Planning Area population and water demand projections by District by county: Difference between BEBR medium and BEBR high scenarios.

County / City	Population Projections						Water Demand Projections (mgd)						1-in-10 Demand
	2010	2015	2020	2025	2030	2035	2010	2015	2020	2025	2030	2035	2035
SJRWMD Estimates													
City of Cocoa	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lake	0	8,411	17,967	29,843	44,707	62,110	0.00	1.89	4.05	6.78	10.10	14.00	14.83
Orange	0	36,911	75,994	116,086	132,650	150,190	0.00	5.80	11.83	17.65	18.76	20.87	22.12
Osceola	0	1,068	3,327	6,175	8,527	11,199	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Seminole	0	18,552	30,808	20,847	10,470	2,207	0.00	2.84	4.82	3.24	1.63	0.33	0.35
Total SJRWMD	0	64,942	128,096	172,951	196,354	225,706	0.00	10.53	20.70	27.67	30.49	35.20	37.30
SWFWMD Estimates													
Lake	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Polk	0	25,499	51,727	82,519	118,287	155,816	0.00	3.79	7.62	12.06	17.19	22.70	24.06
Total SWFWMD	0	25,499	51,727	82,519	118,287	155,816	0.00	3.79	7.62	12.06	17.19	22.70	24.06
SFWMD Estimates													
Orange	0	15,312	31,533	46,470	48,556	52,442	0.00	2.67	5.50	8.01	7.31	7.59	8.04
Osceola	0	16,216	35,043	60,026	92,866	132,533	0.00	3.21	7.04	12.04	18.45	26.09	27.65
Polk	0	653	1,405	2,357	3,530	4,934	0.00	0.12	0.25	0.43	0.65	0.91	0.97
Total SFWMD	0	32,181	67,981	108,853	144,952	189,909	0.00	6.00	12.79	20.48	26.41	34.59	36.66
Total All Districts	**0**	**122,622**	**247,804**	**364,323**	**459,593**	**571,431**	**0.00**	**20.32**	**41.11**	**60.21**	**74.09**	**92.49**	**98.02**

Table A-13. CFWI Planning Area population and water demand projections by county: Difference between BEBR medium and BEBR high scenarios.

County / City	Population Projections						Water Demand Projections (mgd)						1-in-10 Demand
	2010	2015	2020	2025	2030	2035	2010	2015	2020	2025	2030	2035	2035
City of Cocoa	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lake	0	8,411	17,967	29,843	44,707	62,110	0.00	1.89	4.05	6.78	10.10	14.00	14.83
Orange	0	52,223	107,527	162,556	181,206	202,632	0.00	8.47	17.33	25.66	26.07	28.46	30.16
Osceola	0	17,284	38,370	66,201	101,393	143,732	0.00	3.21	7.04	12.04	18.45	26.09	27.65
Polk	0	26,152	53,132	84,876	121,817	160,750	0.00	3.91	7.87	12.49	17.84	23.61	25.03
Seminole	0	18,552	30,808	20,847	10,470	2,207	0.00	2.84	4.82	3.24	1.63	0.33	0.35
Total	**0**	**122,622**	**247,804**	**364,323**	**459,593**	**571,431**	**0.00**	**20.32**	**41.11**	**60.21**	**74.09**	**92.49**	**98.02**

Table A-14. CFWI Planning Area population and water demand projections by District by county: Percent difference between BEBR medium and BEBR high scenarios.

County / City	Population Projections						Water Demand Projections (mgd)						1-in-10 Demand
	2010	2015	2020	2025	2030	2035	2010	2015	2020	2025	2030	2035	2035
SJRWMD Estimates													
City of Cocoa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Lake	0.00%	5.61%	10.46%	15.39%	20.65%	26.17%	0.00%	5.66%	10.52%	15.48%	20.68%	26.29%	26.27%
Orange	0.00%	4.14%	7.71%	10.88%	11.99%	12.68%	0.00%	4.10%	7.64%	10.60%	10.89%	11.38%	11.38%
Osceola	0.00%	180.71%	284.12%	313.93%	292.82%	279.70%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Seminole	0.00%	4.29%	6.74%	4.40%	2.16%	0.45%	0.00%	4.31%	6.93%	4.50%	2.21%	0.44%	0.44%
Total SJRWMD	**0.00%**	**3.91%**	**7.08%**	**8.91%**	**9.69%**	**10.53%**	**0.00%**	**3.96%**	**7.14%**	**8.90%**	**9.39%**	**10.26%**	**10.26%**
SWFWMD Estimates													
Lake	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Polk	0.00%	4.43%	8.26%	12.22%	16.38%	20.37%	0.00%	4.49%	8.33%	12.24%	16.34%	20.41%	20.41%
Total SWFWMD	**0.00%**	**4.43%**	**8.26%**	**12.22%**	**16.38%**	**20.37%**	**0.00%**	**4.49%**	**8.33%**	**12.24%**	**16.34%**	**20.41%**	**20.41%**
SFWMD Estimates													
Orange	0.00%	4.47%	8.36%	11.11%	9.83%	10.04%	0.00%	3.44%	6.38%	8.35%	6.70%	6.64%	6.63%
Osceola	0.00%	6.42%	11.58%	17.02%	23.04%	29.47%	0.00%	6.93%	12.85%	18.95%	25.36%	32.09%	32.08%
Polk	0.00%	4.08%	7.71%	11.55%	15.61%	19.89%	0.00%	4.21%	7.65%	11.68%	15.89%	20.18%	20.29%
Total SFWMD	**0.00%**	**5.27%**	**9.74%**	**13.76%**	**15.76%**	**19.05%**	**0.00%**	**4.73%**	**8.87%**	**12.55%**	**14.20%**	**17.28%**	**17.28%**
Total All Districts	**0.00%**	**4.31%**	**7.91%**	**10.69%**	**12.53%**	**14.63%**	**0.00%**	**4.26%**	**7.82%**	**10.52%**	**12.03%**	**14.13%**	**14.13%**

Table A-15. CFWI Planning Area population and water demand projections by county: Percent difference between BEBR medium and BEBR high scenarios.

County / City	Population Projections						Demand Projections (mgd)						1-in-10 Demand
	2010	2015	2020	2025	2030	2035	2010	2015	2020	2025	2030	2035	2035
City of Cocoa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Lake	0.00%	5.61%	10.46%	15.39%	20.65%	26.17%	0.00%	5.66%	10.52%	15.48%	20.68%	26.29%	26.27%
Orange	0.00%	4.23%	7.89%	10.95%	11.32%	11.87%	0.00%	3.86%	7.19%	9.78%	9.26%	9.56%	9.56%
Osceola	0.00%	6.83%	12.63%	18.67%	24.98%	31.68%	0.00%	6.91%	12.82%	18.87%	25.23%	31.88%	31.88%
Polk	0.00%	4.42%	8.25%	12.20%	16.36%	20.35%	0.00%	4.48%	8.31%	12.22%	16.33%	20.40%	20.41%
Seminole	0.00%	4.29%	6.74%	4.40%	2.16%	0.45%	0.00%	4.31%	6.93%	4.50%	2.21%	0.44%	0.44%
Total	**0.00%**	**4.31%**	**7.91%**	**10.69%**	**12.53%**	**14.63%**	**0.00%**	**4.26%**	**7.82%**	**10.52%**	**12.03%**	**14.13%**	**14.13%**

Table A-16. CFWI Planning Area 2035 public supply population and water demand projections by utility: Comparison of BEBR medium and BEBR high scenarios.

Utility	BEBR Medium - 2035			BEBR High - 2035			Difference from BEBR Medium			Percent Difference from BEBR Medium		
	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections	1-in-10 Demand
City of Cocoa	224,781	30.79	32.64	224,781	30.79	32.64	0	0.00	0.00	0.00%	0.00%	0.00%
Lake County (SJRWMD)												
City of Leesburg (CUP 94)	44,410	13.99	14.83	56,122	17.68	18.74	11,712	3.69	3.91	26.37%	26.38%	26.37%
Southlake Utilities Inc. (CUP 2392)	15,860	2.95	3.13	20,043	3.73	3.95	4,183	0.78	0.82	26.37%	26.44%	26.20%
City of Mascotte (CUP 2453)	8,264	0.99	1.05	10,439	1.25	1.33	2,175	0.26	0.28	26.32%	26.26%	26.67%
City of Clermont (CUP 2478)	39,849	7.01	7.43	50,364	8.86	9.39	10,515	1.85	1.96	26.39%	26.39%	26.38%
Thousand Trails (CUP 2531)	655	0.04	0.04	822	0.05	0.05	167	0.01	0.01	25.50%	25.00%	25.00%
Town of Montverde (CUP 2671)	4,331	0.73	0.77	5,476	0.92	0.98	1,145	0.19	0.21	26.44%	26.03%	27.27%
Lake Utility Services Inc. (CUP 2700)	51,791	16.94	17.96	65,459	21.41	22.69	13,668	4.47	4.73	26.39%	26.39%	26.34%
City of Groveland (CUP 2796, 2913)	22,379	2.86	3.03	28,286	3.62	3.84	5,907	0.76	0.81	26.40%	26.57%	26.73%
Woodlands Church Lake LLC (CUP 2840)	382	0.14	0.15	478	0.17	0.18	96	0.03	0.03	25.13%	21.43%	20.00%
City of Minneola (CUP 2886)	15,868	2.46	2.61	20,051	3.11	3.30	4,183	0.65	0.69	26.36%	26.42%	26.44%
Ginn La Pine Island LTD LLLP (CUP 2900)	852	0.16	0.17	846	0.16	0.17	-6	0.00	0.00	-0.70%	0.00%	0.00%
Clerbrook Golf & RV Resort (CUP 6398)	956	0.05	0.05	956	0.05	0.05	0	0.00	0.00	0.00%	0.00%	0.00%
Barrington Estates (CUP 10846)	596	0.10	0.11	750	0.13	0.14	154	0.03	0.03	25.84%	30.00%	27.27%

Table A-16. CFWI Planning Area 2035 public supply population and water demand projections by utility: Comparison of BEBR medium and BEBR high scenarios (continued).

Utility	BEBR Medium - 2035			BEBR High - 2035			Difference from BEBR Medium			Percent Difference from BEBR Medium		
	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections	1-in-10 Demand
Lake County (SJRWMD) continued												
Ginn Pine Island II LLLP (CUP 50115)	120	0.04	0.04	146	0.05	0.05	26	0.01	0.01	21.67%	25.00%	25.00%
City of Mount Dora (CUP 50147)	30,975	4.77	5.06	39,147	6.03	6.39	8,172	1.26	1.33	26.38%	26.42%	26.28%
Colina Bay Water Company (CUP 103822)	26	0.02	0.02	39	0.03	0.03	13	0.01	0.01	50.00%	50.00%	50.00%
Total CFWI Planning Area Lake County	**237,314**	**53.25**	**56.45**	**299,424**	**67.25**	**71.28**	**62,110**	**14.00**	**14.83**	**26.17%**	**26.29%**	**26.27%**
Orange County (SJRWMD & SFWMD)												
Zellwood Station Community Assoc. - SJRWMD	3,119	0.52	0.55	3,209	0.53	0.56	90	0.01	0.01	2.89%	1.92%	1.82%
Orlando Utilities Commission - (CUP 3159 - SJRWMD & SFWMD)	532,337	110.19	116.80	545,161	112.85	119.62	12,824	2.66	2.82	2.41%	2.41%	2.41%
Clarcona Resorts Condominium Association - (CUP 3203) SJRWMD	1,678	0.11	0.12	1,678	0.11	0.12	0	0.00	0.00	0.00%	0.00%	0.00%
City of Ocoee - (CUP 3216) SJRWMD	37,770	4.76	5.05	40,029	5.04	5.34	2,259	0.28	0.29	5.98%	5.88%	5.74%
City of Apopka - (CUP 3217) SJRWMD	139,135	20.31	21.53	166,559	24.32	25.78	27,424	4.01	4.25	19.71%	19.74%	19.74%

Table A-16. CFWI Planning Area 2035 public supply population and water demand projections by utility: Comparison of BEBR medium and BEBR high scenarios (continued).

Utility	BEBR Medium - 2035			BEBR High - 2035			Difference from BEBR Medium			Percent Difference from BEBR Medium		
	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections	1-in-10 Demand
Orange County (SJRWMD & SFWMD) continued												
Zellwood Water Users Inc. - (CUP 3301) SJRWMD	2,565	0.27	0.29	2,541	0.27	0.29	-24	0.00	0.00	-0.94%	0.00%	0.00%
Wedgefield Utilities Inc. - (CUP 3302) SJRWMD	4,744	0.51	0.54	4,636	0.50	0.53	-108	-0.01	-0.01	-2.28%	-1.96%	-1.85%
Orange County Public Utilities - (CUP 3317 - SJRWMD & SFWMD)	817,776	111.22	117.89	965,062	131.25	139.13	147,286	20.03	21.24	18.01%	18.01%	18.02%
Town of Oakland - (CUP 3347) SJRWMD	2,779	0.48	0.51	2,728	0.47	0.50	-51	-0.01	-0.01	-1.84%	-2.08%	-1.96%
City of Winter Garden - (CUP 3368) SJRWMD	61,053	7.20	7.63	73,940	8.72	9.24	12,887	1.52	1.61	21.11%	21.11%	21.10%
Rock Springs Palm Isles MHC LLC - (CUP 3370) SJRWMD	2,176	0.43	0.46	2,124	0.42	0.45	-52	-0.01	-0.01	-2.39%	-2.33%	-2.17%
Town of Eatonville - (CUP 3407) SJRWMD	2,846	0.40	0.42	2,797	0.39	0.41	-49	-0.01	-0.01	-1.72%	-2.50%	-2.38%
City of Winter Park - (CUP 7624) SJRWMD	58,279	10.14	10.75	58,279	10.14	10.75	0	0.00	0.00	0.00%	0.00%	0.00%

Table A-16. CFWI Planning Area 2035 public supply population and water demand projections by utility: Comparison of BEBR medium and BEBR high scenarios (continued).

Utility	BEBR Medium - 2035			BEBR High - 2035			Difference from BEBR Medium			Percent Difference from BEBR Medium		
	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections	1-in-10 Demand
Orange County (SJRWMD & SFWMD) continued												
City of Maitland - (CUP 50258) SJRWMD	12,437	2.74	2.90	12,167	2.68	2.84	-270	-0.06	-0.06	-2.17%	-2.19%	-2.07%
Florida Governmental Utility Authority - (CUP 51073) SJRWMD	22,750	3.12	3.31	23,166	3.17	3.36	416	0.05	0.05	1.83%	1.60%	1.51%
Starlight Ranch MHC - (CUP 86536) SJRWMD	2,067	0.17	0.18	2,067	0.17	0.18	0	0.00	0.00	0.00%	0.00%	0.00%
Sun Communities Inc - (CUP 92244) SJRWMD	580	0.09	0.10	580	0.09	0.10	0	0.00	0.00	0.00%	0.00%	0.00%
Reedy Creek Improvement District (SFWMD)	0	24.70	26.18	0	24.70	26.18	0	0.00	0.00	0.00%	0.00%	0.00%
Taft Water Association (SFWMD)	3,195	0.30	0.32	3,195	0.30	0.32	0	0.00	0.00	0.00%	0.00%	0.00%
Total CFWI Planning Area Orange County	**1,707,286**	**297.66**	**315.53**	**1,909,918**	**326.12**	**345.69**	**202,632**	**28.46**	**30.16**	**11.87%**	**9.56%**	**9.56%**

Table A-16. CFWI Planning Area 2035 public supply population and water demand projections by utility: Comparison of BEBR medium and BEBR high scenarios (continued).

Utility	BEBR Medium - 2035			BEBR High - 2035			Difference from BEBR Medium			Percent Difference from BEBR Medium		
	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections	1-in-10 Demand
Osceola County (SJRWMD & SFWMD)												
East Central FLA Services Inc - (CUP 3426 - SJRWMD & SFWMD)	35,367	4.67	4.95	46,566	6.15	6.52	11,199	1.48	1.57	31.67%	31.69%	31.72%
St. Cloud Utility (SFWMD)	106,374	14.57	15.44	140,065	19.19	20.34	33,691	4.62	4.90	31.67%	31.71%	31.74%
Tohopekaliga Water Authority (SJRWMD & SFWMD)	312,010	62.59	66.35	410,852	82.58	87.53	98,842	19.99	21.18	31.68%	31.94%	31.92%
Total CFWI Planning Area Osceola County	**453,751**	**81.83**	**86.74**	**597,483**	**107.92**	**114.39**	**143,732**	**26.09**	**27.65**	**31.68%**	**31.88%**	**31.88%**
Polk County (SFWMD & SWFWMD)												
Mountain Lake Corporation (WUP 143) - SWFWMD	377	0.14	0.15	451	0.17	0.18	74	0.03	0.03	19.63%	21.43%	20.00%
City of Bartow (WUP 341) - SWFWMD	35,850	4.84	5.13	43,428	5.86	6.21	7,578	1.02	1.08	21.14%	21.07%	21.05%
City of Fort Meade - (WUP 645) SWFWMD	9,613	1.00	1.06	11,643	1.21	1.28	2,030	0.21	0.22	21.12%	21.00%	20.75%
Four Lakes Mobile Home Park - (WUP 1616) SWFWMD	1,193	0.37	0.39	1,193	0.37	0.39	0	0.00	0.00	0.00%	0.00%	0.00%

Table A-16. CFWI Planning Area 2035 public supply population and water demand projections by utility: Comparison of BEBR medium and BEBR high scenarios (continued).

Utility	BEBR Medium - 2035			BEBR High - 2035			Difference from BEBR Medium			Percent Difference from BEBR Medium		
	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections	1-in-10 Demand
Polk County (SFWMD & SWFWMD) continued												
Lake Hamilton (WUP 2332) - SWFWMD	1,331	0.20	0.21	1,610	0.24	0.25	279	0.04	0.04	20.96%	20.00%	19.05%
Park Water Company (WUP 4005) - SWFWMD	4,175	0.48	0.51	5,050	0.59	0.63	875	0.11	0.12	20.96%	22.92%	23.53%
City of Winter Haven (WUP 4607) - SWFWMD	95,203	15.14	16.05	115,313	18.33	19.43	20,110	3.19	3.38	21.12%	21.07%	21.06%
City of Lake Wales (WUP 4658) - SWFWMD	34,162	4.61	4.89	41,368	5.58	5.91	7,206	0.97	1.02	21.09%	21.04%	20.86%
City of Lakeland Electric and Water (WUP 4912) - SWFWMD	203,345	31.32	33.20	246,283	37.93	40.21	42,938	6.61	7.01	21.12%	21.10%	21.11%
Grenelefe Resort Utility, Inc. (WUP 5251) - SWFWMD	2,576	0.89	0.94	2,680	0.95	1.01	104	0.06	0.07	4.04%	6.74%	7.45%
City of Davenport (WUP 5750) - SWFWMD	9,141	1.37	1.45	11,077	1.66	1.76	1,936	0.29	0.31	21.18%	21.17%	21.38%
City of Frostproof (WUP 5870) - SWFWMD	4,852	0.83	0.88	5,876	1.00	1.06	1,024	0.17	0.18	21.10%	20.48%	20.45%
Town of Dundee (WUP 5893) - SWFWMD	7,067	1.00	1.06	8,557	1.22	1.29	1,490	0.22	0.23	21.08%	22.00%	21.70%

Table A-16. CFWI Planning Area 2035 public supply population and water demand projections by utility: Comparison of BEBR medium and BEBR high scenarios (continued).

Utility	BEBR Medium - 2035			BEBR High - 2035			Difference from BEBR Medium			Percent Difference from BEBR Medium		
	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections	1-in-10 Demand
Polk County (SFWMD & SWFWMD) continued												
City of Mulberry (WUP 6124) - SWFWMD	4,528	0.38	0.40	4,538	0.39	0.41	10	0.01	0.01	0.22%	2.63%	2.50%
Polk County Utilities - NWRSA (WUP 6505) - SWFWMD	67,667	8.46	8.97	81,949	10.24	10.85	14,282	1.78	1.88	21.11%	21.04%	20.96%
Polk County Utilities - SWRSA (WUP 6506) - SWFWMD	61,849	6.56	6.95	71,707	7.60	8.06	9,858	1.04	1.11	15.94%	15.85%	15.97%
Polk County Utilities - CRSA WUP 6507) - SWFWMD	18,109	1.58	1.67	21,926	1.91	2.02	3,817	0.33	0.35	21.08%	20.89%	20.96%
Polk County Utilities - SERSA (WUP 6508) - SWFWMD	6,836	0.83	0.88	8,288	1.00	1.06	1,452	0.17	0.18	21.24%	20.48%	20.45%
Polk County Utilities - NERSA (WUP 6509) (SWFWMD & SFWMD)	58,237	11.12	11.79	70,545	13.47	14.28	12,308	2.35	2.49	21.13%	21.13%	21.12%
City of Lake Alfred (WUP 6624) - SWFWMD	11,230	1.82	1.93	13,595	2.20	2.33	2,365	0.38	0.40	21.06%	20.88%	20.73%
City of Eagle Lake (WUP 6920) - SWFWMD	8,794	0.95	1.01	10,656	1.15	1.22	1,862	0.20	0.21	21.17%	21.05%	20.79%
City of Auburndale (WUP 7119) - SWFWMD	41,472	7.51	7.96	50,223	9.09	9.64	8,751	1.58	1.68	21.10%	21.04%	21.11%

Table A-16. CFWI Planning Area 2035 public supply population and water demand projections by utility: Comparison of BEBR medium and BEBR high scenarios (continued).

Utility	BEBR Medium - 2035			BEBR High - 2035			Difference from BEBR Medium			Percent Difference from BEBR Medium		
	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections	1-in-10 Demand
Polk County (SFWMD & SWFWMD) continued												
CHCVII Lake Henry MHP (WUP 7187) - SWFWMD	1,260	0.26	0.28	1,260	0.26	0.28	0	0.00	0.00	0.00%	0.00%	0.00%
Florida Governmental Utility Authority - Lake Gibson (WUP 7878) - SWFWMD	1,953	0.24	0.25	1,966	0.24	0.25	13	0.00	0.00	0.67%	0.00%	0.00%
Polk County Utilities - ERSA (WUP 8054) - SWFWMD	16,597	1.49	1.58	20,098	1.81	1.92	3,501	0.32	0.34	21.09%	21.48%	21.52%
CHCIII Swift Village MHP (WUP 8344) - SWFWMD	900	0.13	0.14	900	0.13	0.14	0	0.00	0.00	0.00%	0.00%	0.00%
City of Polk City (WUP 8468) - SWFWMD	10,577	0.97	1.03	12,811	1.18	1.25	2,234	0.21	0.22	21.12%	21.65%	21.36%
City of Haines City (WUP 8522) - SWFWMD	43,153	6.56	6.95	52,258	7.94	8.42	9,105	1.38	1.47	21.10%	21.04%	21.15%
Utilities, Inc - Cypress Lakes Utilities Inc. (WUP 13043) - SWFWMD	2,910	0.15	0.16	3,524	0.18	0.19	614	0.03	0.03	21.10%	20.00%	18.75%
River Ranch (SFWMD)	1,433	0.11	0.12	1,433	0.10	0.11	0	-0.01	-0.01	0.00%	-9.09%	-8.33%
Tohopekaliga Water Authority (Poinciana) (SFWMD)	23,370	4.40	4.66	28,304	5.32	5.64	4,934	0.92	0.98	21.11%	20.91%	21.03%
Total CFWI Planning Area Polk County	**789,760**	**115.71**	**122.65**	**950,510**	**139.32**	**147.68**	**160,750**	**23.61**	**25.03**	**20.35%**	**20.40%**	**20.41%**

Table A-16. CFWI Planning Area 2035 public supply population and water demand projections by utility: Comparison of BEBR medium and BEBR high scenarios (continued).

Utility	BEBR Medium - 2035			BEBR High - 2035			Difference from BEBR Medium			Percent Difference from BEBR Medium		
	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections	1-in-10 Demand
Seminole County (SJRWMD)												
Sanlando Utilities Corp. (CUP 160)	37,176	11.64	12.34	37,343	11.69	12.39	167	0.05	0.05	0.45%	0.43%	0.41%
City of Sanford (CUP 162)	71,318	9.77	10.36	71,641	9.81	10.40	323	0.04	0.04	0.45%	0.41%	0.39%
Seminole County Environmental Services (CUPs 3766, 3769, 8213, 8356, 8359, 8361, 50281, 95581)	147,828	24.54	26.01	148,485	24.65	26.13	657	0.11	0.12	0.44%	0.45%	0.46%
City of Winter Springs (8238)	42,678	4.91	5.20	42,870	4.93	5.23	192	0.02	0.03	0.45%	0.41%	0.58%
City of Oviedo (CUP 8252)	38,981	4.56	4.83	39,158	4.58	4.85	177	0.02	0.02	0.45%	0.44%	0.41%
Palm Valley Manufactured Home Community (CUP 8266)	1,123	0.05	0.05	1,128	0.05	0.05	5	0.00	0.00	0.45%	0.00%	0.00%
Mullet Lake Water Association Inc (CUP 8271)	2,213	0.17	0.18	2,222	0.17	0.18	9	0.00	0.00	0.41%	0.00%	0.00%
City of Longwood (CUP 8274)	19,264	2.99	3.17	19,350	3.00	3.18	86	0.01	0.01	0.45%	0.33%	0.32%
City of Lake Mary (CUP 8282)	18,624	4.47	4.74	18,707	4.49	4.76	83	0.02	0.02	0.45%	0.45%	0.42%
City of Casselberry (CUP 8284)	49,758	4.88	5.17	49,979	4.90	5.19	221	0.02	0.02	0.44%	0.41%	0.39%
Utilities Inc. of Florida (CUP 8345)	519	0.07	0.07	521	0.07	0.07	2	0.00	0.00	0.39%	0.00%	0.00%

Table A-16. CFWI Planning Area 2035 public supply population and water demand projections by utility: Comparison of BEBR medium and BEBR high scenarios (continued).

Utility	BEBR Medium - 2035			BEBR High - 2035			Difference from BEBR Medium			Percent Difference from BEBR Medium		
	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections (mgd)	1-in-10 Demand (mgd)	Population Projections	Demand Projections	1-in-10 Demand
Seminole County (SJRWMD) continued												
Utilities Inc. of Florida (CUP 8346)	3,447	0.32	0.34	3,461	0.32	0.34	14	0.00	0.00	0.41%	0.00%	0.00%
Utilities Inc. of Florida (CUP 8352)	951	0.09	0.10	955	0.09	0.10	4	0.00	0.00	0.42%	0.00%	0.00%
Florida Governmental Utility Authority (CUP 8362)	5,332	0.85	0.90	5,355	0.86	0.91	23	0.01	0.01	0.43%	1.18%	1.11%
City of Altamonte Springs (CUP 8372)	54,121	5.79	6.14	54,365	5.82	6.17	244	0.03	0.03	0.45%	0.52%	0.49%
Total CFWI Planning Area Seminole County	**493,333**	**75.10**	**79.60**	**495,540**	**75.43**	**79.95**	**2,207**	**0.33**	**0.35**	**0.45%**	**0.44%**	**0.44%**
Total CFWI Planning Area All Counties	**3,906,225**	**654.34**	**693.61**	**4,477,656**	**746.83**	**791.63**	**571,431**	**92.49**	**98.02**	**14.63%**	**14.13%**	**14.13%**

Agriculture

Tables A-17 to A-19 provide agricultural acreage and demand projections for each District by county and by crop type for the planning horizon.

Table A-17. CFWI Planning Area agriculture acreages and demands by crop type by county in SJRWMD[b].

County	Crop	Estimated Agricultural Acreage by County and Crop Type											
		2010		2015		2020		2025		2030		2035 [c]	
		Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd
Lake[a]	Field Corn	333	0.15	324	0.15	316	0.15	307	0.14	299	0.14	290	0.13
	Blueberries	78	0.02	76	0.02	74	0.02	72	0.02	70	0.02	68	0.02
	Citrus	11,913	3.58	11,608	3.49	11,302	3.40	10,997	3.31	10,692	3.22	10,383	3.12
	Grapes	31	0.01	31	0.01	30	0.01	29	0.01	28	0.01	27	0.01
	Misc Fruit And Nuts	21	0.02	21	0.02	20	0.02	20	0.02	19	0.02	18	0.02
	Pecans	35	0.03	34	0.02	33	0.02	32	0.02	32	0.02	31	0.02
	Watermelons	148	0.04	144	0.04	140	0.04	136	0.04	133	0.03	129	0.03
	Ferns	689	1.20	671	1.17	653	1.14	636	1.11	618	1.08	600	1.05
	Improved Pasture	223	0.27	217	0.27	212	0.26	206	0.25	200	0.25	195	0.24
	Ornamentals (Container)	1,294	2.24	1,261	2.18	1,227	2.13	1,194	2.07	1,161	2.01	1,128	1.95
	Ornamentals (Field Grown)	206	0.15	200	0.15	195	0.14	190	0.14	185	0.13	179	0.13
	Sod	732	1.65	713	1.61	694	1.57	675	1.53	657	1.49	638	1.44
	Misc Vegetables	98	0.07	96	0.07	93	0.07	91	0.07	88	0.07	85	0.06
	Sweet Corn	28	0.01	27	0.01	26	0.01	26	0.01	25	0.01	24	0.01
	Total	**15,828**	**9.47**	**15,422**	**9.23**	**15,016**	**8.98**	**14,610**	**8.74**	**14,205**	**8.50**	**13,795**	**8.25**

Table A-17. CFWI Planning Area Agriculture Acreages and Demands by Crop Type by County in SJRWMD[b] (continued).

County	Crop	Estimated Agricultural Acreage by County and Crop Type											
		2010		2015		2020		2025		2030		2035[c]	
		Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd
Orange	Citrus	5,132	6.29	4,657	5.71	4,181	5.13	3,706	4.54	3,230	3.96	2,753	3.37
	Ornamentals (Container)	983	1.83	892	1.66	801	1.49	710	1.32	619	1.15	527	0.98
	Ornamentals (Field Grown)	949	1.05	861	0.96	773	0.86	685	0.76	597	0.66	509	0.56
	Sod	785	2.06	712	1.87	640	1.68	567	1.49	494	1.30	421	1.10
	Cabbage	485	0.22	440	0.20	395	0.18	350	0.16	305	0.14	260	0.12
	Carrots	57	0.05	52	0.05	47	0.04	41	0.04	36	0.03	31	0.03
	Cucumbers	500	0.31	453	0.28	407	0.25	361	0.22	314	0.20	268	0.17
	Misc Vegetables	128	0.09	117	0.08	105	0.07	93	0.07	81	0.06	69	0.05
	Sweet Corn	171	0.13	155	0.12	140	0.10	124	0.09	108	0.08	92	0.07
	Total	**9,191**	**12.04**	**8,340**	**10.93**	**7,488**	**9.82**	**6,637**	**8.69**	**5,785**	**7.58**	**4,930**	**6.46**
Osceola[b]	Misc Field Crops	140	0.04	155	0.04	171	0.05	188	0.05	208	0.06	229	0.07
	Soybeans	140	0.01	155	0.01	171	0.01	188	0.02	208	0.02	229	0.02
	Wheat	162	0.07	179	0.08	197	0.09	218	0.09	240	0.10	265	0.11
	Citrus	1,805	4.76	1,992	5.25	2,198	5.80	2,426	6.40	2,677	7.06	2,955	7.79
	Improved Pasture	5,000	18.00	5,518	19.86	6,089	21.92	6,720	24.19	7,416	26.69	8,184	29.46
	Ornamentals (Container)	200	0.69	221	0.76	244	0.84	269	0.92	297	1.02	327	1.13
	Ornamentals (Field Grown)	100	0.23	110	0.25	122	0.28	134	0.31	148	0.34	164	0.37
	Sod	453	2.03	879	3.95	908	4.08	940	4.22	975	4.38	1,014	4.55
	Potatoes	280	0.16	309	0.18	341	0.20	376	0.22	415	0.24	458	0.27
	Sweet Corn	162	0.18	179	0.20	197	0.22	218	0.24	240	0.27	265	0.29
	Total	**8,442**	**26.18**	**9,696**	**30.59**	**10,638**	**33.48**	**11,677**	**36.67**	**12,825**	**40.19**	**14,091**	**44.07**

Table A-17. CFWI Planning Area Agriculture Acreages and Demands by Crop Type by County in SJRWMD[b] (continued).

County	Crop	Estimated Agricultural Acreage and Water Demand by County and Crop Type											
		2010		2015		2020		2025		2030		2035[c]	
		Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd
Seminole	Citrus	1,481	1.91	1,274	1.65	1,068	1.38	861	1.11	655	0.85	448	0.58
	Grapes	3	0.00	3	0.00	3	0.00	2	0.00	2	0.00	1	0.00
	Peaches	6	0.01	5	0.01	4	0.00	3	0.00	3	0.00	2	0.00
	Strawberries	12	0.01	10	0.01	8	0.01	7	0.00	5	0.00	3	0.00
	Improved Pasture	1,157	1.74	995	1.50	834	1.26	673	1.01	511	0.77	350	0.53
	Ornamentals (Container)	289	0.57	249	0.49	209	0.41	168	0.33	128	0.25	87	0.17
	Ornamentals (Field Grown)	1,157	1.99	995	1.71	834	1.43	673	1.16	511	0.88	350	0.60
	Sod	347	1.01	299	0.87	250	0.73	202	0.59	153	0.45	105	0.31
	Misc Vegetables	139	0.12	119	0.10	100	0.08	81	0.07	61	0.05	42	0.04
	Total [d]	**4,591**	**7.36**	**3,950**	**6.34**	**3,310**	**5.31**	**2,669**	**4.28**	**2,029**	**3.26**	**1,388**	**2.23**

Notes: mgd = million gallons per day

[a] Lake County % within CFWI Planning Area estimated using ratio of end of permit allocation for CUPs within Lake County and within Lake County CFWI Planning Area boundary

[b] SJRWMD 2010 - 2025 irrigated AG acres linearly interpolated from 2005 and 2030 irrigated AG acres. Osceola County adjusted for 2006 - 2010 average use and 2002 - 2007 average growth and ECFS sod permit increase, CUP 109142.

[c] SJRWMD 2035 irrigated AG acres estimated using 2030 irrigated AG acres and 2030 MGD ratio. Osceola County adjusted for 2006 - 2010 average use and 2002 - 2007 average growth and ECFS sod permit increase, CUP 109142.

[d] Rounding errors account for nominal discrepancies.

Table A-18. CFWI Planning Area agriculture acreages and demands by crop type by county in SFWMD[a].

County	Crop	Estimated Agricultural Acreage and Water Demand by County and Crop Type											
		2010		2015		2020		2025		2030		2035 [c]	
		Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd
Orange	Citrus	2,298	2.22							727	0.70		
	Improved Pasture [b]	0.1								0.1			
	Field Crops - Sugarcane	0	0.00							0	0.00		
	Field Crops - Other	822	2.03							357	0.88		
	Vegetables, Melons & Berries	0	0.00							0	0.00		
	Sod	90	0.16							90	0.16		
	Greenhouse/ Nursery	347	0.67							347	0.67		
	Miscellaneous		0.10								0.10		
	Total	**3,557**	**5.17**	**2,161**	**4.51**	**1,730**	**3.84**	**1,406**	**3.17**	**1,521**	**2.51**	**965**	**1.84**
Osceola	Citrus	9,004	6.94							7,334	5.65		
	Improved Pasture [b]	0.9								0.9			
	Field Crops - Sugarcane	0	0.00							23,055	31.40		
	Field Crops - Other	222	0.30							222	0.30		
	Vegetables, Melons & Berries	3,197	3.51							3,197	3.51		
	Sod	7,236	14.64							7,236	14.64		
	Greenhouse/ Nursery	291	0.64							291	0.64		
	Miscellaneous		1.54								1.54		
	Total	**19,951**	**27.57**	**42,334**	**60.44**	**41,905**	**59.52**	**41,499**	**58.60**	**41,336**	**57.68**	**40,682**	**57.76**

Table A-18. CFWI Planning Area Agriculture Acreages and Demands by Crop Type by County in SFWMD[a] (continued).

County	Crop	Estimated Agricultural Acreage and Water Demand by County and Crop Type											
		2010		2015		2020		2025		2030		2035 [c]	
		Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd
Polk	Citrus	1,868	1.94							1,521	1.58		
	Improved Pasture[b]	0.7								0.7			
	Field Crops - Sugarcane	0	0.00							0	0.00		
	Field Crops - Other	1,071	2.90							828	2.24		
	Vegetables, Melons & Berries	776	0.71							901	0.71		
	Sod	702	2.09							702	2.09		
	Greenhouse/ Nursery	0	0.00							0	0.00		
	Miscellaneous		0.73								0.73		
	Total [d]	**4,418**	**8.37**	**4,301**	**8.11**	**4,185**	**7.86**	**4,069**	**7.61**	**3,953**	**7.35**	**3,836**	**7.1**

Notes: mgd = million gallons per day

[a] Sources of Data - preliminary estimates from 2012 Kissimmee Basin Water Supply Plan Update.

[b] Pasture demands are not estimated due to intermittent use.

[c] 2035 water demand are based on a linear growth estimated between 2015 and 2030.

[d] Rounding errors account for nominal discrepancies.

Table A-19. CFWI Planning Area agriculture acreages and demands by crop type by county in SWFWMD.

County	Crop	Estimated Agricultural Acreage and Water Demand[a] by County and Crop Type[c]											
		2010		2015		2020		2025		2030		2035	
		Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd
Lake	Citrus[b]	666	0.93	573	0.80	479	0.67	385	0.54	292	0.41	206	0.34
	Cucumbers	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	Field Crops	89	0.09	89	0.09	89	0.09	89	0.09	89	0.09	89	0.09
	Melons	195	0.19	195	0.19	195	0.19	195	0.19	195	0.19	195	0.19
	Nurseries	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	Other Veg./Row Crops	30	0.03	30	0.03	30	0.03	30	0.03	30	0.03	30	0.03
	Pasture	467	0.45	467	0.45	467	0.45	467	0.45	467	0.45	467	0.45
	Potatoes	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	Sod	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	Strawberries	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	Tomatoes	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	Miscellaneous	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	Total	**1,447**	**1.70**	**1,354**	**1.60**	**1,260**	**1.40**	**1,166**	**1.30**	**1,073**	**1.20**	**987**	**1.10**

Table A-19. CFWI Planning Area Agriculture Acreages and Demands by Crop Type by County in SWFWMD (continued).

County	Crop	Estimated Agricultural Acreage and Water Demand[a] by County and Crop Type[c]											
		2010		2015		2020		2025		2030		2035	
		Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd	Acres	mgd
Polk	Citrus [b]	74,156	75.64	74,156	75.64	74,156	75.64	74,156	75.64	74,156	75.64	74,156	75.64
	Cucumbers	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	Field Crops	797	0.77	797	0.77	797	0.77	797	0.77	797	0.77	797	0.77
	Melons	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	Nurseries	1,283	1.24	1,300	1.26	1,300	1.26	1,300	1.26	1,300	1.26	1,300	1.26
	Other Veg./Row Crops	2,372	2.30	2,000	1.94	2,000	1.94	2,000	1.94	2,000	1.94	2,000	1.94
	Pasture	200	0.19	200	0.19	200	0.19	200	0.19	200	0.19	200	0.19
	Potatoes	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	Sod	5,000	4.85	5,000	4.85	5,000	4.85	5,000	4.85	5,000	4.85	5,000	4.85
	Strawberries	300	0.29	300	0.29	300	0.29	300	0.29	300	0.29	300	0.29
	Tomatoes	88	0.09	88	0.09	88	0.09	88	0.09	88	0.09	88	0.09
	Miscellaneous	0	2.00	0	2.00	0	2.00	0	2.00	0	2.00	0	2.00
	Total [d]	**84,196**	**87.38**	**83,841**	**87.03**	**83,841**	**87.03**	**83,841**	**87.03**	**83,841**	**87.03**	**83,841**	**87.03**

Note: mgd = million gallons per day

[a] All AG projections are from 2010 SWFWMD Regional Water Supply Plan, Chapter 3; section 3-4 "Demand Projections for Agriculture".

[b] Florida Agricultural Statistics Service (FASS), *Florida Commercial Citrus Inventory.* 1988, 1990, 1992, 1994, 1996, 1998, 2000, 2002, 2004, 2006, 2008.

[c] Johns, Grace M. "Update of Irrigated Agricultural Acreage and Projections by County," Memorandum. Hazen and Sawyer, October 9, 2007.

[d] Rounding errors account for nominal discrepancies.

Standard List of Agricultural Crop Types

Historically, the Districts use different agriculture crop nomenclature and categorization, making comparisons difficult. As noted in **Volume I**, **Chapter 10**, during the review and development of the CFWI Planning Area population and water demand projections, the Subgroup and Florida Department of Agriculture and Consumer Services (FDACS) coordinated with the Districts to create a standard list of crop types broken into categories. **Table A-20** provides the standard list of crop types broken into crop categories that were agreed upon by the Subgroup and DACS staff. Although this standard list was not used in the CFWI RWSP, it is anticipated that the list can be used in future RWSP efforts.

Table A-20. Agricultural crop categories and crop types for future consistency.

Crop Category	Crop Type	Annual / Perennial
Citrus		Perennial
Other Fruits and Nuts	Avocados	Perennial
	Mangos	
	Mushrooms	
	Olive	
	Papayas	
	Peaches	Perennial
	Pecan	Perennial
	Plums	
	Generic	
	Others	
Vegetables, Melons, and Berries	Alfalfa	Perennial
	Beans	
	Beans, Green	Annual / Seasonal
	Beans, Dry	Annual / Seasonal
	Beets	Annual
	Blueberries	Perennial
	Broccoli	Annual / Seasonal
	Brussels Sprouts	Annual
	Cabbage	Annual / Seasonal
	Cantaloupe	
	Carrots	Annual / Seasonal
	Cauliflower	Annual / Seasonal
	Celery	Annual / Seasonal
	Chinese Vegetables	

Table A-20. Agricultural Crop Categories and Crop Types for Future Consistency (Continued).

Crop Category	Crop Type	Annual / Perennial
Vegetables, Melons, and Berries (continued)	Cucumbers	Annual / Seasonal
	Eggplant	Annual / Seasonal
	Escarole	
	Grapes	Perennial
	Greens, Herbs	Annual
	Peppers	Seasonal
	Peppers, Green	Annual
	Latin vegetables	
	Lettuce	Annual
	Melons	Annual / Seasonal
	Peas	Annual / Seasonal
	Potatoes	Annual / Seasonal
	Radish	Annual
	Small Vegetables	Annual / Seasonal
	Spinach	Annual
	Squash	Annual / Seasonal
	Strawberries	Annual / Seasonal
	Sweet Corn	Annual / Seasonal
	Sweet Potato	Annual
	Tomatoes	Annual / Seasonal
	Watercress	
	Watermelon	
	Generic	
	Others	
Field Crops		Annual
	Barley	Annual
	Clover	Annual
	Corn	Annual / Seasonal
	Corn Grain	Seasonal
	Cotton	Annual
	Grain	
	Grains, Small	Annual / Seasonal
	Hay	
	Millet	
	Millet, Forge	Annual
	Millet, Grain	Annual

Table A-20. Agricultural Crop Categories and Crop Types for Future Consistency (Continued).

Crop Category	Crop Type	Annual / Perennial
Field Crops (continued)	Oats	Annual
	Onions	Seasonal
	Onions, Dry	Annual
	Onions, Green	Annual
	Peanuts	Annual / Seasonal
	Rice	Annual
	Sorghum	Annual
	Soybean	Annual / Seasonal
	Sugarcane	Perennial
	Sunflower	Annual
	Tobacco	Annual / Seasonal
	Wheat	Annual
	Generic	
	Others	
Greenhouse/Nursery	Deciduous	Perennial
	Floriculture	
	Fern	Perennial
	Field ornamentals	
	Container ornamentals	
	Generic	
	Others	
Sod		Perennial
	Grass	Perennial
Pasture		Perennial
	Improved	
Miscellaneous	Aquaculture	
	Apiculture	
	Cattle	
	Dairy	
	Poultry	
	Others	

Stakeholder Comments

Table A-21 details all of the written comments received by the Subgroup during the CFWI Planning Area RWSP population and water demand projection development and review process. This table also includes actions taken by the Subgroup in response to the comments.

REFERENCES

Smith, S.K. and S. Rayer. 2011. *Projections of Florida Population by County, 2010 – 2040.* Volume 44, Bulletin 159. Bureau of Economic and Business Research, University of Florida, Gainesville, FL.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections.

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comments Received 1/23/2012				
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	Number of additional irrigation wells and associated demands for Lake County appear too high.	Tammy Bader, SJRWMD	The numbers shown for the Additional Irrigation Demands were listed incorrectly and have been updated accordingly.	Numbers updated.
	Utilities/Service providers were issued CUPs based on planned construction right as the economy tanked. Infrastructure may be in place, so when building starts again their population and demand will quickly exceed these numbers.	Tammy Bader, SJRWMD	Based on the best available data, the GIS model projects where in the county growth is likely to occur and applies rates similar to historic patterns. Comments will be taken into account if justifiable, documented & supported by methodology based on long-term trends. Control for county is BEBR medium; any increase in a utilities' projections will result in an associated decrease from another utility or the DSS category. Utilities should work together determining if areas should be reduced/increased if justifiable, documented & supported methodology indicates changes should be made.	None
	It would be helpful to know what portion of the DSS allocation is for small utilities and how much is for DSS itself.	Tammy Bader, SJRWMD	To provide for consistent methodology, the population and water demand subgroup agreed to show domestic self-supply and small utility demands as an aggregate number at the county level for the CFWI Planning Area effort. If needed, additional breakdown can be provided.	No changes made. Breakdown was provided to Mr. Welstead.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 1/24/2012				
Christine Russell OUC Manager, Water Compliance & Quality 1-407-434-2565 crussell@ouc.com 3800 Gardenia Avenue Orlando, FL 32839	Per Capita used appears to be too low.	Tammy Bader, SJRWMD 1/24/2012	We had originally only included the SJRWMD portion of the population and demand, which created an erroneously low per capita average. The gross per capita average will be updated to reflect what was submitted in the Draft Table 1 for the TCR joint permit on January 17, 2012.	Per capita and associated demand projections updated.
Tom Bartol SJRWMD Director, Bureau of Water Supply 1-386-312-2304 Tbartol@sjrwmd.com 4049 Reid Street Palatka, FL 32177	Polk County does not match BEBR-MED	Brent White, SWFWMD 1/24/2012	The population projections for Bartow, Frostproof, and Lakeland are based upon current permitted values per footnotes 4, 5 & 6 on the spreadsheet. Winter Haven's population projection includes tourist population associated with Lego Land per the request of Krystal Azarella. For this planning exercise, all 4 WUPs were adjusted to BEBR-MED levels (perm pop) and footnoted for utility reference.	Footnotes will be updated to Detail Perm Population (BEBR-MED) used for Lakeland, Bartow, Winter Haven and Frostproof Planning version only.
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	Is there an intent for SJRWMD and SFWMD to provide an estimate/projection of irrigation wells in the area as SWFWMD has done.	Tammy Bader, SJRWMD 1/26/2012	SJRWMD nor SFWMD intends to provide an estimate/projection of irrigation wells in the CFWI Planning Area. Currently, SWFWMD is the only District capable of providing this estimate. The three Districts will begin discussing future consistency regarding all water use type projections and recommendations to be made February 21, 2012 (These discussion will continue over the next six months). It is the intent to include these recommendations for future consistency in the CFWI Planning RWSP	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 1/24/2012				
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	Provide the same small utility/DSS breakdown as below for the other Counties? I don't necessarily need the detail for each small utility, just the same global detail.	Tammy Bader, SJRWMD 1/26/2012	Breakdown between DSS and Small Utility for Osceola, Orange, Polk and Seminole was provided to Mr. Welstead for SJRWMD and SWFWMD. SFWMD does not have a breakout.	No changes made. Breakdown was provided to Mr. Welstead
Roberto Denis Liquid Solutions Group, LLC representing OCU P.E. 1-407-349-3900 rdenis@liquidsolutionsgroup.com 369 Whitcomb Drive Geneva, FL 32732	Please provide the water use and population data used to develop the gross per capita estimates used for the public water suppliers.	Tammy Bader, SJRWMD 1/27/2012	Water use and population data used to develop the gross per capita estimate for OCU (SJRWMD portion) was provided. The portion of SFWMD is not included in this calculation, due to lack of data.	No changes made. OCU information provided.
	For utilities in the SJRWMD, please provide the original (older BEBR) public water supply and DSS population estimates used to derive the current set of population estimates. Also, please provide the BEBR basis (year or bulletin number) for these population estimates.	Tammy Bader, SJRWMD 1/27/2012	The 2010 projections were updated using the most recent BEBR medium Projections from Volume 44, Bulletin 159, Published 2011. Original (older BEBR) public water supply estimates used to derive the current set of population estimates was provided. Original DSS population estimates were the delta between county BEBR and total utility estimates.	No changes made. Information requested provided.
	For OCU, two rows are included in the projection table as follows: 1) Orange County Public Utilities - (CUP 3317) SJRWMD and 2) Orange County Public Utilities - SFWMD Portion. Under CUP 3317, OCU is authorized to serve portions of its service area in the SFWMD. Therefore, please confirm whether or not the projections under category 1) above include all of the water demand met by CUP 3317, or only those portions in the SJRWMD.	Tammy Bader, SJRWMD 1/27/2012	The CUP for OCU is only listed for reference. Geographical (District) boundaries were used to aggregate the parcels located within the OCU service area boundary that falls within SJRWMD and within SFWMD.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 1/25/2012				
Brent White SWFWMD Staff Water Conservation Analyst 1-800-423-1476, ext. 4214 brent.white@watermatters.org 2379 Broad Street Brooksville, FL 34604	In response to Tom Bartol's comment on 1/24/2012, projections are being provided for only the permanent population for Lakeland, Bartow, Winter Haven and Frostproof.	Tammy Bader, SJRWMD 1/26/2012	Projections for the 4 utilities in Polk County will be updated as well as footnotes.	Projections and footnotes updated as indicated.
Comments Received 1/26/2012				
Chris Sweazy SFWMD Kissimmee Basin Water Supply Plan Coordinator 1-407-858-6100, ext. 3822 csweazy@sfwmd.gov 1707 Orlando Central Pkwy., Suite 200 Orlando, FL 32809	TWA currently has service area jurisdiction for those portions of the county initially proposed for ECFS services and any new service population for that area have already been included in TWA's growth estimates. What we propose is the following corrective actions: Remove the "East Central FLA Services Inc (SFWMD)" entirely from the spreadsheet and move the population and demands previously identified for "East Central FLA Services Inc (SFWMD)" back to the DSS table year for year.	Tammy Bader, SJRWMD 1/26/2012	Population for ECFS will be removed as noted, to account for any double counting as population was already included in TWA61 projections. DSS category will also be updated as noted.	Population and demand projections updated for Osceola County PS and DSS categories.
	River Ranch was originally identified as part of Osceola County. In actually their facilities are located in Polk County. We need to adjust the demands tables in the following manner: Remove the populations and demands representing River Ranch from the Osceola County summary to Polk County. As you move the population note that for Polk County SF's DSS per capita value was 160 gpcd.	Tammy Bader, SJRWMD 1/26/2012	Population for River Ranch will be moved as noted. DSS category will also be updated as noted.	Population and demand projections updated for Polk and Osceola Counties PS and DSS categories.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 1/26/2012				
Bruce Paster City of Lake Mary Public Works Director 1-407-585-1450 bpaster@lakemaryfl.com 911 Wallace Court Lake Mary, FL 32746	Mr. Paster called @ 8:10 am to discuss per capita listed in projections spreadsheet. It was indicated that BEBR estimates are used as the city's historical population served, there is no DSS within the city and there is no population served outside of the municipal boundaries. Mr. Pester indicated that the gpcd listed may be too high and the city indicated the historic gpcd is around 158, versus 240 listed in the spreadsheet.	Tammy Bader, SJRWMD 1/26/2012 & 1/27/2012	Advised Mr. Paster that I would send the data (water use and population) the District used for calculating the 5-year average gross per capita. Email sent to Mr. Paster at 9:33 am on 01/26/12, including a spreadsheet that showed the data the District used and an analysis if historic BEBR estimates were used. Using BEBR only reduces the 5-year average gross gpcd to 236. Asked Mr. Paster to verify that the city is not referring to a residential per capita rate, versus a gross per capita rate which includes all uses within the utility. 1/27/2012 follow-up - Lake Mary was referring to their residential per capita as listed in their permit. Explained the differences between residential and gross per capita rates and verified that gross per capita is 240.	No changes made. Supporting data was provided to Mr. Paster and awaiting reply from city. 1-27-2012 - No changes made from follow-up, reference was for residential gpcd and not gross gpcd.
Bill Marcous City of Sanford Manager, Utility Support Services 1-407-688-5100 william.marcous@sanfordfl.gov 300 N. Park Avenue Sanford, FL 32771	Mr. Marcous called @ 9:00 am to discuss the projections, demands and gpcd shown in the spreadsheet for the city. The city would like a better understanding of how the methodology works and would like to ensure that projects such as the Wekiva Parkway and Lake Mary Boulevard Extension have been or are being taken into consideration.	Tammy Bader, SJRWMD 1/26/2012	Discussed methodology for all factors (GPCD, population, demand, GIS parcel model) with Mr. Marcous and explained that the rates of gpcd are unique to each utilities' demographic make-up and water use supplied. Email sent to Mr. Marcous at 3:47 pm on 01/26/12 providing links to SJRWMD GIS parcel based population projection distribution model, SJRWMD demand projection methodology and BEBR medium county level population projections. Also provided detail of the updates that the three Districts agreed to (most recent BEBR publication and most recent 5-year average gross gpcd). Projections will be finalized April 30, 2012.	No changes made. Links to methodology documents were provided to Mr. Marcous and awaiting reply from city.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 1/26/2012 and 1/31/2012				
Al Aikens, Project Manager, Hydrogeologist CH2M HILL 1-407-650-2116 al.aikens@ch2m.com 225 East Robinson St., STE 505 Orlando, FL 32801	The utility would like to decrease the population and demand projections based upon the CUP that is to be approved at the SJRWMD Governing Board Meeting on 02/14/12. The current development plan will be built out beginning in 2013 and growth for new development phases is not expected to begin until after 2020.	Tammy Bader, SJRWMD 1/31/2012	The District will make the recommended changes to the CFWI Planning Area documents based on the input (from the utility representative). Verified the projections and methodology in CUP application.	Population projections and associated demand projections updated.
Comment Received 1/27/2012				
Roberto Denis Liquid Solutions Group, LLC representing OCU P.E. 1-407-349-3900 rdenis@liquidsolutionsgroup.com 369 Whitcomb Drive Geneva, FL 32732	For SJRWMD, please provide the original (older BEBR) DSS population estimates used to derive the current set of population estimates.	Tammy Bader, SJRWMD 1/30/2012	It was restated that original DSS population estimates were the delta between county BEBR and total utility estimates. This is the same for new DSS projections. Original DSS numbers, excluding small utility, were provided.	No changes made. Information requested provided.
Comment Received 1/27/2012, 1/31/2012, & 2/01/2012				
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	What are the actual annual numbers used for both historical population and consumption for each of the years forming the basis of per capita usage for each of the utilities in the region?	Tammy Bader, SJRWMD & David Hornsby, SJRWMD 1/31/2012 & 2/01/2012	**Tammy Bader** - Advised that due to the large amount of data involved, the District is requesting that utilities provide their historic data, with supporting documentation, if it is felt that the gpcd listed in the tables is either too low or too high. If needed, the data can be provided on a utility basis, but for the total, the time constraint of 2/02/2012 will not be met. **David Hornsby** - The request for the break down as to data source (EN-50 or MOR) requires a fair amount of data mining. The district is sorry for any delay and we are working on it. We are providing available data at this time regarding your request. If this delay limits the utilities' review, we can make a reasonable adjustment to the review deadline.	No changes made. Limitations were addressed. DRAFT supporting data was sent out.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 1/27/2012, 1/31/2012, & 2/01/2012				
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	Looking at the methodology matrix, we're using the 2010 BEBR medium as a control. Were the population numbers adjusted downward in preceding years of the analysis to produce an accurate annual per capita use figure? I would also like the equivalent numbers for the other utilities.	Tammy Bader, SJRWMD & David Hornsby, SJRWMD 1/31/2012 & 2/01/2012	**Tammy Bader** - Advised that no, 2011 published BEBR as used as a control. For Lake County, the projections actually increased from what was published in 2009. Historic values for population served were not changed. Data requests for utilities is as noted in the above comment. **David Hornsby** - As Tammy mentioned, the district uses existing per capita rates. The 2010 BEBR are used to control the permanent population at the county level when projecting forward in time. The method utilized by SJRWMD does not hind-cast the 2010 BEBR. The hind-casting of 2010 BEBR would not account for current water conservation or functional population, which are very important factors for the utilities.	No changes made. Limitations were addressed. DRAFT supporting data was sent out.
	Question came up as to which consumption numbers are being used in the calculations. Is it EN-50 data or the MOR data reported to DEP.	Tammy Bader, SJRWMD & David Hornsby, SJRWMD 1/31/2012 & 2/01/2012	**Tammy Bader** - Advised that due to the lack of data, DEP MOR data was mostly utilized for SJRWMD and SFWMD. If it is felt that the gpcd listed in the tables is either too low or too high, it is requested that the utility provide updated information supporting documentation. SWFWMD uses actual reported withdrawn metered data. **David Hornsby** - As for the water use data utilized by the District, MOR or EN-50, the District makes every attempt of use EN-50 data (this is the preferred data source). However, when EN-50 is not available, the District will use MOR. Both MOR and EN-50 data is supplied by each Utility to DEP and the District, respectively.	No changes made. Limitations were addressed. DRAFT supporting data was sent out.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 2/01/2012				
Gregg Harkness Reedy Creek Energy Services Manager, Planning & Engineering 1-407-824-4759 gregg.harkness@disney.com P.O. Box 10,000 Lake Buena Vista, FL 32830	Population numbers should be N/A or zero. Due to the nature of RCID's customer base, a per capita calculation and similarly the population figure are not appropriate. RCID population is 99+% transient (tourists), there is no permanent population. Please update demand projections, the original projection for RCID was 24.7 MGD in 2026. The current permitted quantity is 22.2 MGD, which was the original 2013 demand projection value. Due to timing and downturns, it is expected the 2035 demand to be 24.7 mgd.	Chris Sweazy, SFWMD & Tammy Bader, SJRWMD 2/1/2012	Per **Chris Sweazy** email, SFWMD is in agreement with RCIDs proposed changes. **Tammy Bader** - Advised that population and demand projections (RCID and DSS) will be changed accordingly to reflect SFWMD concurrence.	Population and demand projections updated, per RCID request and SFWMD agreement.
Comment Received 2/01/2012				
Ted McKim Reedy Creek Energy Services Principal Civil Engineer 1-407-824-4846 ted.mckim@disney.com P.O. Box 10,000 Lake Buena Vista, FL 32830	Comments supported and concurred with above comment from Gregg Harkness. Noted that reclaimed water is planned and anticipated for all new development.	Chris Sweazy, SFWMD & Tammy Bader, SJRWMD 2/1/2012	N/A - Copied on email response above.	See Action Taken Above.
C.T. Eagle, Sr Town of Lady Lake Public Works Director 1-352-751-1526 cteagle@ladylakepw.org 136 Skyline Drive Lady Lake, FL 32159	We've noticed some current focus on demand projections within the CFWI Planning Area and wanted to confirm if other demand projections beyond the CFWI Planning Area also need to be coordinated at this time. From the Town's perspective, the demand summaries provided at:http://www.sjrwmd.com/pdfs/Public_Supply_Water_Use-Demand_By_County-Utility.pdf are not accurate for the "2030 Water Demands" since they are very near if not identical to the Town's current Water Demands.	Tammy Bader, SJRWMD 2/2/2012	Advised that at this time, the town does not need to address the demand summaries on our webpage and that they are intended solely for planning purposes only. These projections were made using a snapshot in time and include many inputs that are now out of date. For the CFWI Planning Area effort, demands were only updated for those utilities that fell within the CFWI Planning Area boundaries. If the town were to come in for a permit renewal or modification at this time, the latest and best available data would be taken into account.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 2/02/2012				
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	The service areas for Mount Dora and Leesburg certainly overlap the CFWI Planning Area but I don't believe they actually have any wells in the area. Are all the public utilities with actual "straws in the ground" within the CFWI Planning Area included? I could be mistaken but was under the impression Cocoa, Brevard, or Titusville had some wells in East Orange County inside the area but don't see them on any of the lists.	Tammy Bader, SJRWMD 2/2/2012	Advised that currently, only those public supply utilities/service providers whose service areas fall completely or wholly within the CFWI Planning Area boundaries are included in the population and demand projection tables, as discussed by the Supply Plan and Subgroup teams. Of note, Cocoa was originally in the Final CFCA Report and does have some wells in Orange County, but their service area no longer falls within the CFWI Planning Area boundaries. As this is an important topic, perhaps it should be brought up again in our future meetings and the qualifications be further vetted.	None
Christine Doan Orange County Utilities Chief Engineer 1-407-254-9921 christine.doan@ocfl.net 9150 Curry Ford Road Orlando, FL 32825	All utilities with withdrawal points in the CFCA are subject to the rule requirements. As such, their projections should be included in the population and demand tables. Currently, the City of Cocoa, with wells in the CFCA, is not included in the projection set. The City of Cocoa and any other utilities with withdrawals in the CFCA should be included in the population and demand projections.	Chris Sweazy, SFWMD & Tammy Bader, SJRWMD 2/3/2012 & 2/6/2012	Advised that this topic was previously discussed by the Supply Plan and Subgroup teams and it was determined that only those public supply utilities/service providers whose service areas fall completely or wholly within the CFWI Planning Area boundaries would be included in the population and demand projection tables. As this is an important topic, we will report back to the Water Supply Team that the qualifications for inclusion need to be discussed and further vetted.	Listed as an action item to take back to Supply Team.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 2/02/2012				
Christine Doan Orange County Utilities Chief Engineer 1-407-254-9921 christine.doan@ocfl.net 9150 Curry Ford Road Orlando, FL 32825	What methodology was used to calculate OCU's "Water Use" for 2006 to 2010? What is the source of the data used in these calculations?	Chris Sweazy, SFWMD & Tammy Bader, SJRWMD 2/3/2012 & 2/6/2012	**Chris Sweazy** - Advised the Districts realize that utilities may have more detailed operational data on which to base their estimates. The Districts would like to have the best available and most accurate data (by District) to use as a basis for projections. If the Districts have not accurately captured the historic data, it would be greatly appreciate if the utilities could provide updated data, with supporting documentation. **Tammy Bader** - Advised that while the preferred data source is EN-50 data, sometimes the data is either missing or has not been reported and the District has to rely on DEP MOR data. For the years 2006 - 2008 and 2010, DEP MOR data was used. For the year 2009, EN-50 data was used. For planning and regulatory purposes, the Districts have to keep track of use by District.	Data sources and methodology provided.
	What methodology was used to calculate OCU's population for 2006 to 2009? What is the source of the data used in these calculations?	Chris Sweazy, SFWMD & Tammy Bader, SJRWMD 2/3/2012 & 2/6/2012	**Chris Sweazy** - See reply above. **Tammy Bader** - Advised that for the portion of OCU within the SJRWMD, for the years 2006 – 2008, the District used the historic population submitted during the CUP process in Table 1 dated 6/29/09 (RAI Response 1). Later Table 1 data only provided population for a portion of the service area within the SJRWMD. Due to a lack of data, the value for 2008 was held constant for the years 2009 and 2010. Other comments as noted above.	Data sources and methodology provided.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 2/02/2012				
Christine Doan Orange County Utilities Chief Engineer 1-407-254-9921 christine.doan@ocfl.net 9150 Curry Ford Road Orlando, FL 32825	In a previous response, you indicated that data for the SFWMD was not utilized for the calculation of OCU's demand projections due to "lack of data". What data are the water management districts missing? OCU consistently reports its water use to the SJRWMD and SFWMD.	Chris Sweazy, SFWMD & Tammy Bader, SJRWMD 2/3/2012 & 2/6/2012	**Tammy Bader** - Advised that while we can use and do have DEP MOR data for the entire area of OCU (both Districts), SJRWMD did not have the historic population served within the SFWMD. Other comments as noted above.	None
	The current (2011 BEBR medium) 2010 population for OCU's SJRWMD portion is 305,784. The 2010 population for OCU's SJRWMD portion published in Revised Population and Demand Projections for Draft Water Supply Assessment 2008 (dated February 10, 2010 and based on 2009 BEBR medium) is 364,792. Why has OCU's population decreased between these two estimates when the overall Orange County BEBR medium value has increased?	Chris Sweazy, SFWMD & Tammy Bader, SJRWMD 2/3/2012 & 2/6/2012	**Tammy Bader** - Advised the two estimates were made using different sets of inputs and should not be compared for this effort. The projections on the webpage were a snapshot in time, included all population within a service area (domestic self-supply within service areas was not taken out) and included many inputs that are now out of date. For example, service area boundaries dated 2006 and earlier were used; while for this CFWI Planning Area effort, the current service area boundary we received from Rob Denis dated June 2011 was used (it should be noted that the June 2011 boundary is almost identical to the one submitted by Rob Denis a few weeks ago). As **Chris Sweazy** noted, if there is a large discrepancy, the Districts would like to compare the projections (permanent, planning level population served) that the utilities have developed for consideration and potential changes (providing that the projections are justifiable, documented & supported by methodology based on long-term trends).	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 2/02/2012				
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	Mr. Welstead provided suggested population and demand changes for **Mascotte**, supplied by the consultant. *(Population (based upon a population of 2.5 pph) conforms with number of connections anticipated by the City for 2030 (3534 homes = 8836 population) and 2035 (4535 homes =11,338 persons). All new connections were added at a gross 200 gpcd – which may in fact be a little low. Mascotte is transitioning from a more rural/small-town community with few irrigated lawns. As new subdivisions/population enter the picture, they will be more likely to have irrigation systems and accordingly higher gpcd consumption.)*	Tammy Bader, SJRWMD 2/6/2012	Advised that we will discuss the information provided at the subgroup meeting scheduled on 2/7/12. Utilities and/or their representatives should be prepared to provide supporting documentation and methodology for the proposed changes. Utilities should keep in mind that the control for county is BEBR medium. Utilities are encouraged to work together determining if areas should be reduced/increased if justifiable, documented & supported methodology indicates changes should be made. Advised that we would like to remind all parties that these projections are intended solely for planning purposes only and only takes into account permanent population. Any items regarding the CUP process will be handled through a different process. **Update 2/10/12** - No methodology documentation has been received to date warranting any changes.	None
Krystal Azzarella Polk County Utilities Environmental Manager 1-863-298-4195 krystalazzarella@polk-county.net 1011 Jim Keene Blvd., SR 540 Winter Haven, FL 33880	Polk County feels that the values underestimate the needs for PS, specifically for the NERUSA and the City of Winter Haven. The projections are based on the permanent population (based on BEBR medium growth rates), instead of a functionalized population, and do not incorporate some of the important demand drivers inherent to these service areas: seasonal population (short-term rentals) and the tourist population. Although planning projections are not permitting projections, in the past, RWSPs have been historically used to review permitting projections; these projections will be used in the CFWI Planning Area regional water supply plan and Polk County feels that its needs are underestimated and it may not receive any water supply solutions from the process. In Polk County's opinion the methodology for these projections should be reconsidered using all of the pertinent and historical envisioned data to ensure that Polk County has access to the limited inland water supply.	Tammy Bader, SJRWMD 2/8/2012	Advised the Districts recognize the concern regarding only using a permanent population (based on BEBR medium growth rates), instead of a functionalized population (which incorporates important demand drivers (seasonal, short-term rentals, tourist, i.e.) inherent to the service areas located in Polk County) and as discussed at 2/7/12 meeting, this item (possibly using a BEBR range) will be brought back to the Water Supply Plan Team for discussion and policy direction.	Item added to Action item list and will be brought to Team meeting scheduled for 2/16/2012.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 2/03/2012 and 2/6/2012				
Chris Sweazy SFWMD Kissimmee Basin Water Supply Plan Coordinator 1-407-858-6100, ext. 3823 csweazy@sfwmd.gov 1707 Orlando Central Pkwy., Suite 200 Orlando, FL 32809	For the agricultural portion of demands, Latt Maxey was issued a permit for 23055 acres of misc crops in January of this year. The allocation is for 19.1 MGD and will first show up on the summary table in 2015. The project is in Osceola County on the border of Okeechobee County. This project was not included in our original estimate. Demands provided and should be edited under AG to include the permitted amount of 23,055 acres of new sorghum beginning in 2015 in Osceola County. This added 19.1 mgd of demand also beginning in 2015.	Tammy Bader, SJRWMD 2/6/2012	Demands for SFWMD agricultural will be updated as provided to account for the new acreage of sorghum.	Agricultural demands updated.
Comment Received 2/03/2012				
Jennifer Bolling SMW GeoSciences, Inc. Senior Project Engineer 1-407-426-2836 jbolling@smwgeosciences.com 1411 Edgewater Dr., Ste. 103 Orlando, FL 32804	Called regarding methodology questions and indicated that Winter Garden may be concerned with the projections, as 2010 data shown is less than what was actually pumped.	Tammy Bader, SJRWMD 2/6/2012	Briefly described methodology used to determine projections, that permanent population only was being projected. Advised that the District would encourage the city to review our service area boundary on file and historic data to ensure accuracy and that we look forward to working together to ensure the best projections are being developed.	None
Robert Pelham Tohopekaliga Water Authority Director of Engineering 1-407-944-5000 rpelham@tohowater.com 951 Martin Luther King Blvd. Kissimmee, FL 34741	TWA is in general agreement the Districts' projections, but it appears they exclude three projects identified by Osceola County planning for the North East, East and South Sectors representing an additional population of 65,000 people in 2035. The additional population overlaps both TWA's and Saint Cloud's service areas. Osceola County will finalize their projections in mid-February. TWA's projections yield a demand consistent with the Districts', however TWA's methodology was based on a population and gpcd that are different than the Districts' population and gpcd. The demand projection subcommittee meeting scheduled this week has been postponed until next week. Based on the discussions of the committee, TWA may have revised and/or additional comments.	Tammy Bader, SJRWMD & Chris Sweazy, SFWMD 2/7/2012 & 2/10/2012	**Tammy Bader** - Advised that the projected population does include some of the areas discussed, but at a growth rate consistent to BEBR medium. It appears that ECFS and TWA are claiming the same areas for this population and will need to be addressed at a later date. We will take into account any additional comments that TWA has. **Chris Sweazy 02/10/2012** - Provided historical population and water use as basis for gpcd in TWA and O & S future demand projections.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 2/6/2012				
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	Mr. Welstead provided suggested population and demand changes for **Groveland**, supplied by the consultant.	Tammy Bader, SJRWMD 2/6/2012	Advised that we will discuss the information provided at the subgroup meeting scheduled on 2/7/12. Utilities and/or their representatives should be prepared to provide supporting documentation and methodology for the proposed changes. Utilities should keep in mind that the control for county is BEBR medium. Utilities are encouraged to work together determining if areas should be reduced/increased if justifiable, documented & supported methodology indicates changes should be made. Advised that we would like to remind all parties that these projections are intended solely for planning purposes only and only takes into account permanent population. Any items regarding the CUP process will be handled through a different process. **Update 2/10/12 -** Per capita updated to include historic GW/SW uses from permits 2849 & 105467. These permits will be captured in future efforts under the LRA category, however were omitted from original estimates.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 2/6/2012				
Randy Jackson City of St. Cloud Public Services Administrator 1-407-957-7265 jjackson@stcloud.org 1300 Ninth Street St. Cloud, FL 34769	TWA and St. Cloud have the same general comment: the population projections for both areas appear to be understated, while the water demand projections for both areas appear to be about right. To rephrase - it appears that you've arrived at the right answer but with the wrong data/input. Additionally, it appears the projections exclude three projects identified by Osceola County planning for the North East, East and South Sectors representing an additional population of 65,000 people in 2035. The additional population overlaps both TWA's and Saint Cloud's service areas. Osceola County will finalize their projections in mid-February.	Tammy Bader, SJRWMD 2/8/2012	Advised that the projected population does include some of the areas discussed, but at a growth rate consistent to BEBR medium. Of note, it appears that ECFS and TWA are claiming the same areas for this population and will need to be addressed at a later date. Chris Sweazy will provide the historic data used in preparation of the population and demand projections. We will take into account any additional comments or recommended changes once the data Chris Sweazy provides has been reviewed.	None
	TWA purchased O&S Utility; their projections should be included in Toho's.	Tammy Bader, SJRWMD 2/8/2012	As discussed at the subgroup meeting, the population and demand projections for O&S will be included under TWA.	Population and Demand Projections updated as noted.
	These projections do not account for transient population (tourists, "snowbirds", short term rentals, etc.). Suggest transient population be considered and factored into the projections.	Tammy Bader, SJRWMD 2/8/2012	Advised the Districts recognize the concern regarding only using a permanent population (based on BEBR medium growth rates), instead of a functionalized population (which incorporates important demand drivers (seasonal, short-term rentals, tourist, i.e.) inherent to the service areas located in Polk County) and as discussed at 2/7/12 meeting, this item (possibly using a BEBR range) will be brought back to the Water Supply Plan Team for discussion and policy direction	Item added to Action item list and will be brought to Team meeting scheduled for 2/16/2012.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 2/6/2012				
Randy Jackson City of St. Cloud Public Services Administrator 1-407-957-7265 jjackson@stcloud.org 1300 Ninth Street St. Cloud, FL 34769	Footnotes under the "GPCD Used" column indicate that SJRWMD and SWFWMD are driving the projections for those of us in SFWMD. Did SFWMD participate in developing the methodology? Do they agree?	Tammy Bader, SJRWMD 2/8/2012	As discussed at the subgroup meeting, the methodologies are the same for all Districts for per capita calculation. During 2008, all five WMDs participated in forming the statewide DEP Uniform Per Capita Rate calculations.	None
	Under the Domestic Self-Supply sheet - there seems to be a rather significant reduction in self-supply capability over the planning horizon in Osceola County - from 59,776 in 2010 to 482 in 2035. A reduction of that magnitude is unrealistic, particularly given the rural nature of Osceola County and the resultant capital expenditure to get these residences/locations onto a public supply system. How was this reduction arrived at? Recommend that part of the model be reexamined.	Tammy Bader, SJRWMD 2/8/2012	As discussed at the subgroup meeting, the DSS projections for Osceola County were already updated. EFCS and TWA were both originally listed, double counting the same population to be served. As noted by SFWMD, TWA currently has service area jurisdiction for those portions of the county initially proposed for ECFS services and any new service population for that area have already been included in TWA's growth estimates.	None
	Osceola County acreage is declining through the planning horizon, while water demand is going up. Please explain.	Tammy Bader, SJRWMD 2/8/2012	As discussed at the subgroup meeting, the agricultural projections are based on the types of crop expected to be grown. Although the acreage is declining, the water needs of crops to be grown may be more.	None
	What is the source/input for agricultural projections? Latt Maxcy Corporation is planning to increase their agricultural operations by over 21,000 acres (more than doubling Osceola County's acreage) and is requesting their water allocation be increased by over 47 MGD (over 4 times the county's water demand projection); we understand SFWMD will be issuing a permit in the near future. Why weren't these included in the projections?	Tammy Bader, SJRWMD 2/8/2012	As discussed at the subgroup meeting, per SFWMD, the agricultural demands for the Latt Maxey permit have been added to Osceola County.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 2/6/2012				
Randy Jackson City of St. Cloud Public Services Administrator 1-407-957-7265 jjackson@stcloud.org 1300 Ninth Street St. Cloud, FL 34769	On the Recreational sheet, the acres projected for Osceola County in 2035 are 10x that projected for 2030. Will there be a 10x increase in 5 years or is this a typo?	Tammy Bader, SJRWMD 2/8/2012	As discussed at the subgroup meeting, per SFWMD, the acreage listed was a typo and will be corrected. Chris Sweazy, SFWMD, provided updated acreages 2/8/2012.	Acreages updated.
Comment Received 2/7/2012				
Sarah Whitaker SMW GeoSciences, Inc. President 1-407-234-4675 swhitaker@smwgeosciences.com 668 N. Orlando Avenue, Suite 1009A Maitland, FL 32751	Please note that the District has already recognized and issued CUPs to **Groveland** CUPs that support gross gpcd way above 300 and that for planning purposes the District should recognize these actual demands	Tammy Bader, SJRWMD 2/10/2012	Advised that per capita updated to include historic GW/SW uses from permits 2849 & 105467. These permits will be captured in future efforts under the LRA category, however were omitted from original estimates. Historic population used in the gpcd calculations was provided as the District would like to verify, as this directly impacts the per capita calculations. Also, it was noted that Mr. Welstead had provided proposed changes to the population projections, but no supporting documentation or methodology was provided.	Historic per capita updated, as well as associated demands.
Comment Received 2/7/2012 & 2/9/2012				
Roberto Denis Liquid Solutions Group, LLC representing OCU P.E. 1-407-349-3900 rdenis@liquidsolutionsgroup.com 369 Whitcomb Drive Geneva, FL 32732	OCU understands that the SJRWMD is going to re-evaluate its CFWI Planning Area projection for OCU for 2010. We request that, consistent with other utilities, the SJRWMD adjust its previously published projections for OCU (based on 2009 BEBR medium) based on the 2011 BEBR medium for use in the CFWI Planning Area effort. 2/9/12 - Updated population and MOR data provided for GPCD calculation.	Tammy Bader, SJRWMD 2/8/2012 & 2/10/2012	Upon receiving the information, we have updated the population and associated demand projections for OCU. From the information provided, the District recognizes that the estimates provided by OCU are more representative and used these estimates for normalization. 2/10/12 - Historic population and use updated, which results in an increase in historic gpcd. As a result, the associated demand projections have been updated.	Historic per capita updated, as well as population projections and associated demands.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 2/7/2012				
Mary Fickert Thomas Parsons Brinkerhoff Lead Engineer 1-407-587-7837 thomasmf@pbworld.com 402 S. Orange Ave., Suite 400 Orlando, Fl 32801	Please provide the updated comment matrix.	Tammy Bader, SJRWMD 2/8/2012	Please find attached the most recent comment matrix. Please note that there are a few additional comments that have not been put into the matrix yet. We will address those tomorrow.	Updated comment matrix provided.
Comment Received 2/8/2012				
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	Requested the current CFWI Planning Area boundary in a shape file.	Tammy Bader, SJRWMD 2/8/2012	Most recent shapefile showing the CFWI Planning Area boundaries was provided to Mr. Welstead.	Shapefile provided.
Comment Received 2/8/2012 & 2/9/2012				
Terrence McCue Seminole County Environmental Services Department Ph.D., P.E. 1-407-665-2039 tmccue@seminolecountyfl.gov 500 W Lake Mary Blvd. Sanford, FL 32773	Please provide the annual breakdown of population and water production data used to determine the gross per capita consumption, as well as the source of the data used. *At the 2/9/2012 meeting it was indicated that the data provided was sufficient and the historic population and water use data would be reviewed and any updates will provided.*	Tammy Bader, SJRWMD 2/8/2012 & 2/10/2012	Provided historic population and use for all utilities within the CFWI Planning Area. Source notations of data will require more time to be delivered. From 2/9/2012 meeting discussion, no futher source data is needed. We look forward to any suggested updates to the historic data and will update any information provided as warranted.	Historic data provided.
Comment Received 2/10/2012				
Chris Sweazy SFWMD Kissimmee Basin Water Supply Plan Coordinator 1-407-858-6100, ext. 3823 csweazy@sfwmd.gov 1707 Orlando Central Pkwy., Suite 200 Orlando, FL 32809	Agricultural demands provided for update.	Tammy Bader, SJRWMD 2/10/2012	Agricultural acres and associated demands have been updated as presented in the email dated 2/10/2012.	SFWMD agricultural acres and demands updated.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 2/13/2012				
Jay Yingling SWFWMD Sr. Economist 1-800-423-1476 ext. 4406 jay.yingling@watermatters.org 2379 Broad Street Brooksville, FL 34604	As a result of controlling only to BEBR medium projections at the county level (permanent population), the values for historic per capita had to be adjusted for a few utilities in Polk County. Winter Haven, Lakeland and Polk County NERUSA historic per capita values were calculated using a functional population, which lowers the per capita rate. Projecting forward only using a permanent population, but a gpcd based on a functional population compounds the underestimation of demands. Updated per capita values calculated at permanent population for the three utilities mentioned are provided.	Tammy Bader, SJRWMD 2/13/2012	Per email and data submitted, historic gpcd and associated demands will be updated for Winter Haven, Lakeland and Polk County NERUSA.	Historic per capita updated, as well as population projections and associated demands.
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	Mr. Welstead provided comments from the City of Minneola and Sarah Whitaker regarding the demand and population projections.	Tammy Bader, SJRWMD 2/14/2012	Comments from city and consultant discussed at the subgroup meeting 2/14/12. To date, no supporting documentation and methodology for the proposed population changes have been submitted. It was noted that utilities should keep in mind that the control for county is BEBR medium and that utilities are encouraged to work together determining if areas should be reduced/increased if justifiable, documented & supported methodology indicates changes should be made. Advised that we would like to remind all parties that these projections are intended solely for planning purposes only and only takes into account permanent population. Any items regarding the CUP process will be handled through a different process. GPCD methodology was also discussed - the city and consultant would like the subgroup to deviate from standard planning practices of using a historic gpcd to project demands and instead use a projected demand based on new development (if realized). The subgroup will report to the Water Supply Team regarding this issue.	GPCD discussion will be shown as an action item to take to Water Supply Team meeting to be held on 2/16/2012.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 2/14/2012				
Ted McKim Reedy Creek Energy Services Principal Civil Engineer 1-407-824-4759 gregg.harkness@disney.com P.O. Box 10,000 Lake Buena Vista, FL 32830	RCID has only one WUP (48-00009-W), and only one public water supply ID # from FDEP (#3484093). There is no need to list all of our pumping stations separately as they are all considered one system and under one ID.	Tammy Bader, SJRWMD 2/15/2012	As noted, we have updated to show only the systems and not individual pumping stations.	PWSID file updated.
Gregg Harkness Reedy Creek Energy Services Manager, Planning & Engineering 1-407-824-4846 ted.mckim@disney.com P.O. Box 10,000 Lake Buena Vista, FL 32830	See comments above.	Tammy Bader, SJRWMD 2/15/2012	See comments above.	See Action Taken Above.
Tyler Coon East Central Florida Services Vice President 1-407-957-6651 tcoon@fri-slc.com 4500 Deer Park Road St Cloud, FL 34773	At a first glance, it appears the projections significantly under project population growth in ECFS' service area and perhaps this growth is covered in Toho's numbers. It would be beneficial to have a meeting/conference call to how these numbers were derived and what may or may not be included. We are also interested in discussing agricultural demand projections.	David Hornsby, SJRWMD 2/16/2012	Advised that the TWA numbers do include all of Osceola County. The model we are using is for the utility to provide comments and we will address at meetings with the subgroup. The next meeting scheduled for the subgroup is 02/21/12 at the Maitland Service center in the Econ room and we will send a meeting invite.	02/21/12 meeting invite forwarded
Comment Received 2/21/2012				
Bill Marcous City of Sanford Utility Manager 1-407-688-5105 william.marcous@sanfordfl.gov P.O. Box 1788 Sanford, FL 32772-1788	The City of Sanford is interested in modifying the draft demand projections prepared by the District with those prepared by our consultants CPH Engineers for our Water Facilities Plan. What is the process to have the draft numbers revised.	Tammy Bader, SJRWMD 2/24/2012	Advised that to consider any changes to the population or demand projections shown in the tables provided during the Central Florida Water Initiative, the District will need the supporting documentation and methodology employed. Once received, this data will be evaluated and brought before the CFWI Planning Area Population and Water Demand Subgroup for discussion to determine if justifiable, documented & supported methodology indicates changes should be made. Of note, when reviewing this data, is that the control for the county is BEBR medium population projections, that these projections are intended solely for planning purposes only and only take into account permanent population. Projections will be finalized April 30, 2012.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 2/21/2012				
Chris Sweazy SFWMD Kissimmee Basin Water Supply Plan Coordinator 1-407-858-6100, ext. 3823 csweazy@sfwmd.gov 1707 Orlando Central Pkwy., Suite 200 Orlando, FL 32809	Recreational acres, demands and 1-in-10 provided for update.	Tammy Bader, SJRWMD 2/24/2012	Recreational demands will be updated as shown and to include 1-in-10 as shown.	Recreational Demands updated.
Comment Received 2/22/2012				
Bill Marcous City of Sanford Utility Manager 1-407-688-5105 william.marcous@sanfordfl.gov P.O. Box 1788 Sanford, FL 32772-1788	For the city's review, please provide the historic water use and population, PWSID and service area boundary for the city. Please also provide the historic data and PWSIDs for all other utilities within Seminole County.	Tammy Bader, SJRWMD 2/24/2012	Historical water use, population and PWSIDs for all utilities in Seminole County provided. PWSAB for City of Sanford provided.	Data provided.
Tyler Coon East Central Florida Services Vice President 1-407-957-6651 tcoon@fri-slc.com 4500 Deer Park Road St Cloud, FL 34773	As requested yesterday, attached is a copy of our PSC certificate and a GIS shapefile of our certificated service area.	Tammy Bader, SJRWMD 2/22/2012	Advised that because ECFS does in fact have a PSC certificate for their service area, the projected population and associated demand will be shown under ECFS for Osceola County, rather than under TWA. This topic will be brought back up before the subgroup meeting on 2/28/2012.	Demand and population projections updated.
Christine Russell OUC Manager, Water Compliance & Quality 1-407-434-2565 crussell@ouc.com 3800 Gardenia Avenue Orlando, FL 32839	Regarding the residential water use numbers for OUC, they appear to only represent that portion of our service area within the SJRWMD.	Tammy Bader, SJRWMD 2/24/2012	Advised that the spreadsheet was originally sent to Don Brandes, as he was going to use it to try and set benchmarks for residential conservation benchmarks and had only requested the data within the SJRWMD. For all future purposes, for OUC, we will be using what was submitted in the DRAFT TCR Table 1.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 2/23/2012				
Jason R. Shepler Mittauer & Associates, Inc. P.E. 1-904-644-0644 jshepler@mittauer.com 580-1 Wells Road Orange Park, FL 32073	The **Town of Lady Lake** has reviewed the historical values provided in your table below and believe they are accurate.	Tammy Bader, SJRWMD 2/24/2012	Advised the Districts are grateful for the review of the historic data.	None
Miguel Garriga City of Altamonte Springs Senior GIS Analyst 1-407-571-8067 mgarriga@altamonte.org 225 Newburyport Avenue Altamonte Springs, FL 32701	Please provide the shapefile that the District has for the City of Altamonte Springs service area boundary.	Steve Brown, SJRWMD 2/24/2012	Service area shapefile provided.	Shapefile provided.
Comment Received 2/28/2012				
Roberto Denis Liquid Solutions Group, LLC representing OCU P.E. 1-407-349-3900 rdenis@liquidsolutionsgroup.com 369 Whitcomb Drive Geneva, FL 32732	Agricultural demands for SFWMD and SJRWMD are similar, however acres shown are much less in SJRWMD. Please verify agricultural demands and acres in SJRWMD portion of Osceola County.	Tammy Bader, SJRWMD 3/5/2012	Agricultural acreage and projected demand for Osceola County in SJRWMD was incorrect. Data has been updated to reflect historic AG growth and historic AG water use for the crops estimated in Osceola County in SJRWMD.	SJRWMD portion of Osceola County Agricultural acres and demand projections updated.
Comment Received 2/29/2012				
Quyen Newell Tohopekaliga Water Authority 1-407-944-5000 qnewell@tohowater.com 951 Martin Luther King Blvd. Kissimmee, FL 34741	Updated changes to 5 of the WTPs under TWA, for the PWSID file.	Tammy Bader, SJRWMD 3/1/2012	Advised that we took out all of the plant names and updated to just show the PWSIDs for utilities in SFWMD. The information will be forwarded to Chris Sweazy, SFWMD for their information.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/1/2012				
Terrence McCue Seminole County Environmental Services Department Ph.D., P.E. 1-407-665-2039 tmccue@seminolecountyfl.gov 500 W Lake Mary Blvd. Sanford, FL 32773	How do you handle consecutive systems? I presume that your assumption is that population in consecutive systems are captured in the population served estimates of the utility that produces the water?	Tammy Bader, SJRWMD 3/1/2012 & 3/5/2012	Verified that the areas in question are shown under SCES and advised that typically, for wholesale instances, if a utility bills the customer then the population associated is counted for them.	None
Comment Received 3/5/2012				
Alison Ramoy SWFWMD Staff Environmental Scientist 1-800-423-1476 ext. 4212 alison.ramoy@swfwmd.state.fl.us 2379 Broad Street Brooksville, FL 34604	Mark Barcelo has requested the shapefiles for the utility service areas within the CFWI Planning Area. I was told that you would be able to provide those files to us. If so, please reply all.	Steve Brown, SJRWMD & Tammy Bader, SJRWMD 3/5/2012	Service area shapefiles sent as requested and all parties copied.	Shapefile provided.
Comment Received 3/6/2012				
Kathleen Coates NWFWMD Senior Hydrogeologist 1-850-539-5999 kathleen.Coates@nwfwmd.state.fl.us 152 Water Management Dr Havana, Florida 32333	Please provide the methodology matrix for NWFWMD to update.	Tammy Bader, SJRWMD 3/7/2012	Methodology matrix provided as requested.	Matrix provided.
Comment Received 3/7/2012				
Randy Jackson City of St. Cloud Public Services Administrator 1-407-957-7265 jjackson@stcloud.org 1300 Ninth Street St. Cloud, FL 34769	Please provide the spreadsheet showing the build-out estimates for each utility.	Tammy Bader, SJRWMD 3/7/2012	Spreadsheet showing build-out values provided as requested.	Spreadsheet provided.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/7/2012				
Bill Marcous City of Sanford Utility Manager 1-407-688-5105 william.marcous@sanfordfl.gov P.O. Box 1788 Sanford, FL 32772-1788	Attached is revised Service Area map for the City of Sanford. It reflects all areas served under the Sanford CUP No. 162, including consecutive systems and wholesale arrangements. Please update the District archives accordingly.	Tammy Bader, SJRWMD 3/7/2012	The data provided will be reviewed and updated accordingly. Steve Brown, SJRWMD, will be in contact if any questions arise.	Service area information updated.
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	I met with Juanita Popenoe, Lake County's Extension Agent, concerning the ag projections within the CFWI Planning Area. In trying to answer some of the questions related to ag use and demand, I have put together a number of files that are summarized by the attachment, Ag Population Projections.xlsx. In doing so, I relied on the Property Appraiser's current parcel layer listing those parcels with a current Ag exemption, a shapefile of existing active consumptive use permits within the CFWI Planning Area, and the population projections using 2010 census data. I will make them available by placing appropriate shapefiles on my ftp site should you or the District care to review them.	NA NA	Mr. Welstead sent an email with Lake County agricultural data to Camilo Gaitan, FDACS. There was no indication that this email was meant to request any updates or changes to the demand projections. As the email was addressed to Camilo Gaitan, FDACS, the subgroup assumed that no action was needed until further directed. Update - At the population and water demand subgroup meeting held on March 20, 2012, the subgroup confirmed and Gregg Welstead advised that the data he provided was for information purposes only and that no action was expected of the subgroup. Gregg Welstead also confirmed that the data was provided to Camilo Gaitan for information purposes only.	None
Comment Received 3/8/2012				
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	Forwarded information received from Larry Walker, City of Mascotte, regarding water use in 3 new subdivisions.	Tammy Bader, SJRWMD 3/12/2012	Thanked Mr. Welstead for forwarding the information and advised that we took the matter before the CFWI Planning Area Regional Water Supply Plan Team on 2/16/2012 regarding the recommendation to deviate from standard planning practices regarding per capita rates. The CFWI Planning Area Regional Water Supply Plan team advised the population and water demand subgroup to continue to use a standard and consistent method for per capita rates and projecting demands. Advised Mr. Welstead that discussion of increasing or decreasing per capita trends would be added to the plan write-up under uncertainties.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/9/2012				
Tyler Coon East Central Florida Services Vice President 1-407-957-6651 tcoon@fri-slc.com 4500 Deer Park Road St Cloud, FL 34773	Deseret is currently growing 940 acres of rotational crops with three cropping seasons per year in Osceola County. The rotational crops have thus far included potatoes, corn, wheat, cucumbers, sorghum, rice, and dry beans. Deseret has definitive plans to increase this farming operation to 3,200 acres by 2016, as documented in the pending CUP application number 115794. There are additional plans, which have not been memorialized in a CUP application yet, to grow this operation to 6,000 acres by 2022. The estimated resulting water need will be 18.5 MGD. CUP application number 115794 documents an additional 1,200 acres of irrigated pasture and 300 acres of citrus to be implemented by 2015. The Osceola County 2010 acres may take into account what was in place in these fields in 2010—although it is difficult to tell for sure since the various crops that may be grown in different seasons on the same field are listed separately—but the 2015 numbers do not account for what has come into production since 2010 nor what will by 2015. The Osceola County agricultural demand numbers should be increased to reflect these demands.	Tammy Bader, SJRWMD 3/19/2012	Thanked Mr. Coon for his comments and advised that the subgroup was given direction by the CFWI Planning Area Regional Water Supply Team to remain with the current methodology. The CFWI Planning Area Regional Water Supply Team directed the subgroup that data in pending permits should not be taken into consideration as the data in the final issuance can change greatly. It was noted that information in current permits will be reviewed for potential inclusion and that anomalies can be addressed in the plan write-up and appendices.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/9/2012				
Tyler Coon East Central Florida Services Vice President 1-407-957-6651 tcoon@fri-slc.com 4500 Deer Park Road St Cloud, FL 34773	In order to increase its herd size and reduce costs, Deseret has embarked on a major pasture irrigation improvement project. This is discussed in detail in the "ECFS Water Projections for SJRWMD Water Supply Plan" dated October 23, 2009, which was submitted to the District. This will result in an increase in irrigated acreage, most of which will occur in Brevard County though some will be in Osceola County. This has been documented in the pending application to modify CUP 3426. In Osceola County, the increased acres are 730 and the increased irrigation demand is 2.4 MGD. Additional future improvements in Osceola County beyond what is covered in this modification to CUP 3426 are also being planned. This demand is in addition to the demands of other ranches in the county. It is not clear whether the numbers in the table would accommodate this growth, without knowing plans for other ranches in the county.	Tammy Bader, SJRWMD 3/19/2012	Thanked Mr. Coon for his comments and advised that the subgroup was given direction by the CFWI Planning Area Regional Water Supply Team to remain with the current methodology. The CFWI Planning Area Regional Water Supply Team directed the subgroup that data in pending permits should not be taken into consideration as the data in the final issuance can change greatly. It was noted that information in current permits will be reviewed for potential inclusion and that anomalies can be addressed in the plan write-up and appendices. Also advised that Tom Bartol, SJRWMD, has requested that ECFS resubmit the data previously submitted in October 2009 as this CFWI Planning Area is a new process and different staff are involved.	None
	As we understand it, the District is taking 2010 acres provided by county extension agents and taking a statistical approach to projecting water use forward. This approach should be cross-checked for reasonableness against existing and pending consumptive use permits in these counties. The projections need to account for acres that growers are currently permitted to irrigate at present and into the future. Each CUP spells out acres and crop types, so this should not be a difficult task. Pending applications should also be reviewed and taken into account, because they reflect current plans for future agricultural operations and corresponding agricultural water demands. This type of review would not be difficult to accomplish.	Tammy Bader, SJRWMD 3/19/2012	Thanked Mr. Coon for his comments and advised that the subgroup was given direction by the CFWI Planning Area Regional Water Supply Team to remain with the current methodology. The CFWI Planning Area Regional Water Supply Team directed the subgroup that data in pending permits should not be taken into consideration as the data in the final issuance can change greatly. It was noted that information in current permits will be reviewed for potential inclusion and that anomalies can be addressed in the plan write-up and appendices.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/9/2012				
Tyler Coon East Central Florida Services Vice President 1-407-957-6651 tcoon@fri-slc.com 4500 Deer Park Road St Cloud, FL 34773	Sod is a crop that is closely correlated with population growth, and it tends to be grown in close proximity to where construction is occurring (i.e. in the same county or perhaps a neighboring county). As such, sod production has significantly declined in the past five years resulting in deflated 2010 acres. The projections for sod don't take this into account and are, therefore, not realistic for the projected population growth. In other words, if population increase is projected for a county, then sod production should also be expected to increase to meet the demands of the increased population.	Tammy Bader, SJRWMD 3/19/2012	Thanked Mr. Coon for his comments and advised that the subgroup was given direction by the CFWI Planning Area Regional Water Supply Team to remain with the current methodology. The topic of sod growth associated with population increase will be brought before the CUP Consistency team created to from consistent statewide projection methodologies.	None
	Another approach that could be utilized to verify reasonableness is to analyze increases in agricultural water use over the past 10 years and develop a trend line for each county based upon this increased use. This trend line could then be projected forward to the year 2035 assuming that this growth in water use will continue up to the maximum acreage available for agricultural use.	Tammy Bader, SJRWMD 3/19/2012	Thanked Mr. Coon for his comments. Advised that the subgroup was given direction by the CFWI Planning Area Regional Water Supply Team to remain with the current methodology, which does take into account historic trends. This will also be brought before the CUP Consistency team created to form consistent statewide projection methodologies.	None
	The process that the Districts and DACS have undergone to project agricultural water demands is a good start but is missing input from the agricultural producers in the CFWI Planning Area region. The projections are reasonable based on the input data and statistics included in the process, but the process is lacking needed input from those who will be the agricultural water users of the future. We recognized that gathering that type of input would likely take more time than has been allocated for this subgroup. But these projections cannot be relied upon moving forward in the CFWI Planning Area until that input is gathered. DACS' participation has been good and appreciated; but as a state agency they lack the local knowledge needed. ECFS would be happy to work with the Districts and DACS in coming up with a plan to reach out to the agricultural community to get the needed input. Agricultural water users have not been sufficiently represented in the CFWI Planning Area planning process. This is a major shortcoming as agriculture is the second largest use type in the CFWI Planning Area region. ECFS has provided feedback based on Deseret Ranches and some knowledge of surrounding users in the agricultural community and will continue to do so, but a much larger group needs to be reached.	Tammy Bader, SJRWMD 3/19/2012	Thanked Mr. Coon for his comments and detailed that from the meeting held 3/13/2012, David Hornsby, SJRWMD, advised that FDACS has been involved in the CFWI Planning Area process from the beginning and that it was the intent FDACS would garner comments and input from the agricultural community. At David Hornsby's request, thank you for presenting your concerns and comments to the CFWI Planning Area Regional Water Supply Plan Team meeting held on March 15, 2012.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/9/2012 & 3/16/2012				
Tyler Coon East Central Florida Services Vice President 1-407-957-6651 tcoon@fri-slc.com 4500 Deer Park Road St Cloud, FL 34773	SJRWMD staff asked ECFS to provide historic water usage for different crop types in each county. We will provide this data within a week. It has taken some time because ECFS does not track its water use by county and has multiple CUPs that span two to three counties. 3/16/2012 - ECFS provided email with an attachment indicating historic data was included.	Tammy Bader, SJRWMD 3/19/2012 & 3/26/2012	Thanked Mr. Coon for agreeing to provide the historic data. We look forward to the submittal and will review for any potential incorporation into the projections. 3/26/2012 - Advised that the District feels that is has properly captured the historic usage in the agricultural projections.	None
	SJRWMD staff has also asked ECFS to provide acres and crop types by county based on its October 2009 memo. We are also working on and will provide this information. 3/16/2012 - ECFS provided email with an attachment indicating historic data was included.	Tammy Bader, SJRWMD 3/19/2012 & 3/26/2012	Thanked Mr. Coon for agreeing to provide the historic data. We look forward to the submittal and will review for any potential incorporation into the projections. 3/26/2012 - Advised that the information provided does not appear to include historic acreages, but only historic use by crop type. As discussed at the 3/15/2012 CFWI Planning Area Regional Water Supply Plan Team Meeting, the SJRWMD was going to review the information in the currently issued permits. ECFS has indicated that for the portion in SJRWMD, sod will increase to 600 acres from 200 acres. The SJRWMD has verified this data and for the SJRWMD Osceola portion, has updated the sod demands and acreage projections to include the portion of the increase.	SJRWMD Osceola County sod acreage and demand projections updated.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/9/2012 & 3/16/2012				
Tyler Coon East Central Florida Services Vice President 1-407-957-6651 tcoon@fri-slc.com 4500 Deer Park Road St Cloud, FL 34773	ECFS submitted substantial comments to SJRWMD on October 28, 2009 regarding the District's water supply plan. Among the information provided was a document entitled Water Model Analysis prepared by Renaissance Planning Group, which pointed out several problems with the way the District's model distributed population in Orange County. We never received a response from the District; therefore, we do not know whether any of these were addressed. However, from the fact that there is still no growth shown for ECFS in Orange County in 2035, it would appear that they were not. We would appreciate a meeting with District population modeling staff to receive feedback on that memo and understand changes that have been made to the model since we last reviewed it. As noted in our comments in October of 2009, we anticipate substantial growth in ECFS' service area in Orange County by 2035. 3/19/2012 - ECFS provided information as requested from Tom Bartol on 3/15/2012. ECFS requests the District review the memo from Renaissance Planning Group and requests a response from the District so that we may ascertain whether any of the problems with the District's population model in Orange County have been addressed.	Tammy Bader, SJRWMD 3/19/2012 & 4/02/2012	Thanked Mr. Coon for his comments and advised that there is growth projected for ECFS in Orange County, however it falls under the small utility threshold of 100,000 gallons per day or less. As discussed at the CFWI Planning Area Water Supply Plan team meeting held 3/15/2012, the subgroup was directed to control strictly to county level BEBR medium population projections and the subgroup decided to include small utilities under the domestic self-supply category. Also advised that Tom Bartol, SJRWMD, has requested that ECFS resubmit the data previously submitted in October 2009 as this CFWI Planning Area is a new process and different staff are involved. 4/02/2012 - Advised Mr. Coon that methodology for CFWI Planning Area was discussed in subgroup meetings and documentation from GIS Associates, Inc. was provided. The 2009 GIS Associates, Inc. projections were used as a base, which used 2006 zoning & land use maps. The 2009 update included the latest DRIs & other large developments & BEBR projections (2009). Advised that GIS Associates, Inc. is no longer under contract with SJRWMD; the model is proprietary & only GIS Associates, Inc., would be able to provide which input and growth driver factors of their proprietary model were changed.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/12/2012				
Krystal Azzarella Polk County Utilities Environmental Manager 1-863-298-4195 krystalazzarella@polk-county.net 1011 Jim Keene Blvd., SR 540 Winter Haven, FL 33880	Polk County has participated in the subgroup meetings and we feel our specific concerns have not been addressed to our satisfaction. Several key issues have been raised that we would like to comment on with regard to Polk County's projected CFWI Planning Area demands: reasonableness of demands, consistency, and sustainable yield from the aquifer. Polk County must reiterate that the values still underestimate the needs for public supply in Polk County, specifically for the NERUSA and the City of Winter Haven. The projections are based on the permanent population (based on BEBR medium growth rates), instead of a functionalized population, and do not incorporate some of the important demand drivers inherent to these service areas: seasonal population (short-term rentals) and the tourist population. Although planning projections are not permitting projections, in the past, RWSPs have been historically used to review permitting projections. These projections will be used in the CFWI Planning Area regional water supply plan and Polk County feels that its needs are underestimated and it may not receive any water supply solutions from the process. In Polk County's opinion, the methodology for these projections should be reconsidered using all of the pertinent and historical envisioned data to ensure that Polk County has access to the limited inland water supply.	Tammy Bader, SJRWMD 3/19/2012	Thanked Ms. Azzarella for her comments and advised that the subgroup was given direction by the CFWI Planning Area Regional Water Supply Team on 3/15/2012 to remain with the current projection methodology. While the demand projections estimated using BEBR Medium population projections will be modeled and detailed in the CFWI Planning Area Plan, there will also be scenarios using BEBR high population projections included in the appendices. In addition, the CFWI Planning Area Regional Water Supply Plan will include a write-up detailing that the projections only include those associated with permanent population and the uncertainties associated with growth and per capita rates (e.g. that growth could either occur at a faster or slower pace and that per capita rates could either decrease due to increased conservation or increase due to demographic changes within the utilities).	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/20/2012				
Camilo Gaitan Florida Department of Agriculture and Consumer Services Senior Water Resources Engineer 1-850-617-1715 camilo.gaitan@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	Regarding agricultural projections by crop type, we will get back to you on this, once the Ag coalition has had a chance to study it. Not only is the acreage trend decreasing for all counties under SJRWMD, but it decreases linearly at significantly at different rates for each county; in addition, those same acreage decrease rates are applied to Ag water use for each county. Historic Ag acreage and water use records do not support this approach at all.	David Hornsby, SJRWMD 3/20/2012	Advised that based on the methodology developed by the consultant, SJRWMD is showing a decrease for agriculture as land is converted land to place the increase in population. The other Districts methodologies also show a decreasing trend associated with population growth. It should be noted that the methods had previously been vetted by the SWFWMD Agricultural Advisory Committee and SJRWMD Agricultural team. Also, please note that the file you are referring to is outdated and that SJRWMD does show an increase in agriculture in Osceola County.	Most recent projections file was provided.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/20/2012				
Camilo Gaitan Florida Department of Agriculture and Consumer Services Senior Water Resources Engineer 1-850-617-1715 camilo.gaitan@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	I noticed that all the Ag projections have gone down, when compared to the projections David and you left with me during our February meeting at my office (attached). I believe those February projections are based in a 5 in 10 average rainfall year, correct? Are these latest projections based also on a 5 in 10 year? What specific factors or information is being used by the CFWI Planning Area demand projections group to continue to adjust those Ag numbers down "on the go"? Just to put things in perspective, attached is an excel workbook and graphs I put together of Ag acreages from the National Agricultural Statistics Service (NASS) and corresponding Ag water use estimates for the 5 county CFWI Planning Area corresponding to the years 1992, 1997, 2002, and 2007. I shared this information with the demand projections group and the HAT group of the CFWI Planning Area some time ago. I used that information for the presentation I did to the CFWI Planning Area steering committee back in December 2011. Notice how the Ag MGD's are above 300 for all but one of those years (which were estimated as at least average or dry years), which is significantly different than what your latest projections show.	Tammy Bader, SJRWMD 3/22/2012	Advised that the demand projections for agriculture were discussed at length during the subgroup meetings held on February 28, 2012 and March 6, 2012. Provided excerpts from the respective meeting summaries distributed to the subgroup regarding this topic. *Tammy Bader, SJRWMD, discussed Rob Denis', Liquid Solutions, comments from the meeting held on February 28, 2012. Rob Denis indicated that it appeared there was an error in the agricultural acres and demands projected for the portion of Osceola County within SJRWMD. When compared to the portion within SFWMD, the demand is relatively the same; however, the acres projected are much more in SFWMD portion of Osceola County. Upon review, Tammy Bader found that the agricultural water use in 2005 for SJRWMD, which served as a basis for future projections, was actually for the entire county total and not just the portion of the county within SJRWMD. Agricultural demands for the portion of Osceola County in SJRWMD were updated as follows: 2010 acres in SJRWMD obtained from IFAS extension agents were used as 2010 base acreage. 2006 – 2010 average water use per acre by crop type, estimated using modified Blaney-Criddle model, were used as basis for future demand projections. 2002 – 2007 percent growth rate for crop acreages in Osceola County from the USDA 2007 Census of Agriculture used as future growth rate for planning horizons.* Advised that, as a result of the two meetings, the demand and acreage projections for the portion of Osceola County within SJRWMD were updated.	Excerpt of meeting summaries provided explaining changes to the demand projections.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/20/2012				
Camilo Gaitan Florida Department of Agriculture and Consumer Services Senior Water Resources Engineer 1-850-617-1715 camilo.gaitan@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	The 2010 acreage numbers shown here are different than the ones I got from them via Louis Sorensen (see her e-mail, attached). Do you know why?	Tammy Bader, SJRWMD 3/22/2012	Advised that the 2010 values in the most recent CFWI Planning Area projection tables for SWFWMD are projections. From the email Mr. Gaitan provided, it appears that the information provided by Lois Sorenson is information from issued permits that were active as of December 31, 2010. Advised that these two values will not match as one is a projection and the other is permitted acres of agriculture.	None
	I believe we also need the SJRWMD only acreage and use projections table by county and ag commodity that supports the CFWI Planning Area wide table (by WMD and county) that you just e-mailed me. The latest one I have is the one in the attached e-mail by Tammy (dated 2/27/12), but I believe that one does not match up/support the CFWI Planning Area wide table (be WMD) that you just e-mailed me (dated 3/12/12).	Tammy Bader, SJRWMD 3/22/2012	As requested, provided the most recent agriculture projections for SJRWMD broken out by crop type and county (dated 3/05/2012).	Most recent file with SJRWMD agriculture demands by crop and county provided.
Comment Received 3/21/2012				
Quyen Newell Tohopekaliga Water Authority 1-407-944-5000 qnewell@tohowater.com 951 Martin Luther King Blvd. Kissimmee, FL 34741	Sorry to be asking this question to you now but I noticed in comparing all the "Latest CFWI Planning Area Demand Projections" spreadsheet that you have provided over the past few months that there is a slight change in projections for Tohopekaliga from the 02/13/12 spreadsheet to the most recent spreadsheet (03/12/12). For instance, 2035 population projection went from 343,373 (02/13/12 spreadsheet) to 312,010 (this spreadsheet, 03/12/12) and 2035 flow projection went from 68.93 MGD (02/13/12 spreadsheet) to 62.59 MGD (this spreadsheet, 03/12/12); these numbers represent Tohopekaliga only and not Osceola County. Can you please explain to me why the numbers are lower in the most recent spreadsheet (03/12/12) vs. the 02/13/12 spreadsheet?	Tammy Bader, SJRWMD 3/21/2012	Advised that this topic was discussed during our subgroup meetings held on February 21 and 28, 2012. Originally there was no population and demand associated with ECFS, the population and demand was attributed to TWA, per SFWMD. On February 22, 2012 ECFS provided the subgroup with a PSC certificate for their service area. As such, the subgroup agreed that the projected population and associated demand will be shown under ECFS for Osceola County, rather than under TWA. The Districts understand that there are outstanding service area overlap issues between ECFS and TWA that cannot be resolved within the CFWI Planning Area timeframe.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/21/2012 & 3/22/2012				
Chris Sweazy SFWMD Kissimmee Basin Water Supply Plan Coordinator 1-407-858-6100, ext. 3823 csweazy@sfwmd.gov 1707 Orlando Central Pkwy., Suite 200 Orlando, FL 32809	I think we assumed a couple of different things when agreed to adjust ECFS and TWA service area boundaries and populations. My recollection is that we previously discussed only a "tweaking" of TWA's population estimates. I think a nearly 10% reduction in TWA's population estimates by 2030 is not reasonable. My expectations are that ECFS estimates of population increases (31,000+) are unfounded and need adjusted to a more reasonable value. We have not studied their service area so cannot speculate on the actual future trends, but we are only aware of the medical and science corridor that partially falls in their service area and this combined with reasonable growth in their service area does not approach the 31K, or potentially 68K population estimates they might suggest later. Our opinion is that ECFS populations need modified and the numbers come from a combination of DSS, Orange County and TWA population downward adjustments. In an email dated 3/21/2012, Cynthia Gefvert, SFWMD, agreed with Chris Sweazy's comments. In an additional email dated 03/23/2012, Chris Sweazy noted that SFWMD is surprised TWA would accept the changing of their population estimates in the manner as they did and will not challenge, but want to note that SFWMD still holds to our earlier opinion on how the population estimates were addressed to account for ECFS, but if TWA will accept, we will not push the issue further. FYI however, if the issue comes up again we will likely maintain our position on the current distribution.	Tammy Bader, SJRWMD 3/22/2012	Advised that we need to keep the projections as they are and not shift them again. We have a meeting 03/22/2012 with the modelers to start spatially distributing the public water supply demands. We do not have another CWFI subgroup meeting until April 5th. If we change the numbers again, it will have to brought back before the group again. The email that we received from Quyen Newell, TWA, 3/22/2012 did not express any concern regarding the shift. The population that was developed for the ECFS area was using the GIS parcel based model that was developed by GIS Associates. That being said, if the service area boundary was shifted back to TWA for that area, the population would remain the same. It is only where we are showing the population under the line item. As you know, ECFS and TWA have disagreements over that particular area to be served. This will most likely be a lengthy and with potentially legal involvement for the two parties to resolve. ECFS has provided documentation from the PSC and I think for this effort and the timeline required we have to go with that, with the understanding that in the future which line item that population falls under may be changed. Also of note, we are currently reviewing the TCR permit and for the area in question, the population projections from the model (in the ECFS boundary with PSC certificate) are being used for their submittal comparison. In an email dated 03/22/12, David Hornsby, SJRWMD, agreed with Tammy Bader's comments.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/21/2012				
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	Mr. Welstead sent an email to Tom Bartol, requesting to please confirm for the Lake County population projections were re-run using the Future Land Use Map approved in 2011 after I provided it, and how it was done and referenced comments made on 1/23/2012.	Tammy Bader, SJRWMD & David Hornsby, SJRWMD 3/26/2012	Advised Tom Bartol that methodology for CFWI Planning Area was discussed in subgroup meetings and documentation from GIS Associates, Inc. was provided. The 2009 GIS projections were used as a base, which used 2006 zoning & land use maps. The 2009 update included the latest DRIs & other large developments & BEBR projections (2009). The GIS model was not rerun with 2011 FLUM or zoning data. The model is proprietary & would require contracting with GIS Associates, Inc., time required for new inputs would far exceed that of the CFWI Planning Area requirements. The 2009 GIS model projections were modified to incorporate BEBR projections (2011). The increase/decrease from the updated BEBR projections in 2010 was applied proportionally to the utilities. On 1/23/12 Mr. Welstead was advised that the GIS model projected where in the county growth was likely to occur & applied rates similar to historic patterns. Advised any comments would be taken into account if justifiable, documented & supported by methodology based on long-term trends was provided. Mr. Welstead was reminded that the control for the county is BEBR medium and any increase in a utility's projections would result in an associated decrease from another utility or the DSS category. It was advised that utilities should work together determining if areas should be reduced/increased. We know what is currently permitted exceeds historical & current trends. Mr. Welstead mentioned using Barrington Estates, permit 10846, which had a population in the TSR of 1,015 in 2011. Currently for this area, there are no homes built & subdivision of residential parcels has not occurred. To date, for Lake County, only Southlake Utilities provided documentation supporting a change in the population projections; which was actually a decrease in what the model had predicted. Tom Bartol will follow-up with an email to Mr. Welstead.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/23/2012				
Ray Scott Florida Department of Agriculture and Consumer Services Conservation & Water Policy Federal Programs Coordinator 1-850-617-1716 ray.scott@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	Mr. Scott inquired about the changes in agricultural projections for the portion of Osceola County in SJRWMD. He requested a methodology overview, the methodology synopsis, comment matrix and most recent demand tables.	Tammy Bader, SJRWMD 3/23/2012	Discussed the reasons for the update to the SJRWMD portion of the Osceola County agricultural projections and the methodology used for the updated demands and the 1-in-10 year demands. Forwarded the emails regarding this information that were sent to Camilo Gaitan, FDACS, on 03/22/12. Advised Mr. Scott that the changes to the projections were discussed during the subgroup meetings and that summaries of changes have been included into the meeting minutes and the comment matrix. Upon conclusion of the call Mr. Scott indicated that he understood how the changes were warranted. Methodology synopsis and comment matrix were sent to Mr. Scott as requested.	Files and emails provided.
Comment Received 3/27/2012				
Al Aikens, Project Manager, Hydrogeologist CH2M HILL 1-407-650-2116 al.aikens@ch2m.com 225 East Robinson St., STE 505 Orlando, FL 32801	Inquiry to Tom Bartol - Osceola population projection numbers in January DRAFT projection tables are different than the population projection numbers in the most recent table. Why?	Tammy Bader, SJRWMD 3/27/2012	Advised Tom Bartol via email that in the early January files, we had not yet controlled to the most recent BEBR medium (also we had not readjusted to the most recent BEBR numbers). In the earlier spreadsheets there was also double counting of the population between ECFS and TWA. During our subgroup meetings, we then controlled strictly to the BEBR medium and attributed the population to TWA to avoid double counting. ECFS then later provided their PSC certificate and as a result we moved the estimated 35,367 people from TWA to ECFS.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/27/2012 & 3/29/2012				
Al Aikens, Project Manager, Hydrogeologist CH2M HILL 1-407-650-2116 al.aikens@ch2m.com 225 East Robinson St., STE 505 Orlando, FL 32801	I am assisting Tohopekaliga on the water supply planning aspect of the CFWI Planning Area & was asked to review and compare the January 23 and March 12 versions of the projections, regardless of the Tohopekaliga/ECFS issue. My review found that there were approximately 33,000 fewer people and 6.5 mgd less water for utilities in Osceola County and we are interested to understand the differences. Mr. Aikens requested one on one meeting on 3/27/2012 and 3/29/2012.	Tammy Bader, SJRWMD 3/28/2012 & 4/02/2012	Advised 2 items were addressed with file dated 1/23/2012 & changes came out of the subgroup meeting held 1/25/2012. (1) River Ranch was shown under Osceola County, whereas it should have been included under Polk County. (2) It was realized there was double counting of population between ECFS & TWA. Using a parcel based method, SJRWMD had shown population projections for ECFS, however SFWMD had also developed projections for the same spatial area. It was realized that there were service area overlap issues between ECFS & TWA. As such, SFWMD indicated they understood TWA currently had service area jurisdiction for those portions of the county initially proposed for ECFS. At the time, SFWMD did not have any service area documentation from ECFS. Population & demand projections for ECFS in SFWMD were completely removed from the spreadsheet. In an email dated 2/22/2012, Tyler Coon, ECFS, provided ECFS' PSC certificate & as a result, the 2035 projected population of 35,367 was moved from TWA line item to ECFS line item. At 2/28/2012 subgroup meeting, the comment matrix was reviewed, as well as the projection tables dated 2/24/2012. During this meeting it was noted that upon receiving ECFS' PSC certificate, the 2035 projected population of 35,367 was moved from TWA line item to ECFS line item. Advised to note earlier DRAFTs were works in progress & latest files should be used for any review purposes; the subgroup has completed its final projections & have been delivered to the HAT team for modeling. All changes to projections were discussed during subgroup meetings & have been included into a comment matrix & meeting summaries. 4/02/2012 - Advised Mr. Aikens that as informed by Tom Bartol, SJRWMD, it is the subgroups' direction to not have one on one meetings. The next subgroup meeting will be held on 4/05/2012.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/27/2012 & 3/28/2012				
Ray Scott Florida Department of Agriculture and Consumer Services Conservation & Water Policy Federal Programs Coordinator 1-850-617-1716 ray.scott@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	Mr. Scott wanted to know when our next meetings were being held, why the updates and methodology for Osceola County changes were not incorporated into all of the other counties and how 1-in-10 year demands were going to be incorporated into the plan. Mr. Scott indicated he has calls into Tom Bartol, SJRWMD, Hal Wilkening, SJRWMD, and Rich Budel, FDACS.	Tammy Bader, SJRWMD 3/28/2012	Provided a link to the Google calendar & advised the next subgroup meeting is 4/5/12 & the next team meeting is 4/19/12. The subgroup meeting scheduled on 4/5/12 will consist of starting the methodology & plan write-up. The subgroup has finalized the demands & are in the process of being forwarded to the HAT team for modeling purposes. Advised that since the subgroup discussions began in January, only comments regarding agricultural projections in Osceola County have been received. It was discussed that the intent of the subgroup was for the Districts to use their current agricultural projection methodologies & current demands as they are published in recent WSA & RWSP documents. Upon receiving any justifiable comments during the comment period, changes could be made. Advised that due to the CFWI Planning Area timeline required, it was never the intent for the subgroup to create an entirely new & consistent methodology, that this would occur in future efforts for statewide consistency. Advised that during the meetings Camilo Gaitan, FDACS, attended, the methodology & intent was made very clear. Advised that it is the intent for the plan tables to show average demands, as well as a 2035 1-in-10 year scenario.	Link to CFWI Planning Area Google calendar provided

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 3/30/2012 & 4/2/2012				
Chris Sweazy SFWMD Kissimmee Basin Water Supply Plan Coordinator 1-407-858-6100, ext. 3823 csweazy@sfwmd.gov 1707 Orlando Central Pkwy., Suite 200 Orlando, FL 32809	In checking the values in the table for HAT, I reviewed again the Planning Team's master table of demands and found some inconsistencies in the AG & REC demands. In REC, there is a typo of acres in SFWMD Polk Co. in 2035 (405 ac). In AG, the demands for Osceola County in SFWMD are off and AFSIRS based calculations show an estimated 1-10 demand as 88.2 mgd in 2035. Suggested changes are in yellow highlight. 4/02/2012 - There was a mistake reading the permitted demands for recently issued Latt Maxey water use permit located in Osceola County. The revised downward trend in demand is now consistent with the slight reduction in overall acres projected for the period. The change in recreation acres in Polk County is a simple catch of a typo in our spreadsheet and the resulting change in demand based upon the spreadsheet change. The growth rate is now in line with the growth rate of the previous years. For further clarification, the permitted amount for Latt Maxey of 52.3 MGD is a 1-10 water demand. The estimated water demand for average condition is 31.4 MGD. For clarity here is the average and 1-10 break-out for Osceola County: Average Conditions in 2035: Latt Maxey = 31.4 mgd, Remaining AG = 24.7 mgd, Total Ave = 55.22 mgd.	Tammy Bader, SJRWMD 4/2/2012	At the SFWMD direction, the demand tables are being updated to reflect the following changes for SFWMD: SFWMD REC acres in Polk County for 2035 from 505 to 405. SFWMD REC demand in Polk County for 2035 from 1.50 mgd to 1.30 mgd. SFWMD 1-in-10 REC demand in Polk County for 2035 from 2.30 mgd to 2.10 mgd. SFWMD AG demand in Osceola County for 2015 from 30.48 mgd to 58.90 mgd. SFWMD AG demand in Osceola County for 2020 from 34.93 mgd to 57.98 mgd. SFWMD AG demand in Osceola County for 2025 from 39.39 mgd to 57.06 mgd. SFWMD AG demand in Osceola County for 2030 from 43.84 mgd to 56.14 mgd. SFWMD AG demand in Osceola County for 2035 from 48.29 mgd to 55.22 mgd. SFWMD 1-in-10 AG demand in Osceola County for 2035 from 83.63 mgd to 88.20 mgd. Noted that Ray Scott, FDACS, has become involved in how the AG demands were developed for CFWI Planning Area & that as the updates to the AG demands for the SFWMD portion of Osceola County are significant, a summary at our meeting this Thursday, April 5, 2012 should be prepared & discussed.	SFWMD Polk County 2035 REC demands and acres updated, as well as 1-in-10. SFWMD Osceola County AG demands for all years and 1-in-10 updated. SJRWMD 1-in-10 for Osceola & Seminole Counties AG updated.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 4/3/2012				
Quyen Newell Tohopekaliga Water Authority 1-407-944-5000 qnewell@tohowater.com 951 Martin Luther King Blvd. Kissimmee, FL 34741	Can you please explain why the requirement for submitting the 10-Year Water Facilities Work Plan that Kathleen Greenwood stated below in her e-mail only affects utilities in the SWFWMD boundaries? What about the other utilities (i.e. in the SJRWMD and SFWMD), what schedule/requirement do they need to follow?	Tammy Bader, SJRWMD 4/4/2012	Advised that the question originated from Polk County Utilities and was in regard to section 163.3177(6)(c), Florida Statutes (Required and optional elements of comprehensive plan; studies and surveys). *Within 18 months after the governing board approves an updated regional water supply plan, the element must incorporate the alternative water supply project or projects selected by the local government from those identified in the regional water supply plan pursuant to s. 373.709(2)(a) or proposed by the local government under s. 373.709(8)(b).* It was our understanding that only the SWFWMD had approved their 2010 RWSP (in July 2011), SFWMD and SJRWMD plans were from 2005 and recent documents are still in draft form. Once the CFWI Planning Area Regional Water Supply Plan is approved, the above would apply. The concern from Polk County was that they would have to update their plan twice within such a short time frame (once due to SWFWMD RWSP approval and then again due to CFWI Planning Area RWSP approval).	None
Comment Received 4/4/2012				
Quyen Newell Tohopekaliga Water Authority 1-407-944-5000 qnewell@tohowater.com 951 Martin Luther King Blvd. Kissimmee, FL 34741	Just a minor comment on your meeting summary for March 20, 2012. On Page 2 of 8 under the reviewed action items, the paragraph discussing about using a ten-year per capita average, the statement "After much discussion, the, CFWI Planning Area Regional Water Supply Plan Team directed the population and water demand subgroup that only a BEBR high county level population projection scenario would be included into the Plan appendices." does not seem to apply here. I thought the decision from the CFWI Planning Area RWSP Team was to go with the 5-year per capita average and not the ten-year?	Tammy Bader, SJRWMD 4/4/2012	For clarification, advised that the projections are based on a five-year per capita average and BEBR medium. The CFWI Planning Area Regional Water Supply Plan Team had directed the subgroup to also create a scenario of projections using the five-year per capita average and BEBR high. This scenario will be included in the plan appendices. The population and water demand subgroup had inquired whether another scenario using a ten-year per capita average could potentially be included into the plan appendices. The CFWI Planning Area Regional Water Supply Plan Team decided that no, a scenario using a ten-year per capita average should not be created.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 4/5/2012				
Quyen Newell Tohopekaliga Water Authority 1-407-944-5000 qnewell@tohowater.com 951 Martin Luther King Blvd. Kissimmee, FL 34741	Attached is a map of the Urban Growth Boundary (UGB) from Osceola County. Can you please confirm that the service area (excluding St. Cloud) you have on file or are using to represent Tohopekaliga is the same as what is shown in the attached map?	Tammy Bader, SJRWMD 4/5/2012	Provided the consolidated service area boundary map for Quyen to review and comment on.	None
Comment Received 4/6/2012				
Roberto Denis Liquid Solutions Group, LLC representing OCU P.E. 1-407-349-3900 rdenis@liquidsolutionsgroup.com 369 Whitcomb Drive Geneva, FL 32732	Following email was sent to Gregg Welstead: The City of Tavares has reviewed the Utility Level Population Projections provided by the SJRWMD as part of the CFWI Planning Area effort. Based on the population projections included in this table, it appears that the SJRWMD did not use the area that we propose to serve (and that has been accepted by regulatory staff) as part of our pending CUP application. We will continue to use the demand projections recently provided to us by regulatory staff, but we wanted to bring this to SJRWMD's attention so there is no confusion as the City continues work to complete its CUP application. Please feel free to pass this on to the SJRWMD CFWI Planning Area staff though the City is not a part of the CFWI Planning Area planning area or effort.	Tammy Bader, SJRWMD 4/9/2012	The service area boundaries that were used do incorporate the area that the City of Tavares proposes to serve (and are the same as those that have been accepted by District staff) as part of the pending CUP application. The District does realize that the projections provided to Mr. Welstead for utilities not in the CFWI Planning Area boundaries may not match what has been agreed to during the CUP process. During the CUP process, the District takes into account the most recent data. As you are aware, for the CFWI Planning Area process, the subgroup was directed to control strictly to county level BEBR medium population projections. Please note that I was involved in the City of Tavares CUP application review. The methodologies used for the population projections I gave to our regulation staff for CUP purposes and the projections I gave to Mr. Welstead for non-CFWI Planning Area utilities are different, with valid reasons. The District agrees that the city should continue to use the demand projections provided to the city by regulatory staff (via me). I can ensure, via this email, that there will be no confusion as the city continues work to complete its CUP application.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 4/6/2012				
Terrence McCue Seminole County Environmental Services Department Ph.D., P.E. 1-407-665-2039 tmccue@seminolecountyfl.gov 500 W Lake Mary Blvd. Sanford, FL 32773	I took a closer look at the water demand projections, and found a problem with Sanlando's projections. Your demand projection methodology has them at 10.49 MGD in 2010. However, their CUP (CUP # 160) maxes out at 10.098 MGD. Historical usage for Sanlando attached. The root of the problem appears to be in the estimate of served population. Sanlando's estimate was a flat value of 26,215 for each year between 2006 and 2010. Your 2010 population estimate is 33,507. It might be a good idea to take a look at the entire projection set to see if there any other discrepancies similar to this one. I suspect there will be.	Tammy Bader, SJRWMD 4/10/2012	Thank you for your comments and you are correct. The issue is that there are two different methods involved for SJRWMD calculations, we have a comparison of year 2010 projected versus year 2010 estimated. The population in the CFWI Planning Area tables are 2010 projections based off of the GIS parcel based model and used a base year population of 2005. Because we do not have time to create an entirely new methodology, the existing parcel projections were used and then adjusted to account for the latest BEBR projections. The information used in the 5-year average per capita was based on utility residential units served for each year and the associated county-wide pph. Ideally, if time permitted, we would want to completely update the methodology and use this information. Another factor is that we were directed to control strictly to BEBR medium projections and estimates. When calculating population using utility data, the estimates include seasonal population. Without having the timeframe and ability to create an entirely new and consistent methodology, I think we need to caveat the plan in our write-up and address this type of information in the uncertainties and limitations section.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 4/9/2012				
Sarah Whitaker SMW GeoSciences, Inc. President 1-407-234-4675 swhitaker@smwgeosciences.com 668 N. Orlando Avenue, Suite 1009A Maitland, FL 32751	1st email - Can you guide me to the demand projections that correlate to these Lake County Utility population projections? I see an updated county-wide demand table and for CFWI Planning Area utilities only, but I would like to see the updated utility demands that go with these. 2nd email - Possibly the areas outside the CFCA have not been updated, but these areas are included in the new ECFT groundwater model. I am assuming that one of the first model runs will be the cumulative 2030 or 2035 projected demands. I guess what I am asking is do you have a table or data base that will be used by the HAT group to input withdrawals for all these utilities in the cumulative run? I know the final, final may not be available at this time, but do you have a working table that shows what these anticipated values will be for all utilities in the model's coverage? Even if it is not for the model, where do I find the most recent table identifying the District's assigned demand projections by utility?	Tammy Bader, SJRWMD 4/9/2012	1st email - Thank you for your inquiry. As a request from Gregg Welstead, the District provided updated population projections for Lake County utilities outside of the CFWI Planning Area boundaries. As discussed in the CFWI Planning Area population and water demand subgroup meetings, the projections (aggregated to the most recent service area boundaries) from the GIS Associates, Inc. proprietary population projection model were updated proportionally to account for the latest BEBR population projections (2011). The District did not update any of the demand projections for the utilities outside of the CFWI Planning Area boundaries. 2nd email - The CFWI Planning Area population and water demand subgroup was directed only to update information within the CFWI Planning Area boundaries. I am attaching the table that was provided to the HAT team for use in distribution. Via this email, I am copying Patrick Burger (HAT team member), to request the HAT team address your question on demands outside the CFWI Planning Area boundaries but within the ECFT groundwater model domain.	CFWI Planning Area 2035 file for GW/SW created for HAT team provided

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 4/10/2012				
Veronica Miller City of St. Cloud Interim Public Services Administrator 1-407-957-7248 vmiller@stcloud.org 1300 Ninth Street St. Cloud, FL 34769	Per my comments on the Thursday phone call, due to the ECFS/Tohopekaliga Service boundary changes - the service area boundary for St. Cloud is reverting back to an older version (prior to us revising with Tohopekaliga Water). The attachment CFWI Planning Area PWSAB shows the area in question circled in black (northeast area of the St. Cloud service area). I will forward a 2nd attachment SC Service Area in another email that shows our current service area. My concern is that when the population was moved from Tohopekaliga to ECFS, the St. Cloud area was not reevaluated to reflect the change in our service area.	Tammy Bader, SJRWMD 4/10/2012	Thank you for the information. We definitely want to make sure that we are correctly showing the service area boundaries. The PDF file provided did not have any areas circled in black. For clarification, the parcel projection information was only used to identify the projections within the ECFS service area boundary. Projections for the City of St. Cloud were developed by SFWMD, using a different methodology (not the parcel based projections). Via this email, I am asking for verification with Chris Sweazy, SFWMD, but I do not believe the change would have affected the City of St. Cloud. The only factor would be if the area in question by the City of St. Cloud is within the ECFS service area boundary. I apologize for any confusion and re-submittal, but along with the PDF showing the area in question, can you provide us with a shapefile of the City of St. Cloud's current service area boundary.	None
	Email to Chris Sweazy, SFWMD - From the meetings that I attended, I misunderstood that Osceola County was not part of the parcel methodology. I would like to find out the basis, and I am forwarding Toho's request below to understand the methodology.	Chris Sweazy, SFWMD 4/10/2012	Your previous understanding was correct, the estimates for St Cloud and TWA were *not* completed using parcel data method – they were estimated based upon a method using BEBR projections and TAZ for distribution. That being said, population estimates for portions of eastern Osceola County within the SJRWMD were developed using parcel based information. These areas are very rural and account for only a minor portion of the county total population. If you would still like to find out more about the parcel method SJRWMD used in eastern Osceola County I can track this down with Tammy who distributed the parcel summary at a previous meeting.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 4/10/2012				
Camilo Gaitan Florida Department of Agriculture and Consumer Services Senior Water Resources Engineer 1-850-617-1715 camilo.gaitan@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	Gregg Welstead (Lake County) shared with me the attached acreage and population projections a few weeks ago. It is my understanding that it is only for the CFWI Planning Area of the county, with acreages based on current property appraiser and WMD CUP info. When I compared the acreage totals in that attached Lake County table to the base year 2010 total acreage info for SJRWMD and SWFWMD, there is a significant difference. The Lake County table total CUP acreages are almost double that of the total SJRWMD and SWFWMD acres for this CFWI Planning Area exercise. Perhaps you can follow up with Gregg on this and provide me some feedback on what you two found out.	Tammy Bader, SJRWMD 4/10/2012	The CFWI Planning Area Population and Water Demand Subgroup discussed this topic at its meeting held on March 20, 2012. I have attached the meeting summary and the latest agriculture methodology projection synopsis.	3/20/2012 meeting summary and the latest agriculture methodology projection synopsis provided.
	After looking at the methodologies/resources/ tools used by Lake County to compile and provide this information, it appears to me that the information is pretty rugged; it deserves a closer look. Therefore, as an official member of the Population/Demand Subgroup of the CFWI Planning Area Water Supply Plan Team representing agriculture, I am formally requesting that SJRWMD and SWFWMD staff in this CFWI Planning Area subgroup work with Lake County to review this information for its applicability and use in this ag projections exercise, and that they report to the subgroup on their findings. As you know our industry continues to be very interested in learning and participating in this process in addition to the participation by FDACS, as evidenced by the April 27 meeting they requested via FDACS with applicable CFWI Planning Area committees. I would not be surprised if as a result of that meeting the industry and their consultants provide to the CFWI Planning Area additional information such as the one provided by Lake County. More of a reason for this subgroup to start evaluating this Lake County information now.	Tammy Bader, SJRWMD 4/12/2012	We have added this to the agenda for our meeting on April 27th. If you have any additional edits or comments for the agenda (attached) on April 27th, please let me know by Monday, April 15th.	Topic added to Agenda for 4/27/2012 meeting.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 4/16/2012				
Ray Scott Florida Department of Agriculture and Consumer Services Conservation & Water Policy Federal Programs Coordinator 1-850-617-1716 ray.scott@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	Is there a written summary of the 4/5/12 meeting? If so, could you please send me a copy?	Tammy Bader, SJRWMD 4/16/2012	As requested, please find attached the 4/5/12 meeting summary	4/05/2012 meeting summary provided.
Comment Received 4/17/2012				
Ray Scott Florida Department of Agriculture and Consumer Services Conservation & Water Policy Federal Programs Coordinator 1-850-617-1716 ray.scott@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	Thank you for the summary. Has the item below been completed? Could you please send me a copy when available? *New Task 1: Tammy Bader, SJRWMD will provide the subgroup with analysis of agriculture historic water use, agriculture permitted quantities and agricultural demand projections for SJRWMD.*	Tammy Bader, SJRWMD 4/17/2012 & 5/1/2012	No, this task (encompassing SJRWMD information) has not yet been completed. All tasks and corresponding information, once completed, is sent to the population and water demand subgroup. We hope to have this information available and distributed to the subgroup early next week. I will make sure that you are also sent the analysis once completed. **5/1/12** - Emailed Subgroup and Ray Scott the agriculture analysis.	None
Comment Received 4/24/2012				
Christine Russell OUC Manager, Water Compliance & Quality 1-407-434-2565 crussell@ouc.com 3800 Gardenia Avenue Orlando, FL 32839	I am not sure I have the latest Public Supply table from you. Is the OUC demand in 2035 110.19 mgd avg and 116.80 1-in-10	Tammy Bader, SJRWMD 4/24/2012	Advised that yes, the projections listed are correct and attached the most recent tables for reference.	Most recent projection tables provided.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 4/24/2012 & 4/30/2012				
Tyler Coon East Central Florida Services Vice President 1-407-957-6651 tcoon@fri-slc.com 4500 Deer Park Road St Cloud, FL 34773	I know we're starting to fixate on agriculture now, but I had a question about ECFS's population growth. I hadn't noticed until Jeff pointed out to me earlier this week that ECFS' Osceola County growth essentially peters out after 2025, which indicates you're probably assuming it is approaching buildout at that point. The Osceola County Northeast District has much greater capacity than that, as detailed in Osceola County's Comp Plan Amendment that you've reviewed. I wonder if you are using an out of date urban growth boundary for this area, which causes an artificially early buildout? Can you confirm whether this is the case and share with us the assumed geographic extents of this growth area? **4/30/12** - It looks like the issue is that 2009 was the last update to the land-use layer in your model, which does not reflect current information for the Osceola County Northeast District. Keep that in mind as you review our Table 2. The model, in fact, shows more a more aggressive rate of growth than our Table 2 through 2025, at which time growth essentially stops in the model. My guess is that if you updated your model with the current comp plan amendment/sector plan area, it would show growth continuing past 2025 at a rate similar to our Table 2.	Tammy Bader, SJRWMD 4/26/2012 & 5/2/2012	For the purposes of this CFWI Planning Area effort, the Population and Water Demand Subgroup was directed by the CFWI Planning Area Regional Water Supply Planning Team to control all population projections to county level BEBR medium permanent population projections. For SJRWMD and all of ECFS, population projections were developed from the GIS Associates Inc. parcel level population projection model output (2006 zoning & land use maps were used, as well as updated DRIs & other large developments as of 2009). This model predicts spatially where population growth will most likely occur and at what rate. Because the control for the county is BEBR medium permanent population projections, any increase in a utilities' projections will result in an associated decrease from another utility or the DSS category. During the comment period, the Subgroup encouraged utilities to work together in determining if areas should be reduced/increased if justifiable, documented & supported methodology indicated that changes should be made. The comment for the Table 2 CUP was not regarding the potential build-out population of the property, but the estimated rate of growth. Based on the service area boundary you provided to the District on 2/22/2012 and the GIS Associates Inc. parcel level population projection model output, the potential build-out population for the service area is 1,059,865 in Osceola County, 7,836 in Brevard County and 10,956 in Orange County. I apologize for the delayed response. **5/2/2012** - You are correct and yes, if the GIS Associates, Inc. proprietary population projection model were updated to incorporate the most recent zoning, land use and DRIs the projected population may differ. I look forward to our continued cooperation.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 4/24/2012				
Ray Scott Florida Department of Agriculture and Consumer Services Conservation & Water Policy Federal Programs Coordinator 1-850-617-1716 ray.scott@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	During FDACS requested conference call, Mr. Scott requested another complete explanation / overview of the SJRWMD projection methodology employed.	Tammy Bader, SJRWMD & David Hornsby, SJRWMD 4/24/2012	During FDACS requested conference call, The following explanation was given: SJRWMD contracted with GIS Associates, Inc. to create agriculture projections for the WSA 2008. Projected acreage and demand by county only. County acreage estimates based on 2005 AG spatial layer and estimated irrigated acres lost due to population growth. GIS parcel based population projection model, developed by GIS Associates, Inc. Calculated as: AG acres lost = acres ([AG intersect growth parcel]) x [parcel growth build-out ratio]. AG intersect growth parcel = 2005 AG layer intersected with parcels expected to have population in 2030. Parcel growth build-out ratio = ([2030 population] - [2005 population]) ÷ [build-out population]. Projected demand: percent change of 2005 - 2030 irrigated AG acres applied to estimated 2005 county AG water use to determine 2030 AG water use. For the purpose of the CFWI Planning Area, the Population and Water Demand Subgroup was directed to use current existing projections. Upon subgroup review and question from Roberto Denis (2/28/2012), it was discovered that for Osceola County, the total 2005 agricultural water use was used as a base for reductions, versus the water use only within SJRWMD. As a result, for the Osceola County portion in SJRWMD, the projections were updated as follows: 2010 SJRWMD Osceola County base year acreage by crop was used. This information came from extension agents, only includes SJRWMD portion and was incorporated into 2010 Survey of Estimated Annual Water Use. A 2010 percent of total SJRWMD Osceola County agriculture acres was calculated for each crop type. From the meeting held with FDACS on 2/23/2012, the 2007 Census of Agriculture was provided by Camilo Gaitan, FDACS. This Census shows changes from 2002 to 2007 for each county. The growth rate from 2002 to 2007 for acres of land in irrigated farms in Osceola County was calculated. **(Continued on next page.)**	None

			(Continued from previous page.) This growth rate was applied to the 2010 SJRWMD Osceola County base year acreage and then each planning horizon to project future acreage for SJRWMD Osceola County. The calculated 2010 percent of total SJRWMD Osceola County for each crop type was multiplied by the future acreage for SJRWMD Osceola County to estimate projections by crop type (a request made by Camilo Gaitan, FDACS) in SJRWMD Osceola County. Using 2006 – 2010 water use by crop type for SJRWMD Osceola County (acreage by crop type received from extension agents and then run through Blaney-Criddle Model to estimate use), average use per acre by crop type in SJRWMD Osceola County was calculated. Average use per acre by crop type in SJRWMD Osceola County was applied to SJRWMD Osceola County projections of acreage by crop type for each planning horizon. Subsequently, on 3/9/2012 and 3/16/2012, Tyler Coon, ECFS, provided data and information supporting change to SJRWMD Osceola County sod acreage and demand projections. Tyler Coon, ECFS, indicated that for issued SJRWMD CUP 109142, sod would increase from current acreage of 200 to 600 acres (400 acres). The SJRWMD Osceola County projections of acreage by crop type for each planning horizon did include some increase of sod for ECFS. The difference between the projections of SJRWMD Osceola County acreage by crop type for each planning horizon of sod for ECFS and the SJRWMD CUP 109142 increase of 400 acres was added to the SJRWMD Osceola County sod acreage total. The average use per acre for sod in SJRWMD Osceola County was then applied to the new SJRWMD Osceola County sod acreage total to estimate SJRWMD Osceola County sod demand projections.	

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 4/24/2012				
Ray Scott Florida Department of Agriculture and Consumer Services Conservation & Water Policy Federal Programs Coordinator 1-850-617-1716 ray.scott@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	During FDACS requested conference call, Mr. Scott questioned if the SJRWMD CFWI Planning Area agriculture projections for Lake and Osceola Counties were the same as the projections shown on the SJRWMD Water Supply Assessment / Water Supply Plan webpage (update to WSA 2008) and Special Publication SJ2010-SP1.	Tammy Bader, SJRWMD & David Hornsby, SJRWMD 4/24/2012	During FDACS requested conference call, the following response was given: For SJRWMD CFWI Planning Area agriculture projections for Osceola County, no, the projections will not be the same. They are different due to the changes made as discussed during the projection methodology explanation. For SJRWMD CFWI Planning Area agriculture projections for Lake County, no, the projections will not be the same as not all of Lake County is within the CFWI Planning Area boundaries (footnote on spreadsheet addresses this).	None
	During FDACS requested conference call, Mr. Scott inquired if the information provided by Gregg Welstead, Lake County, was reviewed by the Subgroup and if the methodology was the same as that of GIS Associates, Inc.	Tammy Bader, SJRWMD & David Hornsby, SJRWMD 4/24/2012	During FDACS requested conference call, the following response was given regarding information from Gregg Welstead, Lake County: As indicated to Camilo Gaitan, FDACS, on 4/10/2012, no, the information was not reviewed. Following excerpt from Subgroup 3/20/2012 meeting minutes was referenced: David Hornsby, SJRWMD, addressed the agricultural information for Lake County that was provided to Camilo Gaitan, FDACS, by Gregg Welstead, Lake County. It was the subgroups' understanding that the data provided was for information purposes only and that no action was expected from the subgroup. Gregg Welstead confirmed that the data was provided to Camilo Gaitan for information purposes only and no subgroup action is required. It was also indicated to Camilo Gaitan on 4/12/2012 that the item would be discussed during the 4/27/2012 meeting. The following response was given regarding the methodology being the same as that of GIS Associates, Inc.: No, the methods are not the same and more detailed information is needed regarding the information from Gregg Welstead, Lake County. Of note, Gregg Welstead's information is based on a desktop exercise and uses different years of data that what GIS Associates, Inc. used.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 4/24/2012				
Ray Scott Florida Department of Agriculture and Consumer Services Conservation & Water Policy Federal Programs Coordinator 1-850-617-1716 ray.scott@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	During FDACS requested conference call, Mr. Scott indicated that using data in pending permit applications and allocated quantities in issued permits would be brought up at the 4/27/2012 meeting.	Tammy Bader, SJRWMD & David Hornsby, SJRWMD 4/24/2012	During FDACS requested conference call, the uncertainty of pending permits and potential change of information upon issuance was discussed. The difference between permitting allocations and planning projections was discussed, as well as the difference between permitted use and actual and historic water use.	None
Comment Received 4/25/2012				
Roberto Denis Liquid Solutions Group, LLC representing OCU P.E. 1-407-349-3900 rdenis@liquidsolutionsgroup.com 369 Whitcomb Drive Geneva, FL 32732	We understand that the SJRWMD/CFWI Planning Area team took the demand projections developed for the CFWI Planning Area effort and split the 2035 demand among wellfields for the CFWI Planning Area groundwater modeling. Would it be possible to get a summary of the demands assigned to OCU's wellfields (or to each of OCU's service areas would also be fine)? We do not intend to formally review these distributions, but would like the data for informational purposes only.	Tammy Bader, SJRWMD 4/25/2012	Email sent with excel and GIS shapefile attachments that was provided to the HAT team on 04/17/2012.	Excel file and GIS shapefile provided.
Comment Received 4/26/2012				
Veronica Miller City of St. Cloud Interim Public Services Administrator 1-407-957-7248 vmiller@stcloud.org 1300 Ninth Street St. Cloud, FL 34769	Please provide the updated service area boundary map.	Tammy Bader, SJRWMD 4/27/2012	Sorry for any delay, we just completed this task. Please find attached the updated service area map.	Service area map provided.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 4/27/2012				
Brenda Brasher Town of Howey-in-the-Hills Town Clerk 1-352-324-2264 bbrasher@howey.org 101 N. Palm Avenue, P.O. Box 128 Howey-in-the-Hills, FL 34737	Please see the attached 180 Utility Service Area Map for the Town of Howey-in-the-Hills. Mayor Christian Sears will be sending you an email regarding the CFWI Planning Area Public Water Supply Utilities Map that was provided by the District.	Tammy Bader, SJRWMD 4/30/2012	Thank you for the information. I have forwarded the email to our GIS Analyst, Steve Brown, who updates our service area boundaries and ensures there are no overlap concerns with other utilities. Please note that while Howey-in-the-Hills is not within the CFWI Planning Area boundaries, it is important for future planning and CUP efforts to have the most recent and accurate service area boundaries on file.	None
Comment Received 5/3/2012				
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	Regarding the analysis of agriculture historic water use, agriculture permitted quantities and agricultural demand projections for SJRWMD, can you please provide the specific Lake County CUPs that were used to generate this EN-50 estimate?	Tammy Bader, SJRWMD 5/3/2012	As requested, please find attached the DRAFT AG Historic Database. You can sort by Lake County for all of the permits. Please note that this database is DRAFT and earlier years of data have not been completed.	List of permits provided.
Comment Received 5/4/2012				
Quyen Newell Tohopekaliga Water Authority 1-407-944-5000 qnewell@tohowater.com 951 Martin Luther King Blvd. Kissimmee, FL 34741	Can you please provide the gpcd historical data that you have for Tohopekaliga?	Tammy Bader, SJRWMD 5/7/2012	Please find attached the information that Chris Sweazy, SFWMD, provided on 03/15/2012.	GPCD information from SFWMD provided.
Comment Received 5/7/2012				
David F. MacIntrye Parsons Brinkerhoff Vice President, National Director, Water Technical Excellence Center 1-407-587-7818 MacIntyre@pbworld.com Parsons Brinckerhoff CNL Center at City Commons 420 S. Orange Avenue, Suite 400 Orlando, FL 32801	I don't know if your schedule will allow it, but if you can include a very short summary of steps you've already taken (or discussed and discarded), it would likely be helpful for those HAT members who have been invited to participate, but who haven't been deeply involved until now.	Tammy Bader, SJRWMD & David Hornsby, SJRWMD 5/8/2012	Please find attached the latest change matrix, action items, and meeting summaries related to your request. Other files (demands, crop types, presentations, etc.) can also be found at the ftp site. ftp://ftp.sjrwmd.com/wsm/CFWI Planning AreaAG/	Pertinent information and files provided.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 5/9/2012				
Sarah Whitaker SMW GeoSciences, Inc. President 1-407-234-4675 swhitaker@smwgeosciences.com 668 N. Orlando Avenue, Suite 1009A Maitland, FL 32751	We reviewed the Excel spreadsheet on PS wells for the HAT team. To update the District's files we are providing the attached information for the City of Ocoee (line items 174 to 180). The diameter of well 3 at Forest Oaks WTP is 20", not 24". The casing depth on 2 South is 810', not 800. Also we would appreciate that, with the exception of the 2Forest Oaks well, ALL wells be identified as Lower Floridan aquifer under the source category.	Tammy Bader, SJRWMD 5/9/2012	Email and information was also provided to Patrick Burger, SJRWMD HAT team member. It was noted that Patrick Burger would respond to Sarah Whitaker.	None
Quyen Newell Tohopekaliga Water Authority 1-407-944-5000 qnewell@tohowater.com 951 Martin Luther King Blvd. Kissimmee, FL 34741	The zip file contains the point data shape file only. We need the rest of the shape files or layers used to create the map so we can print it out.	Tammy Bader, SJRWMD 5/10/2012	Advised that the layer is only a point file, they will need to add in the orthophotos in ArcMap. Advised if they do not have orthophotolayers, we can provide them.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 5/10/2012				
Krystal Azzarella Polk County Utilities Environmental Manager 1-863-298-4195 krystalazzarella@polk-county.net 1011 Jim Keene Blvd., SR 540 Winter Haven, FL 33880	Polk County Utilities attended the April 27th meeting dedicated to agricultural water demand projections. While we certainly value the coordination efforts towards the development of appropriate and reasonable agricultural demands within the CFWI Planning Area, it is clear that this *extended* coordination effort for agricultural interests has not been able to determine a method to consistently derive agricultural demands and now has the Districts appearing to treat user groups inconsistently. At the close of the discussions on population projections and demands, the utilities were told that there was not enough time in the process to review individual utility issues such as changes in per capita usage from historical trends (e.g. Lake County) other than an edited discussion within the text of the Regional Water Supply Plan and utilities will be held to BEBR-medium population projections by County. The projections for Polk County are based on the permanent population (based on BEBR medium growth rates), instead of a functionalized population, and do not incorporate some of the important demand drivers inherent to these service areas: seasonal population (short-term rentals) & tourist population. These proposed planning projections under estimate the projected 2035 demand, based on detailed analyses conducted by Polk County, by 7.27 MGD and 12.85 MGD for NERUSA and the City of Winter Haven respectively. Furthermore, when compared to BEBR high growth rates, the demands are still under estimated by 6.77 MGD and 8.93 MGD for NERUSA and the City of Winter Haven respectively (on March 19, 2012). **(Continued on next page)**	Tammy Bader, SJRWMD 5/10/2012 & 5/14/2012	Comment brought up at 05/10/2012 Subgroup meeting. Advised that this will also be sent to the CFWI Planning Area RWSP Main Team for discussion at their next meeting scheduled for 05/24/2012.	Email forwarded to Tom Bartol, SJRWMD, on 05/14/2012 for incorporation into 05/24/2012 meeting agenda.

	(Continued from previous page) The subgroup is still trying to establish a method to estimate the agricultural demands & is not only using inconsistent future projection methods, but the base years and techniques for translating acreage to demand methods are still inconsistent. Several times during the April 27th meeting, District and DEP staff openly stressed the importance of getting the agricultural demands accurate and reasonable and that the team should do what it can as quickly as possible. Polk County understands the need to keep in mind the RWSP schedule & recommends that the CFWI Planning Area RWSP population and water demand subgroup establish a priority of efforts to (1) be as accurate as possible, then (2) be as fair and consistent across user groups as possible and then lastly (3) strive for consistencies in methodology between the Districts as time will allow. In Polk County's opinion the methodology for public supply projections should be reconsidered using all of the pertinent and historical envisioned data to ensure that public supply has been appropriately allocated a fair share of the limited inland water supply, similar to agricultural interests. Polk County is concerned that low projections for public supply will give utilities & regulators a false sense of need as far as the development of AWS is concerned and as previously stated, this would severely undermine any attempts to pursue regional projects which could lessen the strain on the aquifer and other water resources in the state.			

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 5/18/2012				
Christine Russell OUC Manager, Water Compliance & Quality 1-407-434-2565 crussell@ouc.com 3800 Gardenia Avenue Orlando, FL 32839	As part of the water projection and demand subgroup, were future demands developed for power generation in the CFWI Planning Area? I don't recall this discuss and it may help the conservation subgroup to have these numbers when considering potential conservation for power generation. If you have a table for power generation, will you please send it to me? Also, would you happen to have a breakdown by power plant?	Tammy Bader, SJRWMD 5/18/2012	Please find attached the latest projections. The eighth tab in the workbook contains the PG demands. Also, please find below the information requested for SJRWMD and SWFWMD. I do not have the breakout for SFWMD.	Sent latest demand projections file and PG breakdown for SJRWMD and SWFWMD.
Comment Received 5/21/2012				
Christine Russell OUC Manager, Water Compliance & Quality 1-407-434-2565 crussell@ouc.com 3800 Gardenia Avenue Orlando, FL 32839	Do you know if the power generation demands have been sent to power utilities for confirmation yet? I was not aware of anyone from OUC looking at the Stanton projections. I believe the assessments are old enough that these should be passed on to each entity to be checked in case something has changed. I will pass on the Stanton projections to the OUC electric staff.	Tammy Bader, SJRWMD 5/21/2012	The power generation projections in the tables are from each District's respective and most recent water supply assessment and / or water supply plan. As such, those projections were vetted during the respective public comment process of the assessment and/or plans.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 6/5/2012				
Al Aikens, Project Manager, Hydrogeologist CH2M HILL 1-407-650-2116 al.aikens@ch2m.com 225 East Robinson St., STE 505 Orlando, FL 32801	I received this information from Quyen Newell/Tohopekaliga to provide review on their wells for the 2035 scenario, and she should be providing you with the results of our discussions. With regard to Southlake Utilities, please change the 2035 demand to be satisfied from their wells from 2.95 mgd to 1.66 mgd to correspond to the recently issued CUP No. 2392. Second Email in response - We had resolution for Southlake as described in the attached email string. As a member of HAT, I'm asking you to make the change because Southlake is not formally represented in the CFWI Planning Area.	Tammy Bader, SJRWMD 6/5/2012 & 6/7/2012	The Population and Water Demand Subgroup has finalized the Public Supply water demand projections. Any request in changes to the PS Distribution of 2035 demands in the well file will be forwarded to the HAT Team. We will need to obtain direction from the HAT Team and possibly CFWI Planning Area RWSP Team on how AWS scenarios are dealt with as requested below. 06/07/12 email - Thank you for your request. This item and TWA well demand distribution was discussed at the Subgroup meeting held yesterday. The Subgroup has decided that the 2035 demand shown, will be representative of the agreed to (1/26/12 & 1/31/12) 2035 demand of 2.95 mgd. How the demand is met by different sources and how that AWS is modeled will be discussed at future HAT Team meetings. Also, as the Subgroup has passed the demand distribution on to the HAT Team, it was discussed that if a utility wishes to change the demand distribution spatially (the total demand would remain the same as provided by the Subgroup) they can make a request to the HAT Team.	None
Comment Received 6/6/2012				
James Fletcher UF Osceola County Extension Service County Extension Director 1-321-697-3000 jhfr@ufl.edu 1921 Kissimmee Valley Lane Kissimmee, FL 34744	Can I get a copy of the ag demand estimates?	Tammy Bader, SJRWMD 6/7/2012	Please find attached the most recent agricultural acreage and demand projections. As a result of the Subgroup meeting held yesterday, the demand projections are subject to change.	Draft projections provided.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 6/19/2012				
James Fletcher UF Osceola County Extension Service County Extension Director 1-321-697-3000 jhfr@ufl.edu 1921 Kissimmee Valley Lane Kissimmee, FL 34744	I am not aware of methodology that was used but I know some of the acreage for vegetables are off. I understand some CUP's for operations have not been approved but I know that potato acreage within SJRWMD are considerable higher and will be increasing. How were the projections made?	Tammy Bader, SJRWMD 6/20/2012	Please find attached a synopsis of how the agricultural acreage and demand projections were initially done for the CFWI Planning Area effort. Of note, these acreage projections are based on irrigated acres, not total acres. It should be noted that FDACS has accepted the agricultural acreage projections for this planning effort and we are now working towards agreement on demand calculations. Also, during our Subgroup meetings, Tyler Coon, ECFS, indicated that for Osceola County the 2010 acreages shown are reflective of what was actually being irrigated. If you have any information, data or methodology that could help us to project irrigated acres better in future planning efforts we would greatly appreciate any input. Thank you for your comments and we look forward to your continued cooperation.	AG methodology synopsis provided.
Comment Received 6/26/2012				
Al Aikens, Project Manager, Hydrogeologist CH2M HILL 1-407-650-2116 al.aikens@ch2m.com 225 East Robinson St., STE 505 Orlando, FL 32801	What was the per capita consumption factor that was used to calculate the 2035 projected demands for Cocoa	Tammy Bader, SJRWMD 6/26/2012	For the City of Cocoa, the 5-year average gross per capita (2006-2010) of 137 was used for future projections. This is consistent with the information and per capita submitted in the recent CUP application for Taylor Creek Reservoir.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 6/28/2012				
Kyle Morel, E.I. WRA, Inc. Project Engineer 1-813-265-3130 kmorel@wraconsultants.com 4260 W. Linebaugh Avenue Tampa, FL 33624	Do you have any familiarity with the CFWI Planning Area projections? Their projections are significantly different than what WRA provided for the Cocoa CUP. For example, in 2010 Cocoa's actual billing population was ~195,000 people while CFWI Planning Area had "projections" of ~173,000 people. Since the per capita is equal (137 gpd), CFWI Planning Area projects less water thru 2030 than WRA showed in our application. I was curious if you knew why CFWI Planning Area's projections for 2010 were so much lower than the actual data for the same year. Also, do you know if/when the CFWI Planning Area will adopt the actual data for 2010 and update their projections?	Tammy Bader, SJRWMD 6/28/2012	The population projections agreed to for Cocoa in the CUP TCR process and those shown in the CFWI Planning Area projections will be different. For the CUP process, through 2030, the city used the updated WSA 2008 population projections. These projections were made using a base year population of 2005, a service area map from 2006 and were controlled at the county level to BEBR medium projections dated 2009. For the CFWI Planning Area process and time limitations, the three Districts agreed to update the projections proportionally based on the latest BEBR medium projections dated 2011. For this update, the BEBR medium projections in Brevard County decreased, which resulted in a proportional decrease for Cocoa. Also, the most recent service area boundaries were taken into consideration for aggregation of population. It should be noted that the GIS population projection model was not rerun, so the projections are still based on 2005 population served. The CFWI Planning Area Population and Water Demand Subgroup has completed the demand and population projections for the CFWI Planning Area effort. SJRWMD does not intend to update projections using a base year population of 2010 until the WSA 2013 / DWSP 2015. For the CUP process, please continue use the agreed upon projections as submitted in the application. I hope that this helps explain the differences and if you have any questions, please do not hesitate to contact me at the number listed below.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 6/28/2012				
Rick Baird rbaird4@cfl.rr.com	6/28/12 Public Workshop - Please email me a copy of the Latest CFWI Planning Area Demand Projections.	Tammy Bader, SJRWMD 6/29/2012	Thank you for attending our Central Florida Water Initiative Regional Water Supply Plan Kickoff Meeting yesterday afternoon. As requested, please find attached the Population and Demand Projection tables that were on display.	Latest demand projections file sent.
Cole Goatley Waterstone Development Company, LLC 1-321-258-0907 cole@waterstonefla.com 235 West Drive Melbourne, FL 32904	6/28/12 Public Workshop - Please email me a copy of the Latest CFWI Planning Area Demand Projections and PWSABs.	Tammy Bader, SJRWMD 6/29/2012	Thank you for attending our Central Florida Water Initiative Regional Water Supply Plan Kickoff Meeting yesterday afternoon. As requested, please find attached the Population and Demand Projection tables and the Public Supply Service Area Boundaries that were on display.	Latest demand projections and PWSABs file sent.
Shawn Hindle, P.E. Hanson, Walter & Associates, Inc. Project Manager 1-407-847-9433 shindle@hansonwalter.com 400 W. Emmett St. Kissimmee, FL 32741-5481	6/28/12 Public Workshop - Please email me a copy of the Latest CFWI Planning Area Demand Projections and PWSABs.	Tammy Bader, SJRWMD 6/29/2012	Thank you for attending our Central Florida Water Initiative Regional Water Supply Plan Kickoff Meeting yesterday afternoon. As requested, please find attached the Population and Demand Projection tables and the Public Supply Service Area Boundaries that were on display.	Latest demand projections and PWSABs file sent.
Jennifer Codo-Salisbury, MPA, AICP Central Florida Regional Planning Council Planning Director 1-863-534-7130 ext. 178 jcodosalisbury@cfrpc.org 555 East Church Street Bartow, FL 33830-3931	6/28/12 Public Workshop - Please email me a copy of the Latest CFWI Planning Area Demand Projections and PWSABs.	Tammy Bader, SJRWMD 6/29/2012	Thank you for attending our Central Florida Water Initiative Regional Water Supply Plan Kickoff Meeting yesterday afternoon. As requested, please find attached the Population and Demand Projection tables and the Public Supply Service Area Boundaries that were on display.	Latest demand projections and PWSABs file sent.
Jennifer Cosma Bolling, P.E. SMW GeoSciences, Inc. Vice President 1-407-426-2836 jbolling@smwgeosciences.com 668 N. Orlando Avenue, Suite 1009A Maitland, FL 32751	6/28/12 Public Workshop - Please email me a copy of the Latest CFWI Planning Area Demand Projections and PWSABs.	Tammy Bader, SJRWMD 6/29/2012	Thank you for attending our Central Florida Water Initiative Regional Water Supply Plan Kickoff Meeting yesterday afternoon. As requested, please find attached the Population and Demand Projection tables and the Public Supply Service Area Boundaries that were on display.	Latest demand projections and PWSABs file sent.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 6/28/2012				
Jim Tully, P.G. Jones Edmunds Project Scientist 1-863-293-3332 jtully@jonesedmunds.com 37 3rd street SW Suite 203 Winter Haven, FL 33880	6/28/12 Public Workshop - Please email me a copy of the Latest CFWI Planning Area Demand Projections and PWSABs.	Tammy Bader, SJRWMD 6/29/2012	Thank you for attending our Central Florida Water Initiative Regional Water Supply Plan Kickoff Meeting yesterday afternoon. As requested, please find attached the Population and Demand Projection tables and the Public Supply Service Area Boundaries that were on display.	Latest demand projections and PWSABs file sent.
Bill Burchfield bbur@property-appraiser.org	6/28/12 Public Workshop - Please email me a copy of the Latest PWSABs.	Tammy Bader, SJRWMD 6/29/2012	Thank you for attending our Central Florida Water Initiative Regional Water Supply Plan Kickoff Meeting yesterday afternoon. As requested, please find attached the Public Supply Service Area Boundaries that were on display.	Latest PWSABs file sent.
Leeann Adams Adams Ranch, Inc. 1-772-461-6321 leeannadams@gmail.com P.O. Box 12909 Fort Pierce, FL 32979-2909	6/28/12 Public Workshop - Please email me a copy of the Latest CFWI Planning Area AG Demand Projections and methodology synopsis.	Tammy Bader, SJRWMD 6/29/2012	Thank you for attending our Central Florida Water Initiative Regional Water Supply Plan Kickoff Meeting yesterday afternoon. As requested, please find attached the Agriculture Demand Projection tables and methodology synopsis.	Latest demand projections and methodology synopsis file sent.
Kevin Dorsey, P.G. Atkins Senior Project Manager 1-813-281-8374 kevin.dorsey@atkinsglobal.com 4030 West Boy Scout Boulevard, Suite 700 Tampa, FL 33607	6/28/12 Public Workshop - Please email me a copy of the Latest CFWI Planning Area Demand Projections and PWSABs.	Tammy Bader, SJRWMD 6/29/2012	Thank you for attending our Central Florida Water Initiative Regional Water Supply Plan Kickoff Meeting yesterday afternoon. As requested, please find attached the Population and Demand Projection tables and the Public Supply Service Area Boundaries that were on display.	Latest demand projections and PWSABs file sent.
Micheal Eves 1-904-687-1857 meves@nteenergy.com	6/28/12 Public Workshop - Please email me a copy of the Latest CFWI Planning Area Demand Projections and PWSABs.	Tammy Bader, SJRWMD 6/29/2012	Thank you for attending our Central Florida Water Initiative Regional Water Supply Plan Kickoff Meeting yesterday afternoon. As requested, please find attached the Population and Demand Projection tables and the Public Supply Service Area Boundaries that were on display.	Latest demand projections and PWSABs file sent.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 6/28/2012				
Dr. Jake Kirchner, DPM, MHA & Julia Swanson Florida Hospital Manager, Public Health Policy 1-407-303-9239 jacob.kirchner@flhosp.org julia.swanson@flhosp.org 2400 Bedford Road, 2nd Floor Orlando, FL 32803	6/28/12 Public Workshop - Please email me a copy of the Latest CFWI Planning Area Demand Projections and PWSABs.	Tammy Bader, SJRWMD 6/29/2012	Thank you for attending our Central Florida Water Initiative Regional Water Supply Plan Kickoff Meeting yesterday afternoon. As requested, please find attached the Population and Demand Projection tables and the Public Supply Service Area Boundaries that were on display.	Latest demand projections and PWSABs file sent.
Susan Makowski Orange County Commissioner Jennifer Thompson, District 4 Administrative Aide 1-407-836-5916 susan.makowski@ocfl.net 201 S. Rosalind Ave., 5th Floor Orlando, FL 32801	6/28/12 Public Workshop - Please email me a copy of the Latest CFWI Planning Area Demand Projections and PWSABs.	Tammy Bader, SJRWMD 6/29/2012	Thank you for attending our Central Florida Water Initiative Regional Water Supply Plan Kickoff Meeting yesterday afternoon. As requested, please find attached the Population and Demand Projection tables and the Public Supply Service Area Boundaries that were on display.	Latest demand projections and PWSABs file sent.
Quyen Wilson, AICP, CPM Polk County Office of Planning and Development Concurrency and Entitlements Director 1-863-534-6792 quenwilson@polk-county.net 330 West Church Street Bartow, FL 33831-9005	6/28/12 Public Workshop - Please email me a copy of the Latest CFWI Planning Area Demand Projections and PWSABs.	Tammy Bader, SJRWMD 6/29/2012	Thank you for attending our Central Florida Water Initiative Regional Water Supply Plan Kickoff Meeting yesterday afternoon. As requested, please find attached the Population and Demand Projection tables and the Public Supply Service Area Boundaries that were on display.	Latest demand projections and PWSABs file sent.
Robert G. Adolphe, P.E. Brevard County Utility Services Department Director 1-321-633-2091 bob.adolphe@brevardcounty.us 2725 Judge Fran Jamieson Way, A-213 Viera, FL 32940-6602	6/28/12 Public Workshop - Please email me a copy of the Latest CFWI Planning Area Demand Projections and PWSABs.	Tammy Bader, SJRWMD 6/29/2012	Thank you for attending our Central Florida Water Initiative Regional Water Supply Plan Kickoff Meeting yesterday afternoon. As requested, please find attached the Population and Demand Projection tables and the Public Supply Service Area Boundaries that were on display.	Latest demand projections and PWSABs file sent.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 6/28/2012 & 8/8/2012				
Michael D. Cliburn, P.E. AECOM Principal Engineer 1-407-513-8242 mike.cliburn@aecom.com 150 N. Orange Avenue, Suite 200 Orlando, FL 32801	6/28/12 Public Workshop - Please email me a copy of the Latest CFWI Planning Area Demand Projections and PWSABs. 8/8/12 - Would you have breakdowns of the projected water demands by WTP service area? (e.g., Orange County Utilities' South Regional WTP service area). If not, would you have a breakdown of Orange County Utilities' projected water demands within the SFWMD? (The spreadsheet you sent only showed a total of their SFWMD and SJRWMD projected demands). Also do you have a version of the Public Supply Service Area boundaries in GIS format (or another format besides pdf)?	Tammy Bader, SJRWMD 6/29/2012 & 8/10/12	6/29/12 - Thank you for attending our Central Florida Water Initiative Regional Water Supply Plan Kickoff Meeting yesterday afternoon. As requested, please find attached the Population and Demand Projection tables and the Public Supply Service Area Boundaries that were on display. 8/10/12 - Unfortunately, we do not have demands by WTP Service Area. As requested, please find attached the OUC/OUC breakout between SFWMD and SJRWMD. Also, please find GIS format file of the service area boundaries.	6/29/12 - Latest demand projections and PWSABs file sent. 8/10/12 - OCU/OUC demands breakout and GIS file of PWSABs sent.
Comment Received 6/29/2012				
Bryan K. Gongre UI Water Regional Manager bkgongre@uiwater.com	At the request of Mr. Neff below, please find attached the original well information spreadsheet provided to Sanlando Utilities and the revised version that follows. There were two Sanlando wells missing from the original spreadsheet that we wanted to make certain were accounted for and two wells incorrectly described as Upper & Lower Floridan wells, when in fact all of Sanlando's wells are upper floridan wells. All changes are highlighted in yellow. We hope you find this information of some help.	Tammy Bader, SJRWMD 6/29/2012	Thank you very much for your input and updates. I will forward this information and ensure that the updates are made in the files.	Information forwarded to HAT - George Robinson & Patrick Burger for updates.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 7/6/2012				
Ray Scott Florida Department of Agriculture and Consumer Services Conservation & Water Policy Federal Programs Coordinator 1-850-617-1716 ray.scott@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	At this time we are prepared to move forward with the planning process using the "original" ag projections contained in the 04/02/2012 draft. We continue to have concerns regarding those projections, however, and will work with the CFWI Planning Area RWSP team to clearly indicate in the RWSP that there are significant issues regarding those projections. The primary issue is that inconsistent methodologies were used to produce those projections that resulted in inconsistent projections, for example, significant variations in demand projections for the same crop types in the same counties, across counties, and across districts. Second, there are discrepancies between the projections and available data regarding both agricultural acreage and water use. A more generalized concern is that the projections do not adequately account for more intensive production (particularly for producers with specific plans) and other trends in agriculture that could result in increased water demand	Tammy Bader, SJRWMD 7/12/2012	Topic was discussed at CFWI Planning Area Population and Water Demand Subgroup meeting held on July 12, 2012.	Email incorporated into meeting summary and demand projections were finalized.
Comment Received 7/11/2012				
Mary Fickert Thomas Parsons Brinkerhoff Lead Engineer 1-407-587-7837 thomasmf@pbworld.com CNL Center II at City Commons 420 S. Orange Ave., Suite 400 Orlando, FL 32801	The STOPR Group is reviewing the 2035 projects provided to HAT and will have comments. Is there a deadline for this? We don't want to miss the opportunity to respond.	Tammy Bader, SJRWMD 7/11/2012	The CFWI Planning Area Population and Water Demand Subgroup finalized the public supply projections on April 30, 2012. Members of the Subgroup, including Polk County Utilities, TWA Water Authority, Orange County Utilities, City of St. Cloud and Orlando Utilities Commission, have been meeting regarding the projections since January. From these meetings, comments and feedback from the above mentioned members and stakeholders have been taken into account and updates have been processed as warranted. Any requested changes to the 2035 public supply well distribution file should be directed to the HAT team. It is our understanding the HAT team has or is in the process of setting up protocol and deadlines for utilities to comment on the well distribution file. If you have any detailed information that you would like to share or have any questions regarding this information, please do not hesitate to contact me.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 7/12/2012				
Terrence McCue Seminole County Environmental Services Department Ph.D., P.E. 1-407-665-2039 tmccue@seminolecountyfl.gov 500 W Lake Mary Blvd. Sanford, FL 32773	Please find the attached file which contains Seminole County's recommended 2035 groundwater allocation, by wellfield. Depths of Lynwood wells 4 and 5 were changed to 1350', which is expected to be completed by the end of 2013. These rows were marked in yellow in the attached spreadsheet.	Tammy Bader, SJRWMD 7/12/2012	Thank you very much for your input and updates. I will forward this information and ensure that the updates are made in the files.	Information forwarded to HAT - George Robinson & Patrick Burger for updates.
Comment Received 7/19/2012				
Sarah Whitaker SMW GeoSciences, Inc. President 1-407-234-4675 swhitaker@smwgeosciences.com 668 N. Orlando Avenue, Suite 1009A Maitland, FL 32751	1st email - JFYI, I am having problems with locating Plantation of Leesburg in the District(s) models. I don't see where it is even included under Public Supply projections for the ECFT model. 2nd email - Thank you Tammy. I will talk with Chris. However, I would point out that Leesburg's demands are in the table and Plantation of Leesburg is owned by the City of Leesburg. Also none of Leesburg's public supply utilities are within the CFWI Planning Area boundaries.	Tammy Bader, SJRWMD 7/19/2012	7/19/2012 - The file 2035 *Demand and PS distribution for HAT Team* only contains those public supply utilities within the CFWI Planning Area boundaries. The HAT team is still in the process of discussing 2035 values for those utilities outside of the CFWI Planning Area boundary, but within the ECFT model domain. Chris Sweazy, SFWMD and HAT team member, is taking the lead on any changes to the 2035 public supply well distribution file for utilities within CFWI Planning Area boundaries.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 7/25/2012				
Bill Marcous City of Sanford Manager, Utility Support Services 1-407-688-5100 william.marcous@sanfordfl.gov 300 N. Park Avenue Sanford, FL 32771	I am writing you on behalf of the City of Sanford in regards to the proposed Sanford Water Demand Projections for the Central Florida Water Initiative. Much resources and planning went into winning approval of CUP No. 162 in February 2006. At the time the District was working under the proviso that CUP'S issued in the former Central Florida Coordination Area would be capped for groundwater withdrawals due to regional and local impacts. Our current CUP capped off beginning in 2010 through 2026 with a 9.58 MGD average. The early cap and limitation motivated the City to work on Regional Alternative Water Supply Projects including Yankee Lake and SR 46. The planning horizon to bring those systems on line were in the 2013-2020 time frame. Due to economic events, those plans have been tabled. However, we understand that Water Supply Planning must continue. It is our position that it would be fruitless to use the last 5 to 15 years to project demands in 2035. The most prudent approach would to use the current permitted amount with some modest factor for growth and climatic conditions. **The City of Sanford objects to the proposed Latest CFWI Planning Area Demand Projections and the related negative impacts to the City's Consumptive Use Permit and Well field Allocation.**	Tammy Bader, SJRWMD 7/30/2012	Thank you for your comments. The Central Florida Water Initiative (CFWI Planning Area) Population and Water Demand Subgroup finalized the public supply projections on April 30, 2012. For the CFWI Planning Area planning effort, the Subgroup agreed to use the 2011 published BEBR medium county permanent population projections as a basis and each utility specific 2006 – 2010 five-year average gross per capita to project demands. In most cases this information and data is more up to date than data used in permits issued previously. It should be noted that these projections are intended solely for planning purposes only and only take into account permanent population. We appreciate your input and all comments received will be included in an appendix to the CFWI Planning Area Water Supply Plan.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 7/26/2012				
Ray Scott Florida Department of Agriculture and Consumer Services Conservation & Water Policy Federal Programs Coordinator 1-850-617-1716 ray.scott@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	On Monday the MOC decided that additional work to resolve issues with the Ag projections should be done. It was decided that with the relaxation of the schedule it would make sense to try and resolve any remaining issues. Not sure when we are scheduled to meet again, but the subgroup should discuss and decide how we want to proceed.	Tammy Bader, SJRWMD NA	No response given, however issue was discussed at Subgroup meeting held 08/08/12 - Issue was raised at MOC and no decision was made by MOC regarding redoing projections at this time. Item will be brought back before the CFWI Planning Area RWSP Team for further discussion at meeting scheduled for 08/16/2012. Subgroup discussed CFWI Planning Area RWSP write-up and to date no feedback for the CFWI Planning Area Plan write-up has been received by FDACS regarding limitations, concerns, uncertainties, etc. as agreed to in 07/12/12 Subgroup meeting.	None
Christine Russell OUC Manager, Water Compliance & Quality 1-407-434-2565 crussell@ouc.com 3800 Gardenia Avenue Orlando, FL 32839	Attached is OUC's well distribution for the 2035 demand (Column C-Updated 2035) and EOP demands (Column D). The total 2035 demand provided by the SJRWMD was accurate (Column B), but the well distribution was not optimal. Highland well 5 was recently abandoned so the demands for that well were deleted and redistributed to the other Highland wells. OUC is also providing X Y Coordinates in NAD 1983 Harn UTM Zone 17N (columns AG and AH) since the X Y coordinates provided by the SJRWMD in columns AE and AF were different. Please use this latest data (Columns C, D, AG, and AH) as inputs for the CFWI Planning Area USGS model.	Tammy Bader, SJRWMD 7/27/2012	Email forwarded to HAT team - Patrick Burger and George Robinson for updates.	Email forwarded to HAT team - Patrick Burger and George Robinson for updates.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 7/30/2012				
Roberto Denis Liquid Solutions Group, LLC representing OCU P.E. 1-407-349-3900 rdenis@liquidsolutionsgroup.com 369 Whitcomb Drive Geneva, FL 32732	Please provide the historic population and per capita data for Seminole County.	Tammy Bader, SJRWMD 7/30/2012	As discussed, please find below the email I sent to Terry McCue and attached, the historic population and use for all utilities within the SJRWMD portion of CFWI Planning Area.	Data provided.
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	The CFWI Planning Area process and its truncated timeline have forced all parties to accept concepts and processes that have been less than ideal in the interest of consensus and timely completion of the assigned task. Due to this, conclusions have been reached based on results that do not reflect the best that each of the parties could have produced given adequate time and resources and the spirit of collaboration that has developed over this period. This comment is made based on the recognition by all that with adequate time and resources a "better" product could have been produced. Ideally, prior to beginning the process the parties would have taken the time to properly scope the project. Part of this would have been to identify necessary tasks and data to reach valid conclusions and determine appropriate methodologies, sources, and standards for that data. With that in hand, data collection could have proceeded in a more systematic manner based on standard methodology, allowing additional time to confirm the relevance and accuracy of data. Finally, the data could have been fully evaluated before arriving at conclusions and making recommendations based on facts. Unfortunately, the process has relied on conversion of existing data and methodologies, some of which is sorely outdated; blending of data created by different entities for differing purposes at different points in the regulatory process; and projections based on perceived as well as known errors, incomplete data, and working assumptions predicated on imperfect requirements. Recognizing these limitations, there are specific items that should be understood by the reader as they evaluate the final report.	Tammy Bader, SJRWMD 8/1/2012	Thank you for your comments. We will try and incorporate the mentioned uncertainties, limitations, etc. into the Subgroup's portion of the plan. We appreciate your input and all comments received will be included in an appendix to the CFWI Planning Area Regional Water Supply Plan.	Comments provided to Subgroup for write-up and incorporated into matrix for appendix.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 7/30/2012				
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	POPULATION - The Water Management Districts agreed to update projections based solely on permanent population and associated demand. This was done proportionally based on the latest BEBR medium projections dated 2011. Both the St. Johns River (SJRWMD) and Southwest Florida (SWFWMD) Water Management Districts use a proprietary model for population projections which analyzes and projects population growth at the census block level. The algorithm that forms the basis for these projections uses a combination of factors including: existing and future land use, zoning, existing and planned transportation infrastructure, utilities, municipal growth patterns, etc. to allocate anticipated growth. The final product of the model is a parcel level projection of population across the study area. It should be noted, however, that the population is only accurate at the census block level and the projected growth is parsed to each parcel within the block based on the algorithm. This would seem to be an ideal basis for this evaluation as SWFWMD has continued to update its model on an annual basis since adoption; however, SJRWMD has not updated its model in 6 years creating a significant disparity in accuracy of the results. On the other hand, South Florida Water Management District (SFWMD) population projections were based on (fill in here as I do not recall) and disaggregated to be accurate at the traffic analysis zone (TAZ) level. Contributing to some of the confusion/discrepancies in population projections among providers is the previously mentioned accuracy level of census data. Whether aggregated at the census block or TAZ, it is highly unlikely these boundaries correspond to those of individual utility service areas adding another layer of potential, and in some cases real, disagreement on population allocation. The Districts did work well in areas where more than one had jurisdiction in a County by agreeing, for purposes of the Plan, to ensure cross-jurisdiction population remained allocated appropriately. **Continued on next page.**	Tammy Bader, SJRWMD 8/1/2012	Thank you for your comments. We will try and incorporate the mentioned uncertainties, limitations, etc. into the Subgroup's portion of the plan. We appreciate your input and all comments received will be included in an appendix to the CFWI Planning Area Regional Water Supply Plan.	Comments provided to Subgroup for write-up and incorporated into matrix for appendix.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 7/30/2012				
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	**Continued from previous page.** On the other hand, only half of Lake County is included in the CFWI Planning Area and that portion has shared jurisdiction with SJRWMD and SWFWMD. Fortunately, the SWFWMD portion is supplied exclusively by domestic self-supply. However, after adopting a complete revision to its Comprehensive Plan and Future Land Use Map in 2011 it is highly likely that changes in development patterns will occur that will affect whether population ultimately resides in or outside of the CFWI Planning Area. As mentioned previously, because of time and resource constraints, the model was not rerun with this new data causing potential population shifts to be unrecognized. Another aspect of population that has created consternation for some utilities is the decision to deal solely with the permanent population portion of demand. Significant disparity exists across the region with regard to temporary population associated with tourists and "snowbirds." Additionally, the concentration of commercial and industrial operations varies widely across service areas as do the level of the demand associated with specific commercial/industrial operations. Where large utilities have the ability to absorb some of this demand and/or average its effect over a larger customer base/service area, small to medium sized utilities may not have that ability and the impact is therefore disproportionately larger and cannot be mitigated.	Tammy Bader, SJRWMD 8/1/2012	Thank you for your comments. We will try and incorporate the mentioned uncertainties, limitations, etc. into the Subgroup's portion of the plan. We appreciate your input and all comments received will be included in an appendix to the CFWI Planning Area Regional Water Supply Plan.	Comments provided to Subgroup for write-up and incorporated into matrix for appendix.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 7/30/2012				
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	DEMAND - Use of the most recent five-year per capita trend as a benchmark for demand projections may be less than representative of true potential water usage into the future for a number of reasons. In many cases, the current prolonged economic slow-down has affected many consumers ability to pay utility rates on higher tier usage forcing them to reduce consumption they would otherwise demand. Because of this decreased demand, some utilities have been forced to increase rates further to satisfy O & M and bonding needs. Additionally, conservation measures implemented by the Districts and local governments at their behest have reduced demand further in many cases. This artificial demand reduction may be semi-permanent, but relying on this reduction for a trend introduces a factor that can only be sustained if more stringent limitations are imposed on the consumer. At some point, further reductions will become untenable both politically and economically for utilities as decreased demand forces further rate increases to sustain operations. The gross per capita method also assumes past water use practices are predictive of future water use. This is not necessarily correct, particularly when the complexion of the residential customer has changed from older/established neighborhoods with small lots where residents water by hand to new subdivisions with larger lots and in-ground irrigation. Additionally, use of the gross per capita method embeds current reclaimed water use, water conservation reductions, and non-"residential" uses as a percentage of total demand. In some areas, this is not accurate or is unlikely to occur. Other methods would allow for more rigorous calculation of future demand. As mentioned previously, some data used in the process have been inappropriately merged to establish a baseline. A good example of this in the case of demand is where FDEP MOR data have been merged with WMD EN-50 data to establish utility demand, depending on availability of data. **Continued on next page.**	Tammy Bader, SJRWMD 8/1/2012	Thank you for your comments. We will try and incorporate the mentioned uncertainties, limitations, etc. into the Subgroup's portion of the plan. We appreciate your input and all comments received will be included in an appendix to the CFWI Planning Area Regional Water Supply Plan.	Comments provided to Subgroup for write-up and incorporated into matrix for appendix.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 7/30/2012				
Gregg Welstead Lake County Director, Conservation and Compliance Department 1-352-742-3960 gwelstead@lakecountyfl.gov 315 W. Main Street, Ste. 421 Tavares, FL 32778	**Continued from previous page.** Although both are measures of demand, they are collected at different points in the regulatory process, by different agencies and represent readings at different points in the physical process of water production. For many utilities, the process has resulted in artificially lowered demand projections based on the compromise methodology. The resultant plan projections directly subvert projected demands proved individually under the more rigorous water allocation (CUP) process that by law uses utility-specific information and long-established process. Additionally, several small utilities with existing CUP allocation did not retain this allocation in the plan because the population model did not acknowledge their existence. There was not enough time in the CFWI Planning Area RWSP process to review individual specific utility issues such as changes in per capita usage from the five-year historical trend used or the incorporation of important demand drivers inherent to some service areas: seasonal population (short-term rentals) and the tourist population. Accordingly, the proposed planning projections may under estimate the projected 2035 demand for the utilities. Future regional planning efforts for the CFWI Planning Area region should address these issues in methodology for estimating public supply projections and use all pertinent data to ensure the available water supply has been allocated equitably.			

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 8/8/2012				
Chris Rader, P.E. City of Altamonte Springs Division Director of Engineering / City Engineer 1-407-571-8340 225 Newburyport Avenue Altamonte Springs, FL 32701-3697	We'd like to take this opportunity to commend the Districts & FDEP for undertaking the CFWI Planning Area in collaboration with water providers & other stakeholders. We appreciate the opportunity to review information & provide constructive comments that will be thoughtfully addressed. The City has reviewed the demand projections developed by the CFWI Planning Area Population & Water Demand Subgroup. First, we'd like to provide a few observations & ask some questions about the projections. Then, we have a recommended approach for consideration that if incorporated would improve the overall accuracy of the projections. **Observations 1.**The 2035 potable water demand projection for the City is 5.79mgd. This is approx. the average pumping for the City over the past 10 years & the City has pumped more than that in 5 of the last 10 years. **2.** In 2006, the City was issued a 20-year CUP for 8.88mgd of GW for PS & RW augmentation purposes. **3.** In 2004, the City was issued a 20-year CUP for 0.55mgd of SW for RW augmentation purposes. **4.** As documented-in the TSR for CUP #3826, the City uses more RW to meet demands than potable water. **5.** The CFWI Planning Area population estimates are based on a period of historic recession with a served population of 46,896 in 2010, & the CFWI Planning Area-projected population in 2035 is estimated to be 54,121. However, in the City's CUP, the SJRWMD estimated that population served in 2005 was 55,576. **6.** The basis for calculation of the City's per capita use for the CFWI Planning Area assumes populations ranging from 50,159 in 2006 to 55,576 in 2010. Therefore, for per capita calculations, the CFWI Planning Area used higher populations which result in a lower per capita. Then, the lower calculated per capita value was applied to a different, lower population projection. **Questions 1.**The CFWI Planning Area projection method appears to calculate future demand by multiplying projected population by a gross per capita factor. Does the City's gross per capita factor include all sources of water (GW, RW & SW) or just a subset of these types? **2.** Is the projection for the City representative of its PS use or does it also include RW augmentation use (from FGW or SW)? (**Continued on next page)**	Tammy Bader, SJRWMD 8/24/2012	Thank you for your comments. The CFWI Planning Area Population & Water Demand Subgroup finalized the public supply projections on April 30, 2012. For the CFWI Planning Area planning effort, the Subgroup agreed to use the 2011 published BEBR medium county permanent population projections as a basis and each utility specific 2006 – 2010 five-year average gross per capita to project demands. In most cases this information & data is more up to date than data used in permits issued previously. It should be noted that for groundwater modeling purposes while the average scenario will be run, there will also be a scenario run with each utilities' end of permit allocation. As mentioned in the letter presented by the City & in further detail, these projections are intended solely for planning purposes only, only take into account permanent population & will be updated every five years. Please find below responses to the questions presented by the City: *Question 1. The CFWI Planning Area projection method appears to calculate future demand by multiplying projected population by a gross per capita factor. Does the City's gross per capita factor include all sources of water (groundwater, reclaimed water and surface water) or just a subset of these types?* **Answer - The gross per capita was calculated using the public supply groundwater use from permit 8372.** *Question 2. Is the projection for the City representative of its public supply use or does it also include reclaimed water augmentation use (from groundwater or surface water)?* **Answer – The projection for the city is representative of the public supply water use.** *Question 3. If the projection method is based on a groundwater gross per capita, then is it correct that this method assumes that the current levels of reclaimed water and surface water augmentation use (embedded in the per capita calculation) will be maintained?* **(Continued on next page)**	Comments included in matrix. Write-up reflects limitations and uncertainties noted, as well as recommendations made.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 8/8/2012				
Chris Rader, P.E. City of Altamonte Springs Division Director of Engineering / City Engineer 1-407-571-8340 225 Newburyport Avenue Altamonte Springs, FL 32701-3697	**(Continued from previous page)** **3.** If the projection method is based on a GW gross per capita, then is it correct that this method assumes that the current levels of RW & SW augmentation use (embedded in the per capita calculation) will be maintained? Does it also assume that current levels of GW augmentation to the reuse system will be maintained? **4.** Can you please help explain the disparity between the SJRWMD projection of the City's historic use (2005 to 2010) & the CFWI Planning Area estimate for 2010 & projection for 2035 as noted in points 5 & 6 above? **Conclusions & Recommendation:** Because of the fact that the City uses such a high percentage of RW to meet its demands (over 50 percent) & because its PS CUP includes augmentation for this highly effective reuse system, the assumptions inherent in the projection methodology used for the CFWI Planning Area do not apply to the City. Furthermore, the disparity between the population used to calculate gross per capita use & the population projected in the future provide additional validation that application of the process used for the CFWI Planning Area does not reasonably apply to the City. We understand that the CFWI Planning Area process is not a regulatory action. However, due to the fact that these projections will be used in GW modeling & development of MFL prevention & recovery strategies as needed, we feel compelled to point out the specific issues outlined above that lead to an underestimation of the City's 2035 demand. At this point in the process, we recommend that the limitations described above be included in the narrative for PS demand projections in the CFWI Planning Area RWSP & that the notes section of the Appendix table containing utility PS projections be expanded to address these concerns. Additionally, we appreciate your consideration of these issues as you incorporate the City's feedback into the CFWI Planning Area RWSP.		**(Continued from previous page)** *Does it also assume that current levels of groundwater augmentation to the reuse system will be maintained?* **Answer - The method assumes that current levels of conservation, water use and utility demographics will remain the same. It does not take into account any reduction in water use due to additional water conservation or alternative supplies. It also does not take into account any potential increases due to changes in utility demographics or water use practices. From Subgroup and stakeholder input these types of limitations and uncertainties have been included in the CFWI Planning Area RWSP Draft write-up.** *Question 4. Can you please help explain the disparity between the SJRWMD projection of the City's historic use (2005 to 2010) and the CFWI Planning Area estimate for 2010 and projection for 2035 as noted in points 5 and 6 above?* **Answer – The disparity is due to the different methodologies being employed for historic estimates and future projections. From Subgroup and stakeholder input these types of limitations and uncertainties have been included in the CFWI Planning Area RWSP Draft write-up.** Regarding the City's recommendation: *that the limitations described be included in the narrative for the public supply demand projections in the CFWI Planning Area Regional Water Supply Plan (RWSP) and that the notes section of the Appendix table containing individual public supply projections be expanded to address these concerns.* **All comments received will be included in an appendix to the CFWI Planning Area Water Supply Plan and from Subgroup and stakeholder input these types of limitations and uncertainties have been included in the CFWI Planning Area RWSP Draft write-up.** We appreciate your input and all comments and if you have any questions, please do not hesitate to contact me.	

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 8/8/2012				
Chris Sweazy SFWMD Kissimmee Basin Water Supply Plan Coordinator 1-407-858-6100, ext. 3823 csweazy@sfwmd.gov 1707 Orlando Central Pkwy., Suite 200 Orlando, FL 32809	Providing updated AG demands for SFWMD (as part of CFWI Planning Area RWSP write-up review) to include miscellaneous uses previously omitted such as aquaculture, dairy/cattle, etc.	Tammy Bader, SJRWMD 8/10/2012	Updates processed as provided.	AG demands updated.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 8/8/2012				
Christine Russell OUC Manager, Water Compliance & Quality 1-407-434-2565 crussell@ouc.com 3800 Gardenia Avenue Orlando, FL 32839	In the last GAT meeting, Tom mentioned that the 1-in-10 Ag demands are 50% higher than the average demands for 2035. Can you tell me why this factor is so high? The 2005 Water Supply Plan used a factor of about 15% for Ag groundwater to convert average to 1-in-10 year demands for year 2025. I was expecting to see a factor closer to 15%. Does the historical data used in the USGS model calibration support the 50% increase for 1-in-10 drought years? If you can provide me some insight on this I would appreciate it.	Tammy Bader, SJRWMD 8/22/2012	Thank you for your question / comments. The data in the model should not be compared to the planning numbers as different periods of time, climate data and crop information were used. Also, the methodologies used to calculate historic water use estimates in the model and to project future water demand in planning are not comparable. For planning, both SFWMD and SWFWMD used models to project average year and 1-in-10 rainfall year demands. 1.) SWFWMD used AGMOD and acreages by crop type to project average and 1-in-10 rainfall year demand for 2030. It should be noted that due to AGMOD limitations at the time, the 1-in-10 is actually a 2-in-10 rainfall year calculation. Projections for 2035 were linearly interpolated. 2.) SFWMD used AFSIRS and acreages by crop type to project average and 1-in-10 rainfall year demand for 2030. Projections for 2035 were linearly interpolated. It should be noted that SFWMD also added the permitted quantity (average and 1-in-10) for Latt Maxcy to Osceola County, which was calculated using Modified Blaney-Criddle. Previously, SJRWMD 1-in-10 rainfall year demand for 2030 was calculated as 2030 average demand multiplied by the county change ratio reported for 2025 reported water use in WSA 2003 (Lake = 15.79, Orange = 18.87, Osceola = 15.26, Seminole = 13.19). These values were not based on any model inputs and as a result showed low increases for 1-in-10 year demands (as seen in the Water Supply Plan 2005). Projections for 2035 were linearly interpolated. During the CFWI Planning Area Population and Water Demand Subgroup meetings, this inconsistency was discussed and it was decided the methodology for calculating SJRWMD 1-in-10 rainfall demands should be updated. As a result, for shared counties, SJRWMD used the % increases from SFWMD and SWFMWD model outputs. For Seminole County, SJRWMD used the average of % increases for all counties in SFWMD and SWFWMD. If you would like, we can discuss this topic more over a teleconference or at the next Subgroup meeting scheduled on September 13th.	None

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 9/4/2012				
Ray Scott Florida Department of Agriculture and Consumer Services Conservation & Water Policy Federal Programs Coordinator 1-850-617-1716 ray.scott@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	Proposed Limitations/Uncertainties write-up: The Districts each use different methods and land use coverage for projecting acreage and water demands, which creates inconsistencies when reviewing data. For example, there are significant variations in demand projections for the same crop types in the same counties, across counties, and across districts. It is realized that the use of different methods can result in either lower or higher acreage and demand projections, and all five water management districts are in the process of developing a common methodology. The Districts each use different methods and land use coverage for projecting acreage and water demands, which creates inconsistencies when reviewing data. For example, there are significant variations in demand projections for the same crop types in the same counties, across counties, and across districts. It is realized that the use of different methods can result in either lower or higher acreage and demand projections, and all five water management districts are in the process of developing a common methodology.	Tammy Bader, SJRWMD & David Hornsby, SJRWMD 9/24/2012	The CFWI Planning Area RWSP Main Team directed the CFWI Planning Area Population and Water Demand Subgroup to only have high level detail contained in Volume I, Chapter 2 of the CFWI Planning Area RWSP. Subgroup proposes to include proposed write-up containing details and comments in the comment matrix which will be included in the Appendix to Chapter 2.	FDACS proposed write-up containing details and comments in the comment matrix which will be included in the Appendix to Chapter 2.
	Agricultural acreage and water use are difficult to predict because they depend upon the choices that individual agricultural producers make from year to year. Those choices are affected by numerous factors, including weather, markets, disease, and development pressure. 2005 water supply plans were based upon continued population growth and development, and corresponding declines in agricultural acreage and water use. We know now that our assumptions regarding development did not hold but it is less clear what has happened to agriculture.	Tammy Bader, SJRWMD & David Hornsby, SJRWMD 9/24/2012	The CFWI Planning Area RWSP Main Team directed the CFWI Planning Area Population and Water Demand Subgroup to only have high level detail contained in Volume I, Chapter 2 of the CFWI Planning Area RWSP. Subgroup proposes to include proposed write-up containing details and comments in the comment matrix which will be included in the Appendix to Chapter 2.	FDACS proposed write-up containing details and comments in the comment matrix which will be included in the Appendix to Chapter 2.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 9/4/2012				
Ray Scott Florida Department of Agriculture and Consumer Services Conservation & Water Policy Federal Programs Coordinator 1-850-617-1716 ray.scott@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	Although 2010 is the initial year in the planning period, the 2010 agricultural water demands (except for the portion of Osceola County with the SJRWMD) are projected from 2005 data. Use of actual 2010 data would likely have produced different projections, but due to the constraints of the CFWI Planning Area schedule it was necessary to use projections from 2005 data. In future updates to this plan actual baseline data should be used to avoid inconsistencies between "baseline" data and other available data. For example, SJRWMD 2010 water use data shows increases in agricultural water supply demand from 2005-2010 for Lake County, but the CFWI Planning Area planning process assumes that Lake County acreage and water demand declined from 2005 to 2010 and continues to decline at the same rate throughout the planning period. Blueberry acreage in the portion of Polk County within SWFWMD is another example. As part of its 2010 regional water supply planning process, the SWFWMD identified 285 acres of blueberries within Polk County for 2005 but subsequently excluded those acres from the plan because there was insufficient data upon which to base projections. 2010 SWFWMD estimated water use data identified 1300 acres of blueberries within Polk County but the CFWI Planning Area plan includes no blueberry acreage for 2010.	Tammy Bader, SJRWMD & David Hornsby, SJRWMD 9/24/2012	The CFWI Planning Area RWSP Main Team directed the CFWI Planning Area Population and Water Demand Subgroup to only have high level detail contained in Volume I, Chapter 2 of the CFWI Planning Area RWSP. Subgroup proposes to include proposed write-up containing details and comments in the comment matrix which will be included in the Appendix to Chapter 2.	FDACS proposed write-up containing details and comments in the comment matrix which will be included in the Appendix to Chapter 2.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 9/4/2012				
Ray Scott Florida Department of Agriculture and Consumer Services Conservation & Water Policy Federal Programs Coordinator 1-850-617-1716 ray.scott@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	The methodologies used to project agricultural water demands do not adequately account for potential expansion of crops or intensification of production. Biofuel feedstocks and blueberries are examples of crops that are relatively new and expected to increase during the planning period. In both cases, there is limited data available for projecting these increases. The biofuel feedstock project that is included in the plan suggests that biofuel feedstock production can significantly increase agricultural water demands in the future. In the case of blueberries, the information discussed above suggests that blueberry production in Polk County increased at a rapid rate from 2005 to 2010 and further increases within the planning period are likely.	Tammy Bader, SJRWMD & David Hornsby, SJRWMD 9/24/2012	The CFWI Planning Area RWSP Main Team directed the CFWI Planning Area Population and Water Demand Subgroup to only have high level detail contained in Volume I, Chapter 2 of the CFWI Planning Area RWSP. Subgroup proposes to include proposed write-up containing details and comments in the comment matrix which will be included in the Appendix to Chapter 2.	FDACS proposed write-up containing details and comments in the comment matrix which will be included in the Appendix to Chapter 2.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 9/4/2012				
Ray Scott Florida Department of Agriculture and Consumer Services Conservation & Water Policy Federal Programs Coordinator 1-850-617-1716 ray.scott@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	Agricultural demand projections in the CFWI Planning Area planning process generally assume that agricultural water use changes in direct proportion to changes in acreage. However, increased agricultural water use can occur when acres remain constant or even decline as a result of more intensive production. Double or triple cropping and converting to more water intensive production are examples of production changes that will result in increased water use per acre irrigated. Proposed changes in production can be obtained from pending water use applications, but these projections only consider currently issued permits due to the uncertainty inherent in a permit application. In addition, the SFWMD projections include no pasture acreage and any future demands associated with conversion of these acres are not included in the CFWI Planning Area planning process.	Tammy Bader, SJRWMD & David Hornsby, SJRWMD 9/24/2012	The CFWI Planning Area RWSP Main Team directed the CFWI Planning Area Population and Water Demand Subgroup to only have high level detail contained in Volume I, Chapter 2 of the CFWI Planning Area RWSP. Subgroup proposes to include proposed write-up containing details and comments in the comment matrix which will be included in the Appendix to Chapter 2.	FDACS proposed write-up containing details and comments in the comment matrix which will be included in the Appendix to Chapter 2.

Table A-21. CFWI Planning Area comments received from stakeholders regarding draft population and demand projections (continued).

From	Comment(s)	Reply From/ Date	Reply Comment	Action Taken
Comment Received 9/21/2012				
Ray Scott Florida Department of Agriculture and Consumer Services Conservation & Water Policy Federal Programs Coordinator 1-850-617-1716 ray.scott@freshfromflorida.com Magnolia Center 1203 Governor Square Blvd., Suite 200 Tallahassee, FL 32301	Below is my suggested rewrite of the two paragraphs from the Limitations/Uncertainties subsection of the subgroup draft. I am also providing a link to the IFAS citation: http://edis.ifas.ufl.edu/ac031. As far as the Stakeholder Review subsection, I have two issues: 1) Providing specifics about stakeholder review (consistent with yesterday's discussion) and 2) Projections for Osceola County were updated because the 2005 agricultural water use for SJRWMD included the entire county and issued permits were not included initially. I am not comfortable characterizing this as "a direct result from comments from stakeholders" without explaining why those changes were made. I will be discussing proposed revisions with Tammy and David on Monday. Page 8 of draft: Although 2010 is the initial year in the planning period, the 2010 agricultural water demands (except for the portion of Osceola County with the SJRWMD) are projected from 2005 data. Use of 2010 data would likely have produced different projections, but due to the constraints of the CFWI Planning Area schedule, it was necessary to use projections from 2005 data. As a result, there are inconsistencies between information included in the plan and more current data that is available. For example, 2010 water use data shows increases in agricultural water use from 2005 to 2010 for some counties in the CFWI Planning Area but this plan projects decreases for those counties in 2010 and throughout the planning period. In addition, the 2010 water use data indicates that some crops, for example blueberries, expanded rapidly from 2005 to 2010, but this expansion is not reflected in the plan. Second Paragraph The methodologies used to project agricultural water demands do not adequately account for crops that are relatively new or are expanding rapidly. Biofuel feedstocks and blueberries are examples of crops that are relatively new and could potentially increase during the planning period, which could result in increased agricultural water demands. The single biofuel feedstock project that is included in the plan suggests that biofuel feedstock production can significantly increase agricultural water demands in the future. Although Central Florida accounts for 35% of the state's blueberry acreage and has been identified as an area with potential for expansion in the future (IFAS, 2012), this plan does not project any increase in blueberry production. In both cases there is limited data upon which to base demand projections.	Tammy Bader, SJRWMD & David Hornsby, SJRWMD 9/24/2012	The CFWI Planning Area RWSP Main Team directed the CFWI Planning Area Population and Water Demand Subgroup to only have high level detail contained in Volume I, Chapter 2 of the CFWI Planning Area RWSP. Subgroup proposes to include proposed write-up containing details and comments in the comment matrix which will be included in the Appendix to Chapter 2.	FDACS proposed write-up containing details and comments in the comment matrix which will be included in the Appendix to Chapter 2.

B

Proposed MFLs for Evaluating Groundwater Availability

ACKNOWLEDGEMENTS

This appendix was produced by the Minimum Flows and Levels and Reservations Team (MFLRT) of the Central Florida Water Initiative (CFWI) through a collaborative effort between government and stakeholder representatives.

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EXECUTIVE SUMMARY

As part of the Central Florida Water Initiative (CFWI) planning effort, the CFWI Minimum Flows and Levels and Reservations Team (MFLRT) was charged with coordinating with other technical teams to develop options to evaluate Minimum Flows and Levels (MFLs) criteria as one of the available tools for assessments of regional groundwater availability. This appendix summarizes MFLRT efforts leading to completion of this task and includes: a recent compliance status assessment for adopted MFLs in and around the CFWI Planning Area; identification of potential MFL constraints and other considerations for use as "measuring sticks" in groundwater availability assessments for the CFWI Planning Area based on application of the East-Central Florida Transient (ECFT) groundwater model; methods used by the MFLRT to assess MFLs constraints and other considerations for scenarios evaluated with the ECFT groundwater model; and results of the ECFT MFL constraints and considerations assessments.

The recent compliance status assessment indicated that within the CFWI Planning Area, adopted MFLs are being met at 36 sites, while MFLs established for 10 sites including seven lakes, one spring, and two river segments, are not being met. Adopted MFLs for 32 water bodies located outside of the CFWI Planning Area, but within the ECFT groundwater model domain are also being met, while MFLs for 10 water bodies (eight lakes, one river segment and one aquifer system) in this area are not being met. Lake, river, or spring sites where MFLs are not being met are clustered in southwest Seminole County, southwest Polk County, and northern Highlands County outside of the CFWI Planning Area. A Saltwater Intrusion Minimum Aquifer Level established for the Most Impacted Area of the Southern Water Use Caution Area (SWUCA) in Hillsborough, Manatee, and Sarasota counties, and which may be influenced by groundwater withdrawals in the CFWI Planning Area, is also included in the set of MFLs that are not being met.

A subset of the existing or currently proposed MFLs sites within the St. Johns River Water Management District (SJRWMD) and Southwest Florida Water Management District (SWFWMD) in the CFWI Planning Area and ECFT groundwater model domain area was identified for development of measuring sticks for potential use in initial assessments of regional groundwater availability. No MFL sites within the South Florida Water Management District (SFWMD) are located within the CFWI Planning Area. Measuring sticks are specific screening-level criteria or metrics used to compare ECFT groundwater model simulations to evaluate the sustainability of traditional groundwater sources while ensuring natural resource protection. The potential measuring sticks were classified as MFL constraints or other considerations based on MFL site locations relative to CFWI Planning Area and ECFT groundwater model domain boundaries and specific resource characteristics. Thirty-six MFL constraints were identified and included MFLs established for 25 lakes/wetlands and six springs within the CFWI Planning Area. Other considerations, including those associated with MFLs, were defined as environmental targets that may be used to support, corroborate, or supplement MFL constraints and other information used for groundwater availability assessments. A total of 37 other considerations was identified, including MFLs proposed, but not yet established, for four lakes with established MFLs within the CFWI Planning Area; MFLs proposed, but not yet established, for three lakes within the CFWI Planning Area; MFLs established for 19 lakes or wetlands and three springs located outside of the CFWI Planning Area within the ECFT groundwater model domain; MFLs established or proposed for five river segments within the CFWI Planning Area or ECFT groundwater model domain; change in Upper Florida aquifer boundary fluxes in the southwestern corner of the ECFT groundwater model domain for evaluation of potential withdrawal effects on a Saltwater Intrusion Minimum Aquifer Level established for the Most Impacted Area of the Southern Water Use Caution Area (SWUCA) within the SWFWMD; and target regulatory water levels in several Upper Floridan aquifer (UFA) wells associated with groundwater levels below the upper Peace River and Lake Wales Ridge lakes where MFLs have been established and are being recovered. A subset of 14 of the other considerations was ultimately used by the GAT for initial groundwater availability assessments for the CFWI Planning Area.

For evaluation of the MFL measuring sticks, the magnitude of drawdown of the potentiometric surface of the UFA in the vicinity of lake, wetland, or spring MFL sites that can occur without causing violation of established MFLs was characterized as the "freeboard" or "remaining freeboard." Freeboard or remaining freeboard was expressed as the potential or allowable drawdown in the UFA, in feet for those lake or wetland MFL sites classified as MFL constraints or other considerations. Similarly, freeboard or remaining freeboard for spring MFL sites was expressed as a flow rate (in cubic feet per second or cfs) and a percentage of the flow associated with the Minimum Flow Regime adopted for MFL springs. Effects associated with drawdown of the potentiometric surface of the UFA on additional MFL-related sites were characterized using metrics other than freeboard or remaining freeboard. For example, UFA drawdown effects were evaluated based on changes in river flows (expressed in cfs) for river segments with established MFLs, changes in water levels relative to target regulatory levels expressed as water surface elevations for wells identified for monitoring recovery of MFLs in the upper Peace River and Lake Wales Ridge areas, and changes in UFA boundary fluxes expressed in million gallons per day (mgd) in the southwestern corner of the ECFT groundwater model domain based on potential effects on a Salt Water Intrusion Minimum Aquifer Level established for the Most Impacted Area of the SWUCA. Detailed descriptions of the methods used for the measuring stick analyses, including color-coding schemes used for presentation of results are included in this appendix.

MFL measuring stick results were developed for five ECFT groundwater model simulations, including the 2005 Reference Condition, and the 2015, 2025, 2035, and End of Permit (EOP) withdrawal scenarios. The 2005 Reference Condition was used to establish "reference" measuring stick values for calculating projected changes in water levels or flows in response to varying levels of future groundwater withdrawals. The 2035 withdrawal scenario was used to evaluate MFL measuring sticks based on projected changes in water level or flows relative to the 2005 Reference Condition for evaluation of the withdrawal related impacts for a twenty-year planning horizon consistent with development of the CFWI regional water supply plan (RWSP). Two intermediate withdrawal scenarios, based on projected 2025 and 2015 water-use demands, were evaluated based on the assumption that impacts associated with the 2035 withdrawal scenario may limit groundwater availability, and if this were the case, it would be necessary to evaluate impacts associated with demands less than those projected for 2035. The EOP withdrawal scenario was used to compare projected changes in water levels and flows to the Reference Condition (2005) for evaluation of withdrawal related impacts for CFWI Planning Area resources based on currently permitted withdrawal quantities.

MFL measuring stick results for all modeled withdrawal scenarios are presented in tabular format and shown spatially in numerous figures in this appendix. Results are summarized in **Tables B-1** and **B-2**.

Table B-1. Summary status of MFL constraints and all other considerations evaluated by the MFLRT for ECFT groundwater model withdrawal scenarios.

MFL Constraints and Other Considerations Status	ECFT Groundwater Model Withdrawal Scenarios				
	Reference Condition (2005) [a]	2015	2025	2035	End of Permit
MFLs Constraints[b]					
Number Met	26	21	19	13	19
Number Not Met	5	10	12	18	12
Other Considerations[c]					
Number Met	35	26	21	18	18
Number Not Met	2	6	11	14	10
Number Not Usable	0	5	5	5	9
Combined MFL Constraints and Other Considerations					
Number Met	61	47	40	31	37
Number Not Met	7	16	23	32	22
Number Not Usable	0	5	5	5	9

Note: MFLs = Minimum Flows and Levels

MFLRT = Minimum Flows and Levels and Reservations Team

ECFT = East Central Florida Transient groundwater model

[a] Reference Condition status for MFL sites in the SJRWMD determined using site-specific surface water models and for MFLs sites in the SWFMWD using ECFT groundwater model output and site-specific surface water models.

[b] Constraints include MFLs established for 25 lakes/wetlands and 6 springs within the CFWI Planning Area.

[c] Other considerations include 37 environmental targets that may be used to support, corroborate, or supplement MFL constraints and other information used for groundwater availability assessments.

Table B-2. Summary status of MFL constraints and other considerations identified for use by the GAT for ECFT groundwater model withdrawal scenarios.

MFL Constraints and Other Considerations Status	ECFT Groundwater Model Withdrawal Scenarios				
	Reference Condition (2005)[a]	2015	2025	2035	End of Permit
MFLs Constraints[b]					
Number Met	26	21	19	13	19
Number Not Met	5	10	12	18	12
Other Considerations[c]					
Number Met	12	9	6	4	5
Number Not Met	2	5	8	10	9
Number Not Usable	0	0	0	0	0
Combined MFL Constraints and Other Considerations					
Number Met	38	30	25	17	24
Number Not Met	7	15	20	28	21
Number Not Usable	0	0	0	0	0

Note: MFLs = Minimum Flows and Levels

GAT = Groundwater Assessment Team

ECFT = East Central Florida Transient groundwater model

[a] Reference Condition status for MFL sites in the SJRWMD determined using site-specific surface water models and for MFLs sites in the SWFMWD using ECFT groundwater model output and site-specific surface water models.

[b] Constraints include MFLs established for 25 lakes/wetlands and 6 springs within the CFWI Planning Area.

[c] Other considerations include 14 environmental targets that may be used to support, corroborate, or supplement MFL constraints and other information used for groundwater availability assessments.

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SECTION 1: INTRODUCTION

As part of the Central Florida Water Initiative (CFWI), the CFWI Minimum Flows and Levels and Reservations Team (the Team) was charged with coordinating with the Environmental Measures Team (EMT) and the Hydrologic Assessment Team (HAT) to develop options to evaluate Minimum Flows and Levels (MFLs) criteria as one of the available tools for assessments of regional groundwater availability. The East-Central Florida Transient (ECFT) groundwater model was used to support completion of the task and to assist the Groundwater Assessment Team (GAT) in determining groundwater availability in the CFWI Planning Area.

This appendix identifies established and planned MFLs within the St. Johns River Water Management District (SJRWMD) and Southwest Florida Water Management District (SWFWMD), including those identified as constraints or other considerations proposed for use as measuring sticks for evaluating groundwater availability in the CFWI Planning Area.

Section 373.042, Florida Statutes (F.S.), requires the Florida Department of Environmental Protection (FDEP) or the water management districts (Districts) to establish minimum flows for surface watercourses and minimum levels for both ground and surface waters that represent the limit or level at which further withdrawals would be significantly harmful to the water resources or ecology of the area. Minimum flows and levels are to be calculated using the best information available. If the existing flow or level of a water body is below, or is projected in 20 years to fall below established MFLs, then Subsection 373.0421(2), F.S., directs the FDEP or the water management districts to expeditiously implement a recovery strategy to restore the system to established MFLs or a prevention strategy to prevent the system from falling below established MFLs.

Rule 62.-40.473 of the Florida Administrative Code (F.A.C.) provides direction regarding the development, expression and implementation of MFLs. Chapters 40C-8, 40D-8, and 40E-8 (F.A.C.), present policy, purpose, and important definitions used in the establishment of MFLs by the SJRWMD, SWFWMD and South Florida Water Management District (SFWMD) and identify all MFLs established by the Districts. Minimum flows and levels are incorporated into district permitting programs as outlined in the basis of review for water use for each district (Chapters 40C-2, 40D-2, and 40E-2, F.A.C), statewide environmental resource permitting rules (Chapter 62-330, F.A.C.) and MFL recovery and prevention strategy rules of the SWFWMD (40D-80, F.A.C.).

Minimum flow and level (MFL) constraints (or constraints) are established MFLs that may be used as measuring sticks for groundwater availability assessments within certain geographic areas in the CFWI Planning Area. Other considerations (or considerations), including those associated with MFLs are defined as environmental targets that may be used to support, corroborate or supplement MFL constraints and other information used for groundwater availability assessments. Measuring sticks are the specific screening-level criteria or metrics that will be used to compare ECFT groundwater model simulations to evaluate the sustainability of traditional groundwater sources while ensuring natural resource protection.

Presently, SJRWMD and SWFWMD have adopted MFLs on thirty-three lakes or wetlands, seven river or creek segments, and six springs within the CFWI Planning Area (**Figure B-1**, **Table B-1**). Twenty-seven water bodies within the SJRWMD or SWFMWD portions of the CFWI Planning Area are currently scheduled for MFLs development or reevaluation. The South Florida Water Management District (SFWMD) has not adopted MFLs for any water bodies within the CFWI Planning Area and does not currently have any scheduled for development. However, other water resource protection measures are expected in the future for the Kissimmee Basin. The SFWMD undertook initial technical work to support establishment of a water reservation for the Kissimmee Chain of Lakes and Kissimmee River in 2008 and completed a draft technical document in 2009. Contingent upon future SFWMD Governing Board approval, rulemaking will be initiated to develop a water reservation rule for 19 lakes and one river system and its associated floodplain in the CFWI Planning Area (**Figure B-1**). These water bodies are shown to provide the reader more complete coverage of existing or proposed water resource protection tools within the CFWI Planning Area.

This appendix describes: adopted and proposed MFLs in and around the CFWI Planning Area and the recent determination of compliance with the adopted MFLs based on existing SJRWMD and SWFWMD assessment approaches (**Section 2**); potential MFL constraints and other considerations for use as "measuring sticks" in groundwater availability assessments in the CFWI Planning Area based on application of the ECFT groundwater model (**Section 3**); methods used by the Team to assess MFL constraints and other considerations for scenarios evaluated with the ECFT groundwater model (**Section 4**); and results of the ECFT MFLs constraints and considerations assessment for the CFWI Planning Area (**Section 5**).

SECTION 2: MINIMUM FLOWS AND LEVELS IN THE CFWI PLANNING AREA AND RECENT COMPLIANCE STATUS

A total of 33 lakes or wetlands, 7 river or creek segments, and 6 springs with adopted MFLs are located inside the CFWI Planning Area (**Figure B-1**, **Table B-3**). One of the river segments, the Upper Hillsborough River (**Table B-3**), is associated with a MFL compliance site located outside of the CFWI Planning Area and the ECFT groundwater model domain, but is included because the upper portion of the river extends into the CFWI Planning Area. Outside of the CFWI Planning Area and inside the active ECFT groundwater model area (see **Figure B-1**), there are 34 additional lakes/wetlands, 4 river or creek segments, and 3 springs with adopted MFLs (**Table B-4**). A single aquifer MFL associated with wells outside of the CFWI Planning Area and ECFT groundwater model domain is included in **Table B-4** based on the potential for groundwater withdrawals in the CFWI Planning Area to lead to violation of this MFL.

There are 27 water bodies within the CFWI Planning Area and 24 water bodies within the active ECFT groundwater model domain that are scheduled for MFLs adoption or reevaluation. Reevaluation involves the review of previously adopted MFLs and, if appropriate, adoption of revised MFLs. Water bodies within the CFWI Planning Area scheduled for MFLs adoption or reevaluation are listed in **Table B-5**. Those outside the CFWI Planning Area and inside the ECFT groundwater model domain that are scheduled for MFLs adoption or reevaluation are identified in **Table B-6**. Proposed MFLs have been developed for some of these water bodies, but have not yet been adopted as District rules.

Recent compliance status of water bodies in the CFWI Planning Area or ECFT groundwater model domain with adopted MFLs is shown in **Figure B-2**, listed in **Tables B-3** and **B-4** and summarized in **Table B-7**. Compliance with MFLs in the SJRWMD was based on long-term surface water modeling of site-specific effects resulting from groundwater withdrawal conditions associated with years ranging from 1996 through 2009. Analysis of water levels in UFA wells integrated into each surface water model showed no declines that would be indicative of increased water withdrawals between the individual model years and 2005. Therefore, recent compliance for MFLs within the SJRWMD represents 2005 conditions. Compliance for MFLs sites within the SWFWMD was determined using information that reflected site-specific hydrologic conditions, including withdrawal conditions, through 2011. The use of differing periods for assessment of recent MFLs compliance status in the SJRWMD and SWFWMD was based on application of unique evaluation requirements associated with MFLs that were developed independently by each district with different MFLs methods.

The recent compliance status assessment indicated that within the CFWI Planning Area, adopted MFLs are being met at 36 sites, while MFLs established for 10 sites including 7 lakes, 1 spring, and 2 river segments, are not being met (**Figure B-2**, **Table B-7**). Adopted MFLs for 32 water bodies located outside of the CFWI Planning Area, but within the ECFT groundwater model domain are also being met, while MFLs for 10 water bodies (8 lakes, 1 river segment and 1 aquifer system) in this area are not being met. Lake, river, or spring sites where MFLs are not being met are clustered in southwest Seminole County, southwest Polk County, and northern Highlands County (outside of the CFWI Planning Area; **Figure B-2**). A Saltwater Intrusion Minimum Aquifer Level (SWIMAL) established for the Most Impacted Area of the Southern Water Use Caution Area (SWUCA) in Hillsborough, Manatee, and Sarasota counties, and which may be influenced by groundwater withdrawals in the CFWI Planning Area, is also included in the set of MFLs that are not being met.

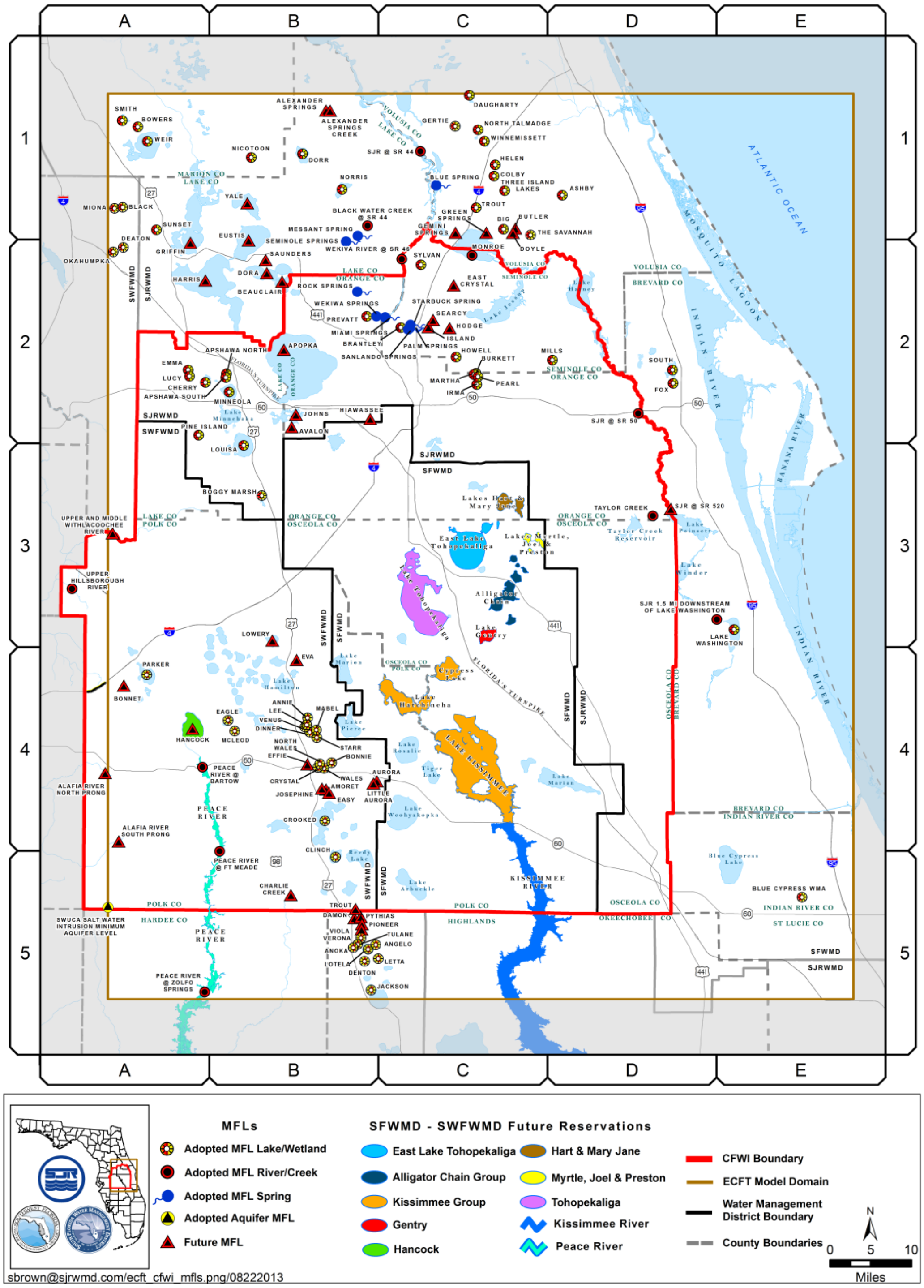


Figure B-1. Adopted and proposed MFLs and future water reservations in the CFWI Planning Area and the ECFT groundwater model domain area. (Proposed MFLs are subject to change; this figure represents proposed MFLs at the time of evaluation.)

Table B-3. Summary information on adopted MFLs inside the CFWI Planning Area.

Map Grid[d]	Water Body Name	County	Water Management District	Year Adopted [a]	Recent MFLs Status
Lakes and Wetlands					
B-3	Boggy Marsh	Lake	SJRWMD	2001	Met
A-2	Cherry Lake	Lake	SJRWMD	2002	Met
B-4	Crooked Lake	Polk	SWFWMD	2008	Not Met
B-4	Crystal Lake	Polk	SWFWMD	2011	Met
B-4	Dinner Lake	Polk	SWFWMD	2008	Met
B-4	Eagle Lake	Polk	SWFWMD	2007	Not Met
B-4	Lake Annie	Polk	SWFWMD	2008	Met
B-4	Lake Bonnie	Polk	SWFWMD	2008	Not Met
C-2	Lake Brantley	Orange	SJRWMD	2001	Met
C-2	Lake Burkett	Orange	SJRWMD	2002	Met
B-5	Lake Clinch	Polk	SWFWMD	2007	Met
A-2	Lake Emma	Lake	SJRWMD	2003	Met
C-2	Lake Howell	Seminole	SJRWMD	2001	Met
C-2	Lake Irma	Orange	SJRWMD	2002	Met
B-4	Lake Lee	Polk	SWFWMD	2008	Met
B-2	Lake Louisa	Lake	SJRWMD	2000	Met
A-2	Lake Lucy	Lake	SJRWMD	2003	Met
C-2	Lake Martha	Orange	SJRWMD	2001	Met
B-2	Lake Minneola	Lake	SJRWMD	2002	Met
B-4	Lake Mabel	Polk	SWFWMD	2008	Met
B-4	Lake McLeod	Polk	SWFWMD	2007	Not Met
A-4	Lake Parker	Polk	SWFWMD	2006	Met
C-2	Lake Pearl	Orange	SJRWMD	2002	Met
B-4	Lake Starr	Polk	SWFWMD	2008	Not Met
B-4	Lake Wailes	Polk	SWFWMD	2007	Not Met
D-2	Mills Lake	Seminole	SJRWMD	1998	Met
B-2	North Lake Apshawa	Lake	SJRWMD	2002	Met
B-4	North Lake Wales	Polk	SWFWMD	2011	Not Met
A-2	Pine Island Lake	Lake	SJRWMD	2001	Met
B-2	Prevatt Lake	Orange	SJRWMD	1998	Met
B-2	South Lake Apshawa	Lake	SJRWMD	2002	Met
C-2	Sylvan Lake	Seminole	SJRWMD	1998	Met
B-4	Venus Lake	Polk	SWFWMD	2008	Met

Table B-3 Summary information on adopted MFLs inside the CFWI Planning Area (continued).

Map Grid[d]	Water Body Name	County	Water Management District	Year Adopted [a]	Recent MFLs Status
Rivers and Creeks					
C-2	Lake Monroe	Volusia/ Seminole	SJRWMD	2007	Met
A-4	Peace River at Bartow	Polk	SWFWMD	2007	Not Met
B-5	Peace River at Ft. Meade	Polk	SWFWMD	2007	Not Met
D-2	St. Johns River at State Road 50 (near Christmas)	Brevard/ Orange	SJRWMD	2007	Met
D-3	Taylor Creek	Osceola/ Orange	SJRWMD	2000	Met
A-3	Upper Hillsborough River [b]	Hillsborough/ Polk	SWFWMD	2008	Met
B-1	Wekiva River at State Road 46	Lake/Seminole	SJRWMD	1992	Met
Springs					
C-2	Miami Springs [c]	Seminole	SJRWMD	1992	Met
C-2	Palm Springs [c]	Lake	SJRWMD	1992	Not Met
B-2	Rock Springs [c]	Orange	SJRWMD	1992	Met
C-2	Sanlando Springs [c]	Seminole	SJRWMD	1992	Met
C-2	Starbuck Spring [c]	Seminole	SJRWMD	1992	Met
B-2	Wekiwa Springs [c]	Orange	SJRWMD	1992	Met

[a] Date listed is effective date for the MFLs rule; in some cases adoption may have occurred in the preceding year.

[b] Gage site associated with adopted MFLs for this segment of the Hillsborough River is outside of the CFWI Planning Area and ECFT groundwater model domain; the river extends into the CFWI Planning Area, but not the ECFT groundwater model domain.

[c] Although minimum spring flows were set primarily to cumulatively maintain minimum flows in the Wekiva River System, the assumption was also made that these flows would be sufficient to protect the ecology of individual springs.

[d] CFWI Planning Area sites are located in **Figures B-1** and **B-2**; map grid refers to **Figure B-1**.

Table B-4. Summary information on adopted MFLs outside the CFWI Planning Area and inside the ECFT groundwater model domain.

Map Grid[c]	Water Body Name	County	Water Management District	Year Adopted [a]	Recent MFLs Status
Lakes and Wetlands					
C-1	Big Lake	Volusia	SJRWMD	2000	Met
A-1	Black Lake	Sumter	SWFWMD	2007	Met
E-5	Blue Cypress WMA	Indian River	SJRWMD	1995	Met
A-1	Bowers Lake	Marion	SJRWMD	2004	Met
D-2	Fox Lake	Brevard	SJRWMD	2002	Met
B-5	Lake Angelo	Highlands	SWFWMD	2008	Not Met
B-5	Lake Anoka	Highlands	SWFWMD	2009	Not Met
D-1	Lake Ashby	Volusia	SJRWMD	2010	Met
C-1	Lake Colby	Volusia	SJRWMD	2010	Met
C-1	Lake Daugharty	Volusia	SJRWMD	2010	Met
A-1	Lake Deaton	Sumter	SWFWMD	2007	Met
B-5	Lake Denton	Highlands	SWFWMD	2008	Not Met
B-1	Lake Dorr	Lake	SJRWMD	1996	Met
C-1	Lake Gertie	Volusia	SJRWMD	2000	Met
C-1	Lake Helen	Volusia	SJRWMD	1996	Met
B-5	Lake Jackson	Highlands	SWFWMD	2007	Not Met
B-5	Lake Letta	Highlands	SWFWMD	2007	Not Met
B-5	Lake Lotela	Highlands	SWFWMD	2007	Not Met
A-1	Lake Miona	Sumter	SWFWMD	2007	Met
B-1	Lake Norris	Lake	SJRWMD	1996	Met
A-1	Lake Okahumpka	Sumter	SWFWMD	2007	Met
B-5	Lake Tulane	Highlands	SWFWMD	2008	Not Met
B-5	Lake Verona	Highlands	SWFWMD	2008	Not Met
E-3	Lake Washington	Brevard	SJRWMD	2000	Met
A-1	Lake Weir	Marion	SJRWMD	2000	Met
C-1	Lake Winnemissett	Volusia	SJRWMD	1996	Met
B-1	Nicotoon Lake	Marion	SJRWMD	2004	Met
C-1	North Lake Talmadge	Volusia	SJRWMD	1999	Met
A-1	Smith Lake	Marion	SJRWMD	2004	Met
D-2	South Lake	Brevard	SJRWMD	2002	Met
A-1	Sunset Lake	Lake	SJRWMD	2010	Met
C-1	The Savannah	Volusia	SJRWMD	2003	Met
C-1	Three Island Lakes	Volusia	SJRWMD	2010	Met
C-1	Trout Lake	Volusia	SJRWMD	2000	Met

Table B-4. Summary information on adopted MFLs outside the CFWI Planning Area and inside the ECFT groundwater model domain (continued).

Map Grid[c]	Water Body Name	County	Water Management District	Year Adopted [a]	Recent MFLs Status
Rivers and Creeks					
B-1	Black Water Creek at State Road 44	Lake	SJRWMD	1992	Met
A-5	Peace River at Zolfo Springs	Polk/Hardee	SWFWMD	2007	Not Met
E-3	St. Johns River 1.5 miles downstream of Lake Washington Weir	Brevard	SJRWMD	2000	Met
C-2	St. Johns River at State Road 44 (near Deland)	Volusia	SJRWMD	2004	Met
Springs					
C-1	Blue Spring	Volusia	SJRWMD	2006	Met
B-1	Messant Spring	Lake	SJRWMD	1992	Met
B-1	Seminole Springs	Lake	SJRWMD	1992	Met
Aquifers					
A-5	SWUCA Salt Water Intrusion Minimum Aquifer Level [b]	Polk	SWFWMD	2007	Not Met

[a] Date listed is effective date for the MFLs rule; in some cases adoption may have occurred in the preceding year.

[b] Well sites associated with the adopted SWUCA (Southern Water Use Caution Area) Salt Water Intrusion Minimum Aquifer Level are outside of the CFWI Planning Area and ECFT groundwater model domain, but groundwater withdrawals within both the CFWI Planning Area and the ECFT groundwater model domain may affect water levels in the wells.

[c] CFWI Planning Area sites are located in **Figures B-1** and **B-2**; map grid refers to **Figure B-1**.

Table B-5. Water bodies inside the CFWI Planning Area scheduled for MFLs adoption.

Map Grid[b]	Water Body Name	County	Water Management District
Lakes and Wetlands			
C-2	East Crystal Lake	Seminole	SJRWMD
C-2	Island Lake	Seminole	SJRWMD
B-2	Johns Lake [a]	Orange	SJRWMD
B-4	Lake Amoret	Polk	SWFWMD
B-2	Lake Apopka	Lake/Orange	SJRWMD
B-4	Lake Aurora	Polk	SWFWMD
B-2	Lake Avalon [a]	Lake	SJRWMD
A-4	Lake Bonnet	Polk	SWFWMD
B-4	Lake Easy	Polk	SWFWMD
B-4	Lake Effie	Polk	SWFWMD
B-4	Lake Eva	Polk	SWFWMD
A-4	Lake Hancock [a]	Polk	SWFWMD
B-2	Lake Hiawassee [a]	Orange	SJRWMD
C-2	Lake Hodge	Seminole	SJRWMD
B-4	Lake Josephine	Polk	SWFWMD
B-3	Lake Lowery	Polk	SWFWMD
C-2	Lake Searcy	Seminole	SJRWMD
B-4	Little Aurora Lake	Polk	SWFWMD
B-2	North Lake Apshawa [a]	Lake	SJRWMD
B-2	Prevatt Lake [a]	Orange	SJRWMD
B-2	South Lake Apshawa [a]	Lake	SJRWMD
C-2	Sylvan Lake [a]	Seminole	SJRWMD
B-5	Trout Lake	Polk/Highlands	SWFWMD
Rivers and Creeks			
B-5	Charlie Creek	Polk/Hardee	SWFWMD
A-4	Peace River at Bartow	Polk	SWFWMD
B-5	Peace River at Ft. Meade	Polk	SWFWMD
D-3	St. Johns River at State Road 520 Lake Poinsett [a]	Brevard/Orange	SJRWMD
B-1	Wekiva River at State Road 46	Lake/Seminole	SJRWMD

[a] Proposed MFLs have been developed.

[b] Map grid refers to **Figure B-1**.

Table B-6. Water bodies outside the CFWI Planning Area and inside the ECFT groundwater model domain scheduled for MFLs adoption.

Map Grid[c]	Water Body Name	County	Water Management District
Lakes			
D-2	Fox Lake	Brevard	SJRWMD
B-2	Lake Beauclair	Lake	SJRWMD
C-1	Lake Butler	Volusia	SJRWMD
B-5	Lake Damon	Highlands	SWFWMD
B-2	Lake Dora	Lake	SJRWMD
C-1	Lake Doyle	Volusia	SJRWMD
B-1	Lake Eustis	Lake	SJRWMD
A-1	Lake Griffin	Lake	SJRWMD
B-2	Lake Harris	Lake	SJRWMD
B-1	Lake Norris	Lake	SJRWMD
B-5	Lake Pythias	Highlands	SWFWMD
B-2	Lake Saunders	Lake	SJRWMD
B-5	Lake Viola	Highlands	SWFWMD
B-1	Lake Yale	Lake	SJRWMD
B-5	Pioneer Lake	Highlands	SWFWMD
D-2	South Lake	Brevard	SJRWMD
Rivers and Creeks			
A-4	Alafia River North Prong [a]	Polk/Hillsborough	SWFWMD
A-5	Alafia River South Prong [a]	Polk/Hillsborough	SWFWMD
B-1	Alexander Springs Creek	Lake	SJRWMD
A-5	Peace River at Zolfo Springs	Polk/Hardee	SWFWMD
A-3	Upper and Middle Withlacoochee River (Green Swamp) [b]	Polk/Lake/Hillsborough	SWFWMD
Springs			
B-1	Alexander Springs	Lake	SJRWMD
C-1	Gemini Springs	Volusia	SJRWMD
C-1	Green Springs	Volusia	SJRWMD

[a] Gage sites associated with MFLs that will be developed for the Alafia River North Prong and South Prong are outside of the CFWI Planning Area and ECFT groundwater model domain; the river segment extends into the CFWI Planning Area.

[b] Proposed MFLs have been developed; gage sites associated with proposed MFLs for the Upper and Middle Withlacoochee River are outside of the CFWI Planning Area and ECFT groundwater model domain although the river extends into both.

[c] Map grid refers to **Figure B-1**.

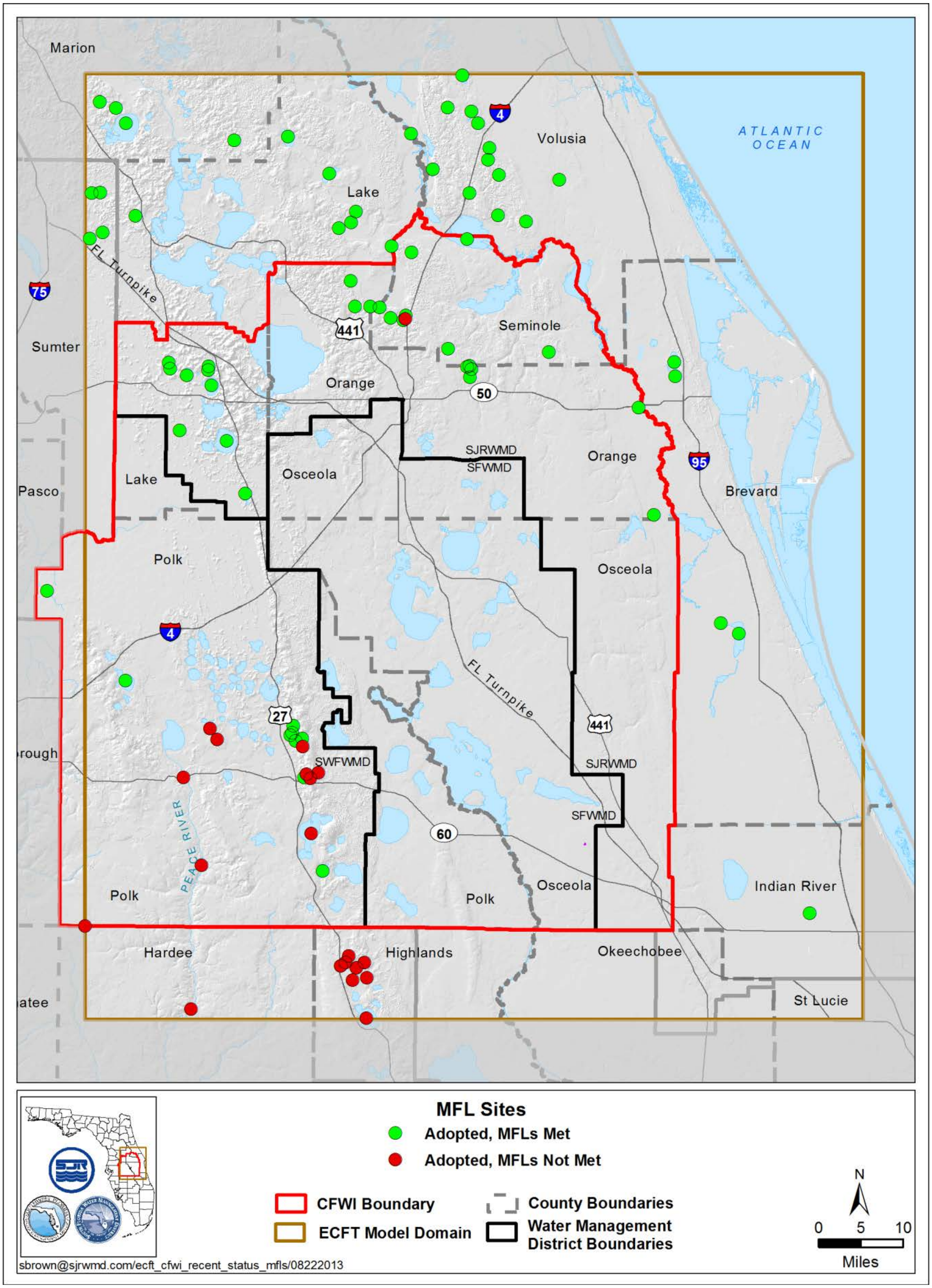


Figure B-2. Recent status of MFLs compliance in the CFWI Planning Area and ECFT groundwater model domain area.

Table B-7. Recent status summary of adopted MFLs compliance in the CFWI Planning Area and ECFT groundwater model domain areas.

Area	MFLs Met	MFLs Not Met
Within the CFWI Planning Area	36	10
Within the ECFT groundwater model domain, outside the CFWI Planning Area	32	10
Combined areas	68	20

SECTION 3: IDENTIFICATION OF MFL CONSTRAINTS AND CONSIDERATIONS USED AS MEASURING STICKS FOR CFWI PLANNING AREA GROUNDWATER AVAILABILITY ASSESSMENTS

A subset of the existing or currently proposed MFL sites in the CFWI Planning Area and ECFT groundwater model domain areas was identified for development of measuring sticks to potentially be used for initial evaluations of regional groundwater availability in the CFWI Planning Area (**Table B-8**). The potential measuring sticks were classified as MFL constraints or other considerations based on MFLs site location relative to CFWI Planning Area and ECFT groundwater model domain boundaries and the type of resource characteristic, as outlined below.

A total of 31 MFL constraints was identified by the MFLRT, including:

- MFLs established for 25 lakes/wetlands within the CFWI Planning Area.
- MFLs established for six springs within the CFWI Planning Area.

A total of 37 potential other considerations was identified by the MFLRT, including:

- MFLs proposed, but not yet established for four lakes with established MFLs within the CFWI Planning Area (reevaluation MFLs).
- MFLs proposed, but not yet established for three lakes within the CFWI Planning Area.
- MFLs established for four river segments within the CFWI Planning Area or ECFT groundwater model domain.
- MFLs proposed for one river segment within the CFWI Planning Area.
- Change in UFA boundary fluxes in the southwestern corner of the ECFT groundwater model domain for evaluation of potential withdrawal effects on a Saltwater Intrusion Minimum Aquifer Level (SWIMAL) established for the Most Impacted Area of the Southern Water Use Caution Area (SWUCA) within the SWFMWD.
- A target regulatory water level in several Upper Floridan aquifer (UFA) wells associated with ground water levels below the upper Peace River where MFLs have been established and are being recovered.
- A target regulatory water level in several UFA wells associated with ground water levels below Lake Wales Ridge Lakes where MFLs have been established and are being recovered.
- MFLs established for 19 lakes or wetlands located outside of the CFWI Planning Area and within the ECFT groundwater model domain.

- MFLs established for three springs located outside of the CFWI Planning Area and within the ECFT groundwater model domain.

The magnitude of drawdown of the potentiometric surface of the UFA in the vicinity of lake, wetland or spring MFLs sites that can occur without causing violation of established MFLs is referred to in this appendix as the "freeboard" or "remaining freeboard." Freeboard or remaining freeboard is expressed as the potential or allowable drawdown in the UFA, in feet, for lake or wetland MFL sites classified as MFL constraints or other considerations. Similarly, freeboard or remaining freeboard for spring MFL sites is expressed as a flow rate (in cubic feet per second or cfs) and percentage of the flow rate associated with the Minimum Flow Regime adopted for MFL springs.

Effects associated with drawdown of the potentiometric surface of the UFA on other MFLs-related sites may be characterized using metrics other than freeboard or remaining freeboard. For example, UFA drawdown effects may be characterized based on changes in river flows (expressed in cfs) for river segments with established MFLs, changes in water levels relative to target regulatory levels expressed as water surface elevations for wells identified for monitoring recovery of MFLs in the upper Peace River and Lake Wales Ridge areas, and change in UFA boundary fluxes expressed in million gallons per day (mgd) in the southwestern corner of the ECFT groundwater model domain based on potential effects on a SWIMAL established for the Most Impacted Area of the SWUCA.

As part of the initial groundwater availability assessment process for the CFWI Planning Area, the GAT determined that it would use the 31 MFL constraints and a subset of the other considerations identified by the Team (see **Table B-8**). The subset of other considerations identified for use by the GAT included:

- MFLs proposed, but not yet established for four lakes with established MFLs within the CFWI Planning Area (reevaluation MFLs).
- MFLs proposed, but not yet established for three lakes within the CFWI Planning Area.
- MFLs established or proposed for four river segments within the CFWI Planning Area
- Change in UFA boundary fluxes in the southwestern corner of the ECFT groundwater model domain for evaluation of potential withdrawal effects on a SWIMAL established for the Most Impacted Area of the SWUCA within the SWFMWD.
- A target regulatory water level in several UFA wells associated with ground water levels below the upper Peace River where MFLs have been established and are being recovered.
- A target regulatory water level in several UFA wells associated with ground water levels below Lake Wales Ridge Lakes where MFLs have been established and are being recovered.

Table B-8. MFL constraints and other considerations identified as potential measuring sticks for initial evaluations of regional groundwater availability in the CFWI Planning Area, including those evaluated by the GAT.

Map Grid[f]	Water Body / Site Name	County	Water Management District	Evaluated by the GAT
MFL Constraints				
Adopted Lake and Wetland MFLs within the CFWI Planning Area				
B-3	Boggy Marsh	Lake	SJRWMD	Yes
A-2	Cherry Lake	Lake	SJRWMD	Yes
B-4	Crooked Lake	Polk	SWFWMD	Yes
B-4	Eagle Lake	Polk	SWFWMD	Yes
B-4	Lake Annie	Polk	SWFWMD	Yes
C-2	Lake Brantley	Orange	SJRWMD	Yes
C-2	Lake Burkett	Orange	SJRWMD	Yes
B-5	Lake Clinch	Polk	SWFWMD	Yes
A-2	Lake Emma	Lake	SJRWMD	Yes
C-2	Lake Howell	Seminole	SJRWMD	Yes
C-2	Lake Irma	Orange	SJRWMD	Yes
B-2	Lake Louisa	Lake	SJRWMD	Yes
A-2	Lake Lucy	Lake	SJRWMD	Yes
C-2	Lake Martha	Orange	SJRWMD	Yes
B-2	Lake Minneola	Lake	SJRWMD	Yes
A-4	Lake Parker	Polk	SWFWMD	Yes
C-2	Lake Pearl	Orange	SJRWMD	Yes
B-4	Lake Starr	Polk	SWFWMD	Yes
B-4	Lake Wailes	Polk	SWFWMD	Yes
D-2	Mills Lake	Seminole	SJRWMD	Yes
B-2	North Lake Apshawa [a]	Lake	SJRWMD	Yes
A-2	Pine Island Lake	Lake	SJRWMD	Yes
B-2	Prevatt Lake [a]	Orange	SJRWMD	Yes
B-2	South Lake Apshawa [a]	Lake	SJRWMD	Yes
C-2	Sylvan Lake [a]	Seminole	SJRWMD	Yes

Table B-8. MFL constraints and other considerations identified as potential measuring sticks for initial evaluations of regional groundwater availability in the CFWI Planning Area, including those evaluated by the GAT (continued).

Map Grid[f]	Water Body / Site Name	County	Water Management District	Evaluated by the GAT
MFL Constraints (continued)				
Adopted Spring MFLs within the CFWI Planning Area				
C-2	Palm Springs	Lake	SJRWMD	Yes
C-2	Miami Springs	Seminole	SJRWMD	Yes
B-2	Rock Springs	Orange	SJRWMD	Yes
C-2	Sanlando Springs	Seminole	SJRWMD	Yes
C-2	Starbuck Spring	Seminole	SJRWMD	Yes
B-2	Wekiwa Springs	Orange	SJRWMD	Yes
Other Considerations				
Proposed, Revised Lake MFLs within the CFWI Planning Area (Reevaluation MFLs)				
B-2	North Lake Apshawa	Lake	SJRWMD	Yes
B-2	Prevatt Lake	Orange	SJRWMD	Yes
B-2	South Lake Apshawa	Lake	SJRWMD	Yes
C-2	Sylvan Lake	Seminole	SJRWMD	Yes
Proposed Lake MFLs within the CFWI Planning Area				
B-2	Johns Lake	Orange	SJRWMD	Yes
B-2	Lake Avalon	Orange	SJRWMD	Yes
B-2	Lake Hiawassee	Orange	SJRWMD	Yes
Adopted River MFLs				
A-4	Peace River at Bartow [a b]	Polk	SWFWMD	Yes
B-5	Peace River at Ft. Meade [a b]	Polk	SWFWMD	Yes
A-5	Peace River at Zolfo Springs [a b]	Hardee	SWFWMD	Yes
C-2	St. Johns River at State Road 44 (near Deland)	Volusia	SJRWMD	No
B-1	Wekiva River at State Road 46	Lake/Seminole	SJRWMD	Yes
A-3	Upper Hillsborough River [c]	Hillsborough/Polk	SWFWMD	Yes
Proposed River MFLs				
A-3	Upper and Middle Withlacoochee River (Green Swamp) [d]	Polk/Lake/Hillsborough	SWFWMD	Yes
Adopted Aquifer MFLs and Regulatory Wells				
A-5	SWUCA Salt Water Intrusion Minimum Aquifer Level [e]	Polk	SWFWMD	Yes
na	Upper Peace River Wells	Polk	SWFWMD	Yes
na	Lake Wales Ridge Wells	Polk/Hardee	SWFWMD	Yes

Table B-8. MFL constraints and other considerations identified as potential measuring sticks for initial evaluations of regional groundwater availability in the CFWI Planning Area, including those evaluated by the GAT (continued).

Map Grid[f]	Water Body / Site Name	County	Water Management District	Evaluated by the GAT
Other Considerations (continued)				
Adopted Lake and Wetland MFLs Outside of the CFWI Planning Area and Within the ECFT Groundwater Model Domain				
C-1	Big Lake	Volusia	SJRWMD	No
E-5	Blue Cypress WMA	Indian River	SJRWMD	No
A-1	Bowers Lake	Marion	SJRWMD	No
D-2	Fox Lake	Brevard	SJRWMD	No
D-1	Lake Ashby	Volusia	SJRWMD	No
C-1	Lake Colby	Volusia	SJRWMD	No
C-1	Lake Daugharty	Volusia	SJRWMD	No
B-1	Lake Dorr	Lake	SJRWMD	No
C-1	Lake Helen	Volusia	SJRWMD	No
B-1	Lake Norris	Lake	SJRWMD	No
E-3	Lake Washington	Brevard	SJRWMD	No
A-1	Lake Weir	Marion	SJRWMD	No
C-1	Lake Winnemissett	Volusia	SJRWMD	No
B-1	Nicotoon Lake	Marion	SJRWMD	No
C-1	North Lake Talmadge	Volusia	SJRWMD	No
A-1	Smith Lake	Marion	SJRWMD	No
D-2	South Lake	Brevard	SJRWMD	No
C-1	The Savannah	Volusia	SJRWMD	No
C-1	Three Island Lakes	Volusia	SJRWMD	No
Adopted Spring MFLs Outside of the CFWI Planning Area and Within the ECFT Groundwater Model Domain				
C-1	Blue Spring	Volusia	SJRWMD	No
B-1	Messant Spring	Lake	SJRWMD	No
B-1	Seminole Springs	Lake	SJRWMD	No

[a] Adopted MFLs scheduled for reevaluation.

[b] MFLs established for three segments of the Peace River were grouped as a single other consideration.

[c] Gage site associated with adopted MFLs for the Upper Hillsborough River is outside of the CFWI Planning Area and ECFT groundwater model domain; the river segment extends into the CFWI Planning Area, but not the ECFT groundwater model domain.

[d] Gage site associated with proposed MFLs for the Upper and Middle segments of the Withlacoochee River are outside of the CFWI Planning Area and ECFT groundwater model domain; the river extends into both.

[e] Well sites associated with the adopted SWUCA (Southern Water Use Caution Area) Salt Water Intrusion Minimum Aquifer Level are outside of the CFWI Planning Area and ECFT groundwater model domain, but groundwater withdrawals within both the CFWI Planning Area and the ECFT groundwater model domain may affect water levels in the wells.

[f] Map grid refers to **Figure B-1.**

na Wells not identified in **Figure B-1**.

GAT = CFWI Groundwater Assessment Team

SECTION 4: METHODS FOR FREEBOARD DETERMINATIONS AND OTHER METRICS ASSOCIATED WITH MFLS CONSTRAINTS AND OTHER CONSIDERATIONS

The principal analysis tool used to quantify the potential impacts from groundwater withdrawals on natural systems in both the SJRWMD and SWFWMD portions of the CFWI Planning Area was the ECFT groundwater model. Based on ECFT-predicted changes in UFA water levels, spring flows, or groundwater fluxes, a variety of methods were used for freeboard determinations and other metrics associated with the existing and proposed MFLs and MFLs-related constraints and considerations described in Section 3 of this appendix. Different methods were used based on differences in water body types (e.g., lakes vs. springs) and based on unique evaluation requirements associated with MFLs that were established independently by the SJRWMD and SWFWMD with differing MFL development methods.

Methods Associated with MFLs in the SJRWMD

In the discussion that follows, two versions of the ECFT groundwater model are referenced. A version of the model developed by the SFWMD was used in the development of the methods. This version is referred to as the ECFT(sf).

Lakes/Wetlands in the SJRWMD

For MFLs analyses, SJRWMD integrates the results from water budget models of the watersheds for individual MFLs lakes or wetlands with results from regional groundwater flow models. Potentiometric surface changes in the UFA projected by the groundwater models are applied to historical well hydrographs that are a part of each of the surface water models. Until the development of the ECFT groundwater model, SJRWMD used the ECF steady-state regional groundwater models to estimate changes in the potentiometric surface in the Central Florida area. These changes were applied uniformly to the historical well hydrographs. The adjusted well hydrographs were then used in the surface water models to determine MFLs compliance of any projected potentiometric surface level declines.

Use of the ECFT groundwater model necessitated a new method for determining projected potentiometric surface changes resulting from changes of groundwater withdrawals. In principle, results from the ECFT could be used directly with the surface water model because the ECFT produces a time-varying potentiometric surface hydrograph. In practice, however, this was not done for two reasons. First, the SJRWMD MFLs method requires long-term simulations covering 30 or more years. Currently, the ECFT groundwater model simulates only a 12-year period of record. Second, as with all large-scale models, the ECFT has model errors that vary from location to location. This point is illustrated by examining model calibration results at the locations of two Floridan aquifer wells, O-0047 at Orlo Vista and S-0125 near Longwood (see **Figures B-3** and **B-4**, respectively). Direct use of the ECFT hydrographs would impose similar errors on MFLs compliance determinations.

Because withdrawals for the monthly time-steps of the various scenarios of the ECFT groundwater model change as a function of monthly changes of rainfall between 1995 and 2006, we would expect potentiometric surface level declines to be greater during dry times and lesser during wet times. To investigate the possibility of a function between potentiometric surface levels and changes we examined the simulated potentiometric surface hydrographs at the location of Prevatt Lake, Orange County. The ECFT(sf) was used to produce potentiometric surface level hydrographs for two pumping scenarios: 1995 pumping and 2006 pumping (see **Figure B-5**). The potentiometric surface level changes for each month were calculated by subtracting the potentiometric surface level for the 2006 pumping scenario from the corresponding level for the 1995 pumping scenario (see **Figure B-6**).

A plot of monthly potentiometric surface level decline versus 1995 pumping potentiometric surface level shows that there is indeed a function that indicates greater declines for lower potentiometric surface levels and vice-versa (see **Figure B-7**). This function cannot be used to adjust the historical well levels included in the surface water models because, as noted previously, there are location-varying errors in the model (see **Figures B-3** and **B-4**). However, by subtracting the median potentiometric surface from each value of the 1995 pumping hydrograph, the range of fluctuation of the potentiometric surface level hydrograph and the identical decline function are preserved (see **Figure B-8**). [Although not strictly correct, the term "normalized" is used to describe this process applied to the potentiometric surface level hydrograph.] To adjust the historical potentiometric surface used in the Prevatt Lake surface water model for declines, the median of the historical well hydrograph was determined. Then each daily value of the hydrograph was normalized to that median by subtracting the median from it. Finally, the decline for each day was determined by using the function described above (see **Table B-9**).

The historical well hydrograph adjusted for withdrawal-related declines was incorporated into the surface water model and a long-term simulation performed. The long-term hydrology of the modeled scenario was analyzed for specific events and MFLs compliance was determined (see **Figures B-9** and **B-10**). To determine the UFA decline freeboard, a trial-and-error process was performed. The drawdown function was multiplied by a scaling factor depending upon whether the last simulation lay above or below the MFLs. When the MFLs are just being met, the median of the resulting drawdowns was calculated. This median of the drawdowns constitutes the UFA decline freeboard for this particular MFLs lake. This process was implemented for each of the MFL lakes/wetlands in the CFWI Planning Area.

Water-withdrawal conditions for 2005 have been designated as the Reference Condition for CFWI Planning Area analyses. The Reference Condition scenario was developed by the HAT as a means to establish "reference" water levels for calculating projected changes in water levels in response to varying levels of groundwater withdrawals. Results of different withdrawal scenarios are compared to this model run to estimate projected changes due to changes in withdrawals. The goal for developing the Reference Condition scenario was to estimate the response of the hydrologic system to groundwater withdrawals needed to meet 2005 water demands under the climatic conditions which occurred during the 12-year simulation period (i.e., rainfall for the period 1995 through 2006). Withdrawal amounts vary from year to year based on climate but, the demands serviced using groundwater, such as the number of people and agricultural acreage, remain constant throughout the simulation period.

It should be noted that the Reference Condition is not intended to be used in isolation for gauging water resource conditions. Rather, it is expected to yield a common modeled result that can be compared with results from other ECFT groundwater modeling scenarios. Also, it should be noted that the Team has evaluated water resource conditions that correspond to the period of the Reference Condition that resulted in positive and negative determinations of water resource condition (i.e., positive and negative freeboard values). The results of comparisons of the model results for MFLs sites combined with other evaluations by the Team, the EMT and the HAT will be used by the GAT to assess the condition of CFWI Planning Area water resources and the availability of groundwater for various ECFT-model scenarios.

For SJRWMD systems, each MFLs lake/wetland model was brought to Reference Condition. The CFWI Planning Area MFLs analysis thus became a matter of calculating UFA potentiometric surface level drawdowns between 2005 and some future withdrawal scenario (end-of permit, 2030, etc.). The median of monthly drawdowns was compared to potentiometric surface level decline freeboard values to determine MFLs status.

The remaining UFA freeboard values at all MFL lakes/wetlands within the CFWI Planning Area (and potentially within the entire ECFT groundwater model domain) were provided to the GAT for groundwater availability assessments. The lake/wetland remaining freeboard values were classified as MFL constraints for sites within the CFWI Planning Area and as other considerations for sites outside the CFWI Planning Area but within the ECFT groundwater model domain. The remaining freeboard values for each groundwater availability simulation were determined as follows:

- A Reference Condition UFA potentiometric surface hydrograph for a given MFLs lake was obtained for the grid cell containing a representative point (typically an approximate centroid) for that lake
- A similar hydrograph was developed for each ECFT groundwater model simulation (i.e., withdrawal) scenario.
- Monthly drawdowns were determined by subtracting the scenario monthly level from the corresponding month in the reference hydrograph.
- A median monthly drawdown was calculated for the scenario in question.
- The remaining freeboard was calculated by subtracting the median drawdown from the freeboard for each MFLs lake.

- Based on its magnitude, the remaining freeboard was color coded to support groundwater availability assessments.

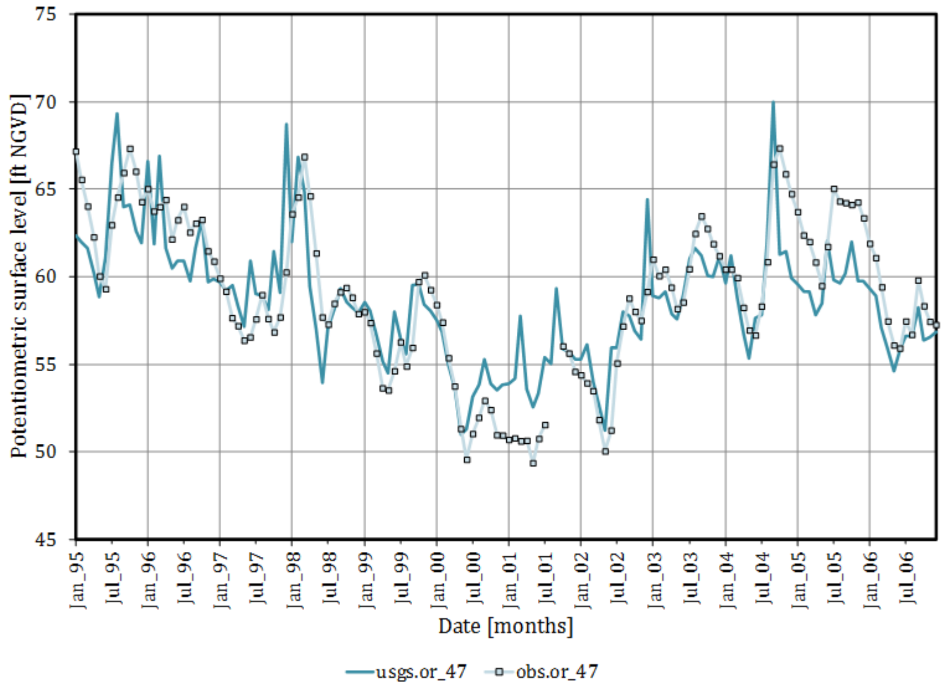


Figure B-3. Comparison of simulated and observed Upper Floridan aquifer potentiometric surface levels for calibration of the ECFT groundwater model at Orlo Vista well (O-0047), Orange County.

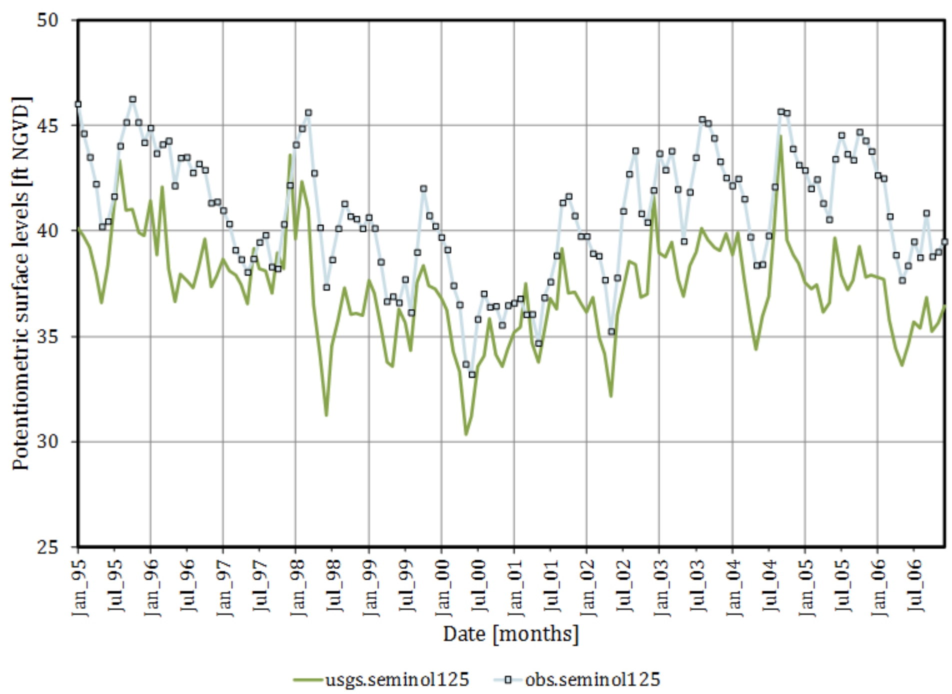


Figure B-4. Comparison of simulated and observed Upper Floridan aquifer potentiometric surface levels for calibration of the ECFT groundwater model at Longwood well (S-0125), Seminole County.

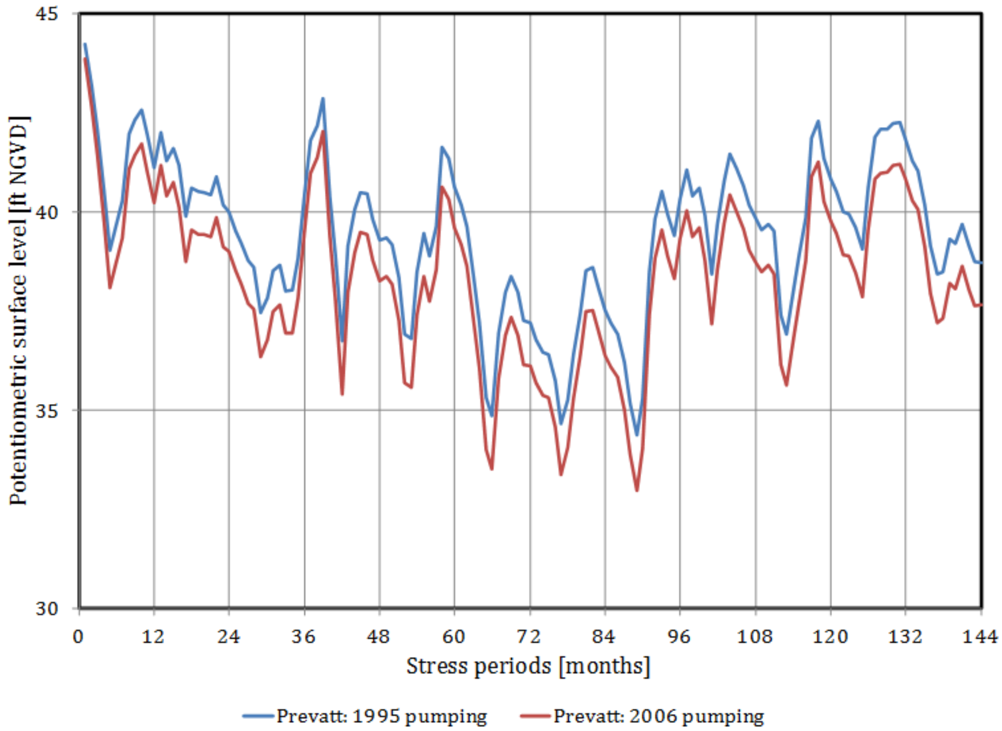


Figure B-5. Simulated Upper Floridan aquifer potentiometric surface levels for 1995 and 2006 pumping conditions at Prevatt Lake, Orange County, modeled by the ECFT(sf) model.

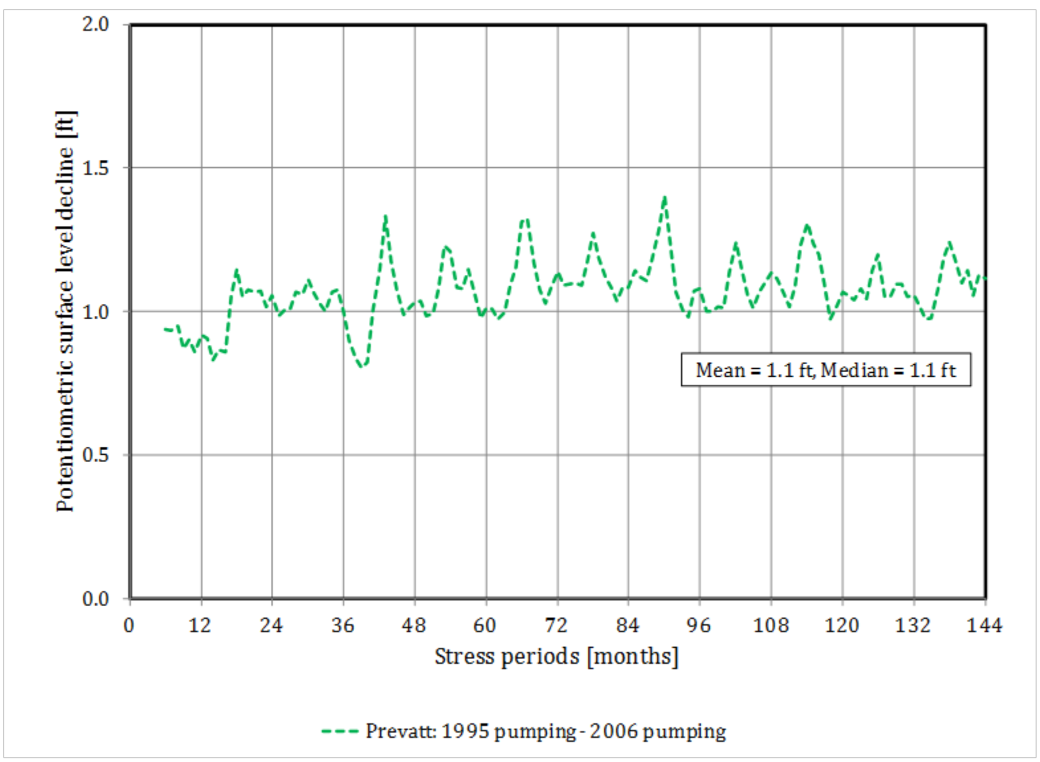


Figure B-6. Differences in simulated Upper Floridan aquifer potentiometric surface levels between the 1995 and the 2006 pumping scenarios at Prevatt Lake, Orange County.

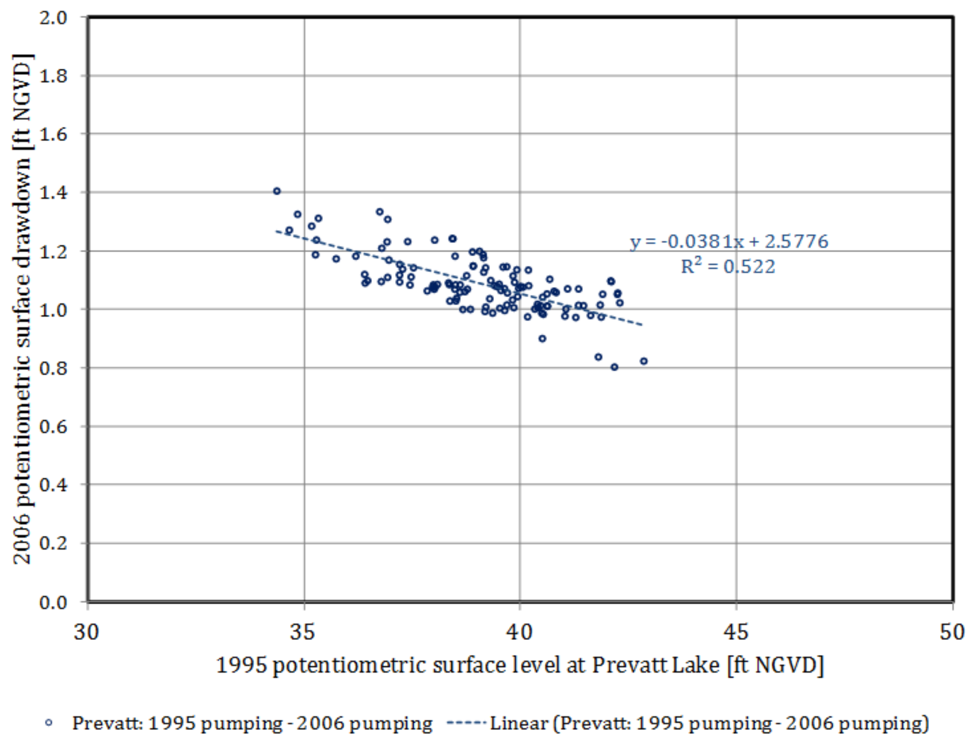


Figure B-7. Function relating simulated Upper Floridan aquifer potentiometric surface drawdown for 2006 pumping and 1995 pumping potentiometric surface levels.

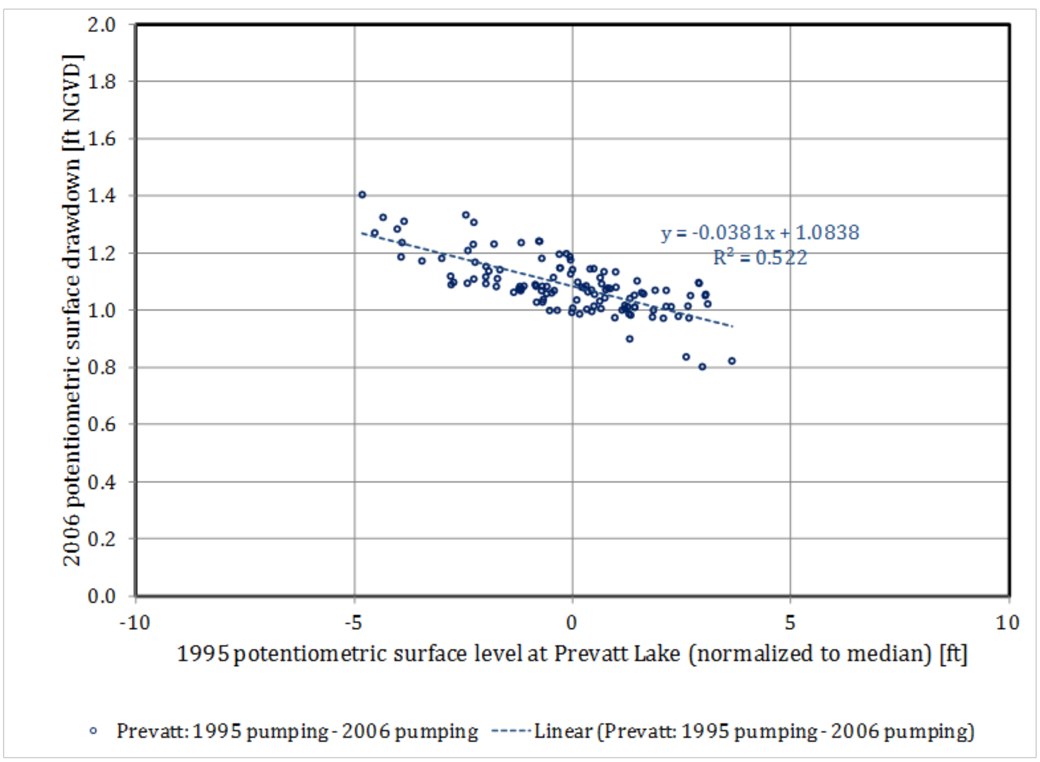


Figure B-8. Normalized function relating simulated Upper Floridan aquifer potentiometric surface drawdown for 2006 pumping and 1995 pumping potentiometric surface levels.

Table B-9. Using a normalized function to calculate adjustments for the Upper Floridan aquifer potentiometric surface level at Prevatt Lake, Orange County.

Date	Surface Water Model Potentiometric Surface Level at Prevatt Lake (ft NGVD)	Surface Water Model Surface Level Normalized to Median [a] (ft)	Calculated Daily Drawdown [b] (ft)	Adjusted Potentiometric Surface Level [c] (ft NGVD)
11/12/1952	37.28	-0.54	1.10	36.18
11/13/1952	37.18	-0.64	1.11	36.07
11/14/1952	37.18	-0.64	1.11	36.07
11/15/1952	37.15	-0.67	1.11	36.04
11/16/1952	37.08	-0.74	1.11	35.97
11/17/1952	37.08	-0.74	1.11	35.97
11/18/1952	37.17	-0.65	1.11	36.06
11/19/1952	37.17	-0.65	1.11	36.06

[a] Calculated by subtracting the median potentiometric surface level at Prevatt Lake (37.82 ft NGVD) from the Surface Water Model Potentiometric Surface Level at Prevatt Lake.

[b] Regression used for calculation: Calculated Daily Drawdown = 0.0381* (Normalized Surface Water Model Surface Level) + 1.0838.

[c] Calculated by subtracting Calculated Daily Drawdown from the Surface Water Model Potentiometric Surface Level at Prevatt Lake.

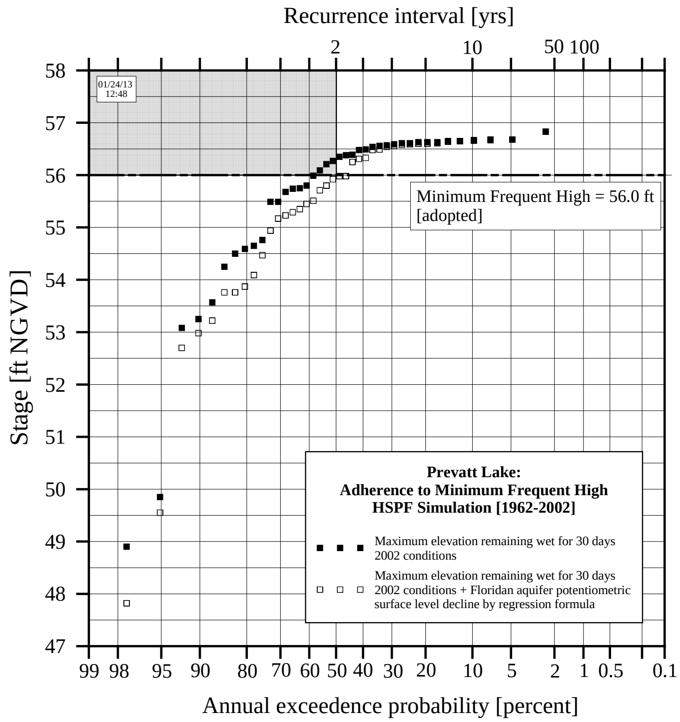


Figure B-9. The adopted Minimum Frequent High level for Prevatt Lake, Orange County, as it relates to various modeling scenarios. If any event corresponding to a given scenario lies within the shaded box, then the MFL level is being met.

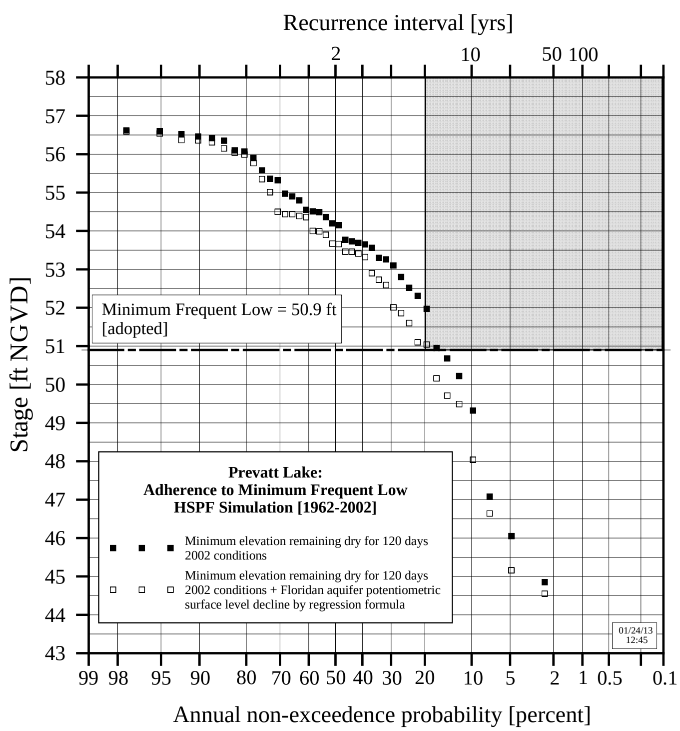


Figure B-10. The adopted Minimum Frequent Low level for Prevatt Lake, Orange County, as it relates to various modeling scenarios. If any event corresponding to a given scenario lies within the shaded box, then the MFL level is being met.

Springs in the SJRWMD

Historically, spring flows have been measured at differing frequencies within the SJRWMD. Based on this variation, the District has adopted the median of annual median flows (MAMF) as its standard spring flow metric. Until the development of the ECFT groundwater model, SJRWMD used steady-state regional groundwater models to estimate spring flows. Because the steady state models attempted to represent, in some measure, average conditions, MFLs compliance was monitored by comparing the modeled spring flows with the different Minimum Flow Regimes adopted for MFL springs.

Use of the ECFT groundwater model required the development of a new method for determining MFLs compliance for each MFL spring in the SJRWMD. In parallel with work on MFL lakes in the CFWI Planning Area, a spring flow freeboard was determined by comparing the MAMF of a long-term baseline hydrograph to the Minimum Flow Regime. In turn, this freeboard was compared to the median of spring flow reductions projected by the ECFT groundwater model for different withdrawal scenarios to determine MFL compliance for the scenario in question. For the CFWI Planning Area, the long-term baseflow hydrograph represents the Reference Condition.

Rock Springs, Orange County, is a typical example of a SJRWMD MFL spring and contributes an important part of the baseflow in the Wekiva River. As part of setting MFLs for the Wekiva River, the Minimum Flow Regime for Rock Springs was set at 53 cfs. The historical discharge record for Rock Springs extends from 1931 to the present. However, no spring flow measurements were made for years at a time. Starting in 1965, sufficient spring flow measurements were performed to determine regular annual median flow. Therefore, the period from 1965 through 2005 was used for this analysis (**Figure B-11**).

The first step in determining a long-term baseline spring flow hydrograph is to estimate a "no impact" conditions hydrograph which is accomplished using a double mass analysis. The double-mass analysis of annual rainfall versus annual median flow for Rock Springs (see **Figure B-12**) has three distinct trends: between 1965 and 1974, between 1975 and 1989, and between 1990 and 2005. In order to attain a straight line for the entire period of record, a trial-and-error process was performed. At the end of this process, a flow of 9.4 cfs was added to historical values between 1975 and 1989 and a flow of 12.4 cfs was added to historical values between 1990 and 2005 (see **Figure B-13**). This constitutes the no impact conditions hydrograph (see **Figure B-14**). A long-term baseline hydrograph corresponding to the Reference Condition is obtained by subtracting 12.4 cfs from the entire un-impacted conditions hydrograph (see **Figure B-15**). The MAMF for the long-term Reference Condition is 55.4 cfs. The spring flow freeboard for 2005 conditions is calculated by subtracting the Minimum Flow Regime of 53 cfs from the MAMF for long-term 2005 conditions of 55.4 cfs. Thus, the Reference Condition freeboard for Rock Springs is 2.4 cfs.

To evaluate the results from the double-mass analysis, the ECFT(sf) model was used to estimate spring flow reductions for Rock Springs. The ECFT(sf) model was used to evaluate three scenarios: no-pumping conditions, 1995 pumping conditions, and 2006 pumping conditions (see **Figure B-16**). The model estimates a decline in MAMF from 66.8 cfs under the no pumping conditions to 57.4 cfs under 1995 pumping conditions for a decline of 9.4 cfs. The model estimates a decline in MAMF from 57.4 cfs under 1995 pumping conditions to 54.0 cfs under 2006 pumping conditions for an additional decline of 3.4 cfs. The total spring flow decline estimated by the ECFT(sf) model is 12.8 cfs. This decline is very close to the 12.4 cfs estimated with the historical spring flow data (see **Figure B-13**). A second check on the results from the double-mass analysis is that the MAMF for the long-term 2005 conditions hydrograph, 55.4 cfs, is close to the MAMF for the 2006 conditions (short-term) hydrograph calculated by the ECFT(sf) model, 54.0 cfs (**Figure B-17**).

Minimum Flow Regimes and spring flow freeboards for all MFL springs within the CFWI Planning Area were developed as MFL constraints or other considerations in groundwater availability assessments by the GAT. Springs within the CFWI Planning Area were classified as MFL constraints and those springs outside the CFWI Planning Area but within the ECFT groundwater model domain were classified as other considerations. Spring flow freeboard values for both spring classes were used to determine a remaining freeboard for each MFLs spring depending on the assessment scenario. The process for developing spring freeboard values was:

A Reference Condition spring flow hydrograph for each MFLs spring was obtained from the ECFT groundwater model.

- A Median spring flow for each year of simulation was calculated for the Reference Condition.
- A MAMF for the Reference Condition was determined by calculating the median of the annual median flows.
- A MAMF was developed for each ECFT groundwater model simulation (i.e., withdrawal) scenario.
- A spring flow decline was calculated by subtracting the scenario MAMF from the corresponding Reference Condition MAMF.
- The spring flow decline was subtracted from the freeboard for each spring to determine a remaining freeboard for that scenario.
- A percentage (% remaining freeboard) of the Minimum Flow Regime was calculated by dividing the remaining freeboard by the Minimum Flow Regime and multiplying by 100.
- Each remaining freeboard value was color coded based on its magnitude.

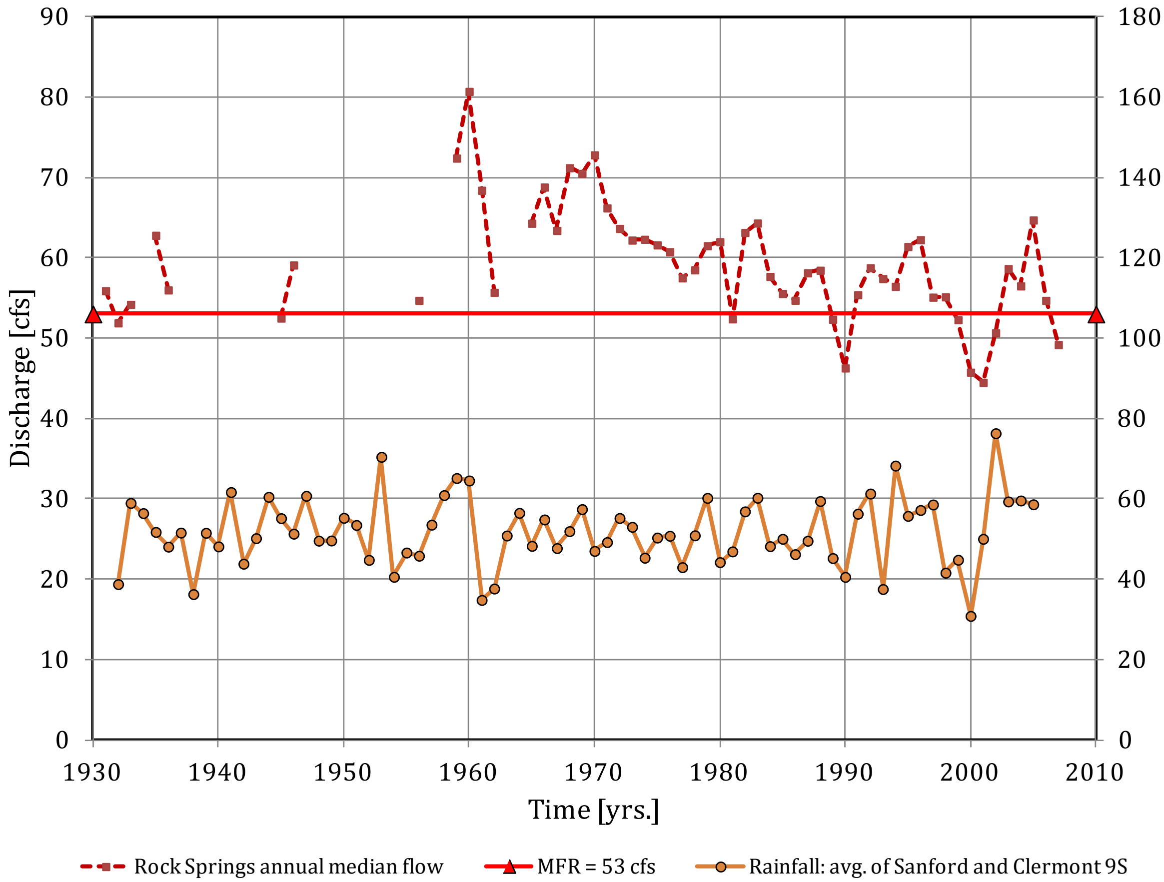


Figure B-11. Historical spring discharge and annual rainfall for Rock Springs, Orange County (MFR = Minimum Flow Regime). Up to 1968, the annual median flows were based on single measurements.

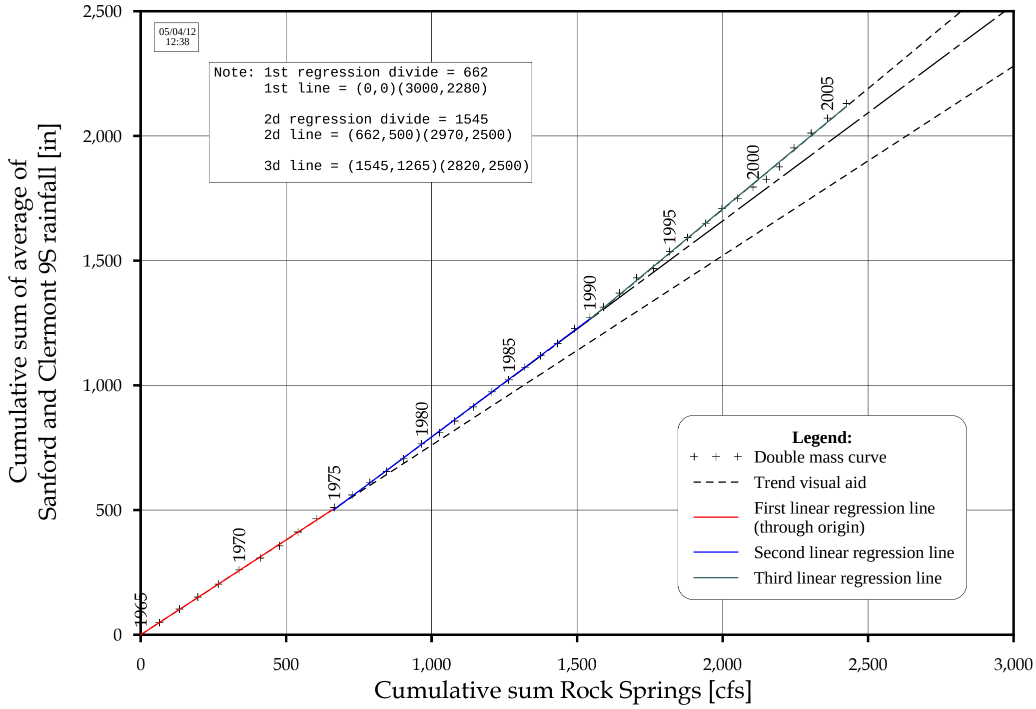


Figure B-12. Double-mass analysis of historical annual rainfall versus annual median flows for Rock Springs, Orange County.

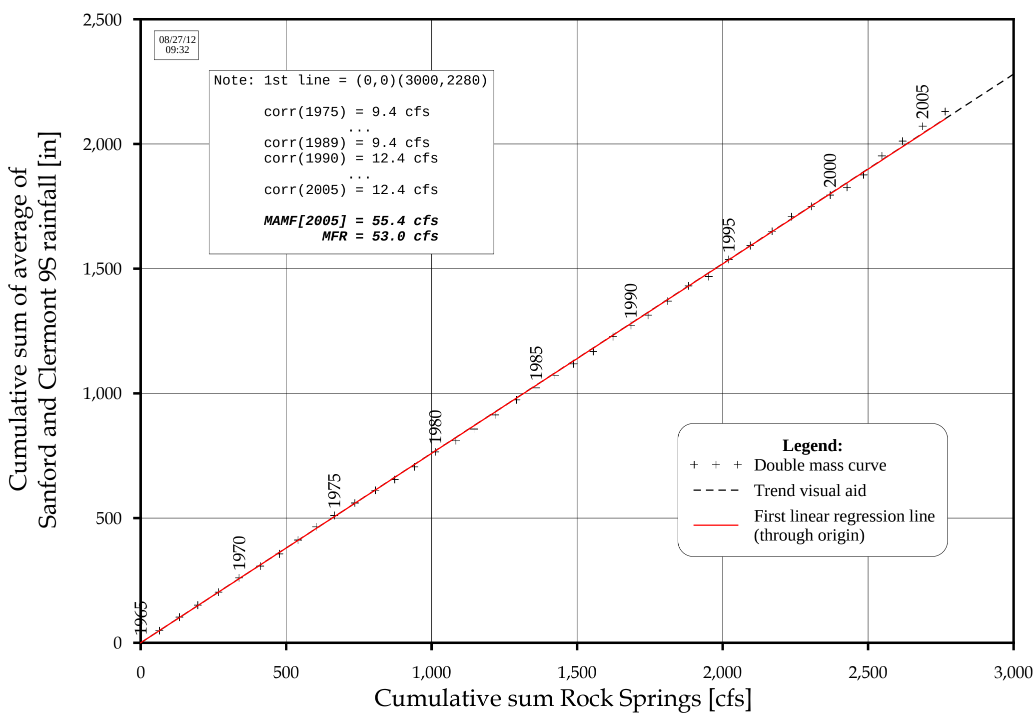


Figure B-13. Double-mass analysis of historical annual rainfall versus Rock Springs, Orange County, annual median flows with flows adjusted to attain a straight line for the entire period of record.

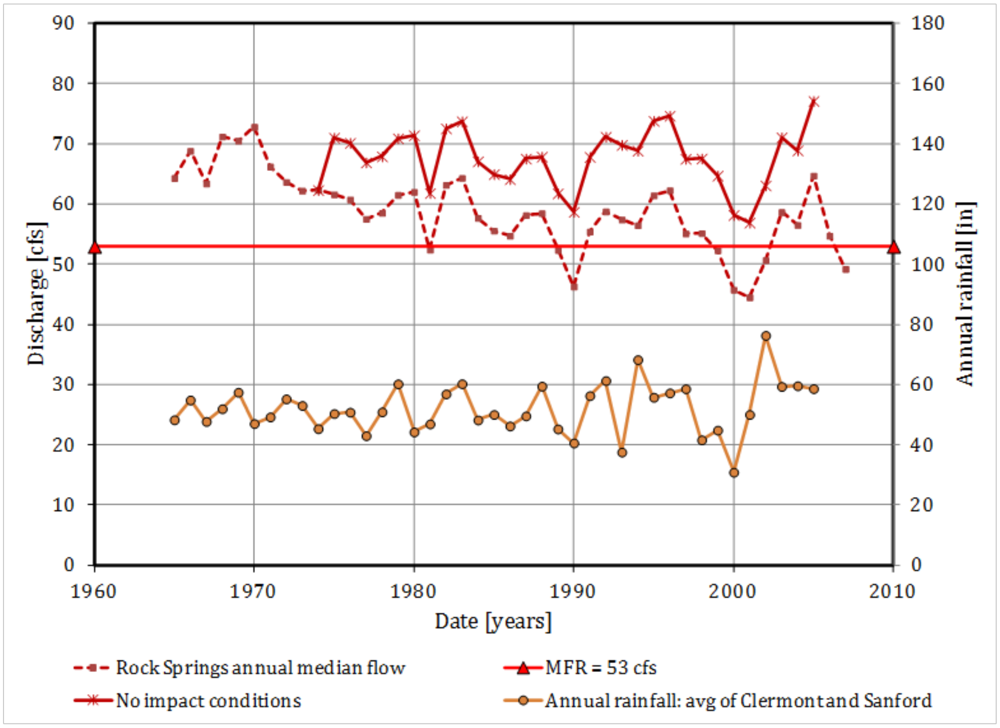


Figure B-14. Historical and no impact conditions median of annual median flows (MAMF) hydrographs and annual rainfall for Rock Springs, Orange County (MFR = Minimum Flow Regime).

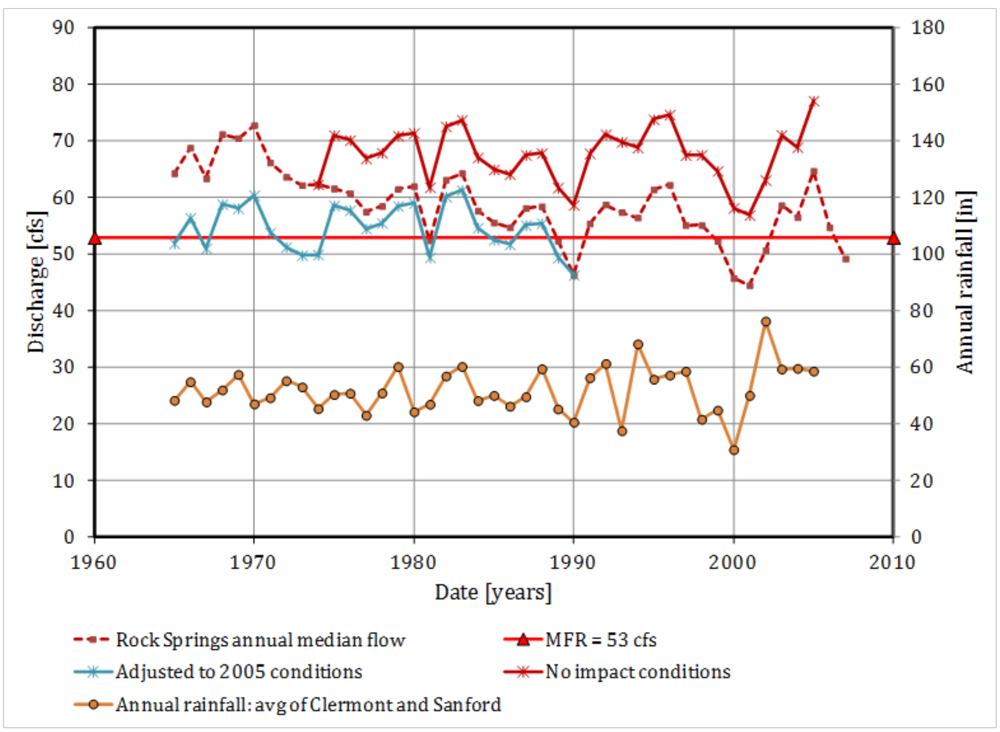


Figure B-15. Historical, no impact, and 2005 baseline conditions median of annual median flows (MAMF) hydrographs and annual rainfall for Rock Springs, Orange County (MFR = minimum flow regime).

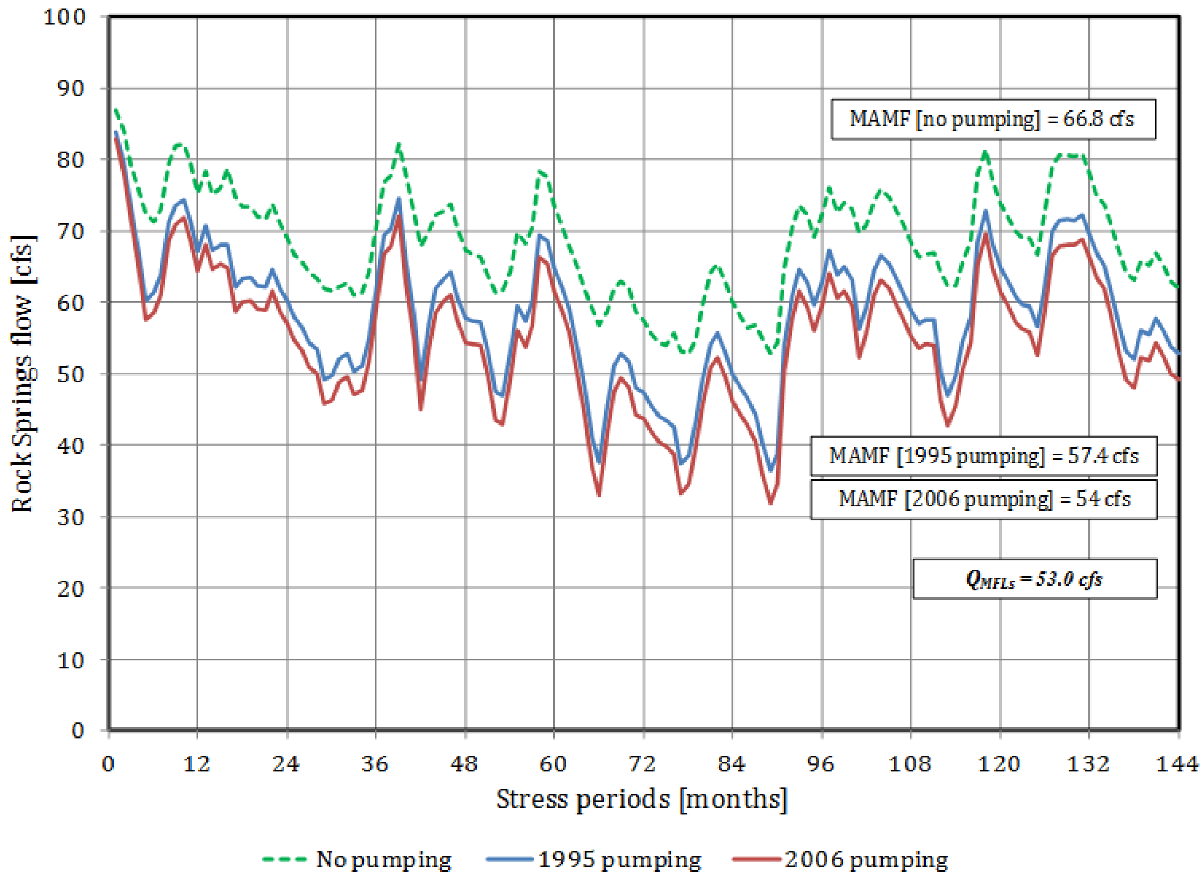


Figure B-16. ECFT(sf) modeled “no pumping,” “1995 pumping,” and “2006 pumping” spring flow hydrographs for Rock Springs, Orange County (MAMF = median of annual median flows).

Rivers in the SJRWMD

The SJRWMD has adopted MFLs for seven creeks or river segments within the ECFT groundwater model domain. Several of these systems have significant baseflow contributions from UFA springs. For purposes of the CFWI, it was assumed that most flow reductions affecting these systems will result from spring flow reductions. The SJRWMD river systems within the ECFT groundwater model domain with adopted MFLs are:

- St. Johns River 1.5 miles downstream of Lake Washington Weir
- St. Johns River at State Road 50 (near Christmas)
- Lake Monroe
- Taylor Creek
- Black Water Creek at State Road 44
- Wekiva River at State Road 46
- St. Johns River at State Road 44 (near DeLand)

The St. Johns River 1.5 miles downstream from Lake Washington Weir, St. Johns River at State Road 50 (near Christmas), Lake Monroe, Taylor Creek and Black Water Creek at State Road 44 have no significant UFA spring flow contributions. Therefore, MFLs established for these three locations were not used as MFLs constraints or considerations in the CFWI Planning Area groundwater availability analysis.

Six springs associated with the Wekiva River were used individually as MFL constraints for the groundwater availability assessments conducted by the GAT. Their collective flow was considered suitable for development of a consideration for the Wekiva River at State Road 46 MFLs site located downstream from the springs. A Reference Condition freeboard of 8.0 cfs for the Wekiva River site was determined by adding the freeboards of the six component springs contributing flows to the river. To support groundwater availability assessments, the remaining freeboard value determined for each simulated withdrawal scenario for the Wekiva River MFLs site was provided to the GAT. The process for development and use of this information is as follows:

- For a given ECFT groundwater model simulation scenario, a total spring flow reduction was calculated by adding up the reductions at all six Wekiva River MFL springs.
- To determine the remaining freeboard, these total spring flow reductions were subtracted from the corresponding freeboard.
- A percentage (% remaining freeboard) was calculated by dividing the remaining freeboard by the median historical flow of 250 cfs for the Wekiva River and multiplying by 100.
- The remaining freeboard for the Wekiva River was color-coded based on its magnitude.

The St. Johns River at State Road 44 (near DeLand) has significant baseflow contributions from spring flow, principally from the Wekiva system springs and Volusia Blue Spring. Therefore, it was assumed that spring flow reductions projected for these springs will constitute the most significant groundwater-withdrawal-related reductions at this location. As part of setting MFLs for the St. Johns River at State Road 44, it was determined that the withdrawal capacity of the river was 155 mgd. Approximately 15 mgd of the potentially available quantity of 155 mgd has already been permitted, in essence, leaving a freeboard of 140 mgd or 217 cfs.

To support groundwater availability assessments, the remaining freeboard value for the St. Johns River at State Road 44 was provided to the GAT for each simulated withdrawal scenario for use as a consideration. The process for development and use of this information is as follows:

- For a given ECFT groundwater model simulation scenario, a total spring flow reduction was calculated by adding up the reductions at all eight Wekiva system MFL springs in addition to Volusia Blue Spring.

- To determine the remaining freeboard, this total spring flow reduction was subtracted from the freeboard of 217 cfs.
- A percentage (% remaining freeboard) was calculated by dividing the remaining freeboard by the median historical flow (2,420 cfs) and multiplying by 100.
- The remaining freeboard was color-coded based on its magnitude.

Methods Associated with MFLs in the SWFWMD

The following describes how the SWFMWD used ECFT groundwater model results and MFLs information to quantify potential impacts from groundwater withdrawals on natural system in the CFWI Planning Area. The assessments addressed potential impacts to adopted MFLs as well as the potential for impacts to occur to adopted Regulatory Levels within the SWFWMD. Because of limitations associated with the ECFT groundwater model and the characteristics of the MFLs information being investigated, some of the evaluations were considered to be other considerations rather than constraints and used to identify any need for additional analyses.

Lakes in the SWFWMD

Similar to the approach used by the SJRWMD, water budget models were developed for selected priority lakes with adopted MFLs to quantify potential effects of different pumping scenarios on lake levels and the available UFA freeboard. The selected lakes were considered representative of the population of SWFWMD lakes with established MFLs in the CFWI Planning Area. The UFA was incorporated into the water budget models as a lower boundary condition. Information from the ECFT groundwater model was used to modify the UFA levels in these models to quantify effects of different withdrawal scenarios and update available amounts of UFA freeboard (i.e., identify remaining freeboard). Because all SWFWMD lakes evaluated using the water budget modeling approach were located within the CFWI Planning Area, the remaining freeboard values were classified as MFL constraints.

The first step in the process used to assess impacts to priority lakes was to evaluate the "recent" status of compliance with adopted MFLs. This was accomplished through a series of analyses including comparison of long-term trends in lake level statistics (e.g., P10 and P50 water levels) to the MFLs, assessing predicted impacts using existing rainfall-lake stage regression and groundwater flow models, identifying changes in groundwater withdrawals near lakes, comparison of actual levels to predicted levels from rainfall regression models where available, and comparison to nearby lakes.

The next step involved estimating the status of these lakes under the hydrologic and pumping conditions represented by the 2005 CFWI Planning Area Reference Condition scenario. This involved obtaining information on UFA water levels, i.e., potentiometric surface levels from the ECFT groundwater model for input to the water budget models. When developing the approach to obtain information on UFA water levels from the ECFT groundwater model, several items were considered and addressed:

- Effects of model calibration error needed to be minimized. This was primarily accomplished by taking the difference between two model runs and using the difference in additional analyses as a measure of predicted change resulting from a particular scenario.
- Variations between UFA water levels at the location of the monitor well and beneath the lake needed to be addressed. Because the lake water budget models incorporate UFA water level fluctuations beneath the lake and considering monitor wells are seldom located on the lake shore, an assessment was needed to quantify/verify the amount of adjustment to the UFA water levels that may be required.
- The modified UFA time series needed to extend beyond the model calibration period (1995 through 2006).

The approach described below was used modify observed UFA water levels for input to the lake water budget models. Direct output (i.e., simulated water level elevations) from the Reference Condition model run was not used because of concerns due to model calibration error (e.g., see **Figure B-17**). Taking the differences between the calibration and Reference Condition model runs minimized this error and provided an estimate of the water level differences that would result from a model run of observed groundwater withdrawals for the period 1995 to 2006 and a model run of groundwater withdrawals needed to meet demands for the 2005 Reference Condition (e.g., see **Figure B-18**). Since the calibration run represents observed conditions, applying this difference to observed UFA water levels provided a reasonable approximation of the Reference Condition for use in the water budget models. This approach was similarly applied to other model scenarios.

The process involved several steps as outlined below (note that Regional Observation and Monitor-well 57X, i.e., ROMP 57X well in Polk County, which was used in the water budget model for Lake Wailes is used here for illustrative purposes):

1. The lake of interest and corresponding monitoring well(s) used in the lake water budget model were identified.
2. Simulated and observed water levels were obtained.
    a. An appropriate model grid cell corresponding to the lake was identified and model simulated UFA (layer 3) water levels for the cell were obtained.
    b. The model grid cell corresponding to the location of monitoring well used in the lake water budget model was identified and model simulated heads in the UFA (Layer 3) were obtained.
3. The relationship between simulated water levels for the calibration model run and the differences between the calibration and Reference Condition model runs was developed (see description above for the approach used by SJRWMD). The relationship was used to modify observed UFA water levels for the water budget models and was necessary for extending the UFA time series beyond the calibration period. The relationship was developed by:

   a. Calculating monthly differences (referred to as drawdown or "DDN") in UFA water levels between the calibration and Reference Condition model runs (calibration – Reference Condition).
   b. Normalizing simulated water levels for the calibration run by subtracting the median value from each monthly value.
   c. Developing a least squares regression to predict drawdown as a function of normalized simulated water levels for the calibration run (**Figure B-19**).
4. Observed UFA water levels were modified to reflect the Reference Condition for use in the lake water budget models.
   a. First, observed UFA water levels were detrended over the period of interest. The goal for this analysis was to estimate a time series of groundwater levels that reflects relatively stable groundwater demands for comparison to the Reference Condition, which was prepared based on stable groundwater demands.
      i. A check to determine whether the stresses (i.e., groundwater demands) affecting observed UFA water levels were relatively constant over the simulation period or if there was significant growth or decline in these stresses was completed. This was accomplished using a cumulative mass analysis by plotting cumulative water levels versus cumulative rainfall (**Figure B-20**).
      ii. If a constant linear relationship was maintained between water levels and rainfall for the simulation period then it was presumed that stresses were relatively constant.
      iii. A deviation from a constant linear relationship between water levels and rainfall indicated that stresses were variable during the simulation period. For these cases, the cumulative mass analysis was used to identify deviations from a constant linear relationship that was then used to adjust water levels to correct for temporal trends.
   b. "Observed UFA water levels were "normalized" by subtracting the median value over the period of interest from each monthly value.
   c. The least square regression equation developed above was used to predict monthly drawdown as a function of the normalized observed UFA water levels to estimate levels for the period of interest.
   d. A "modified" observed UFA water levels for the Reference Condition was calculated by subtracting monthly values of predicted drawdown from monthly observed UFA levels (see **Table B-10** and **Figure B-21**).
5. The modified "observed" UFA water levels were used to update the lake water budget model (**Figure B-22**).
6. The updated water budget model was used to determine available UFA freeboard for the Reference Condition.
   a. Determine if lake is meeting its MFLs under the Reference Condition.

   b. If lake is meeting the MFLs, iteratively lower the UFA until the lake is no longer meeting the MFLs.

7. Determining remaining available freeboard for future groundwater withdrawal scenarios.

   a. Determine the median monthly difference between the scenario and the Reference Condition scenario.

   b. Compare the median difference to the available freeboard to determine if additional freeboard is available.

8. Remaining freeboard was then color coded based on its magnitude to support groundwater availability assessments.

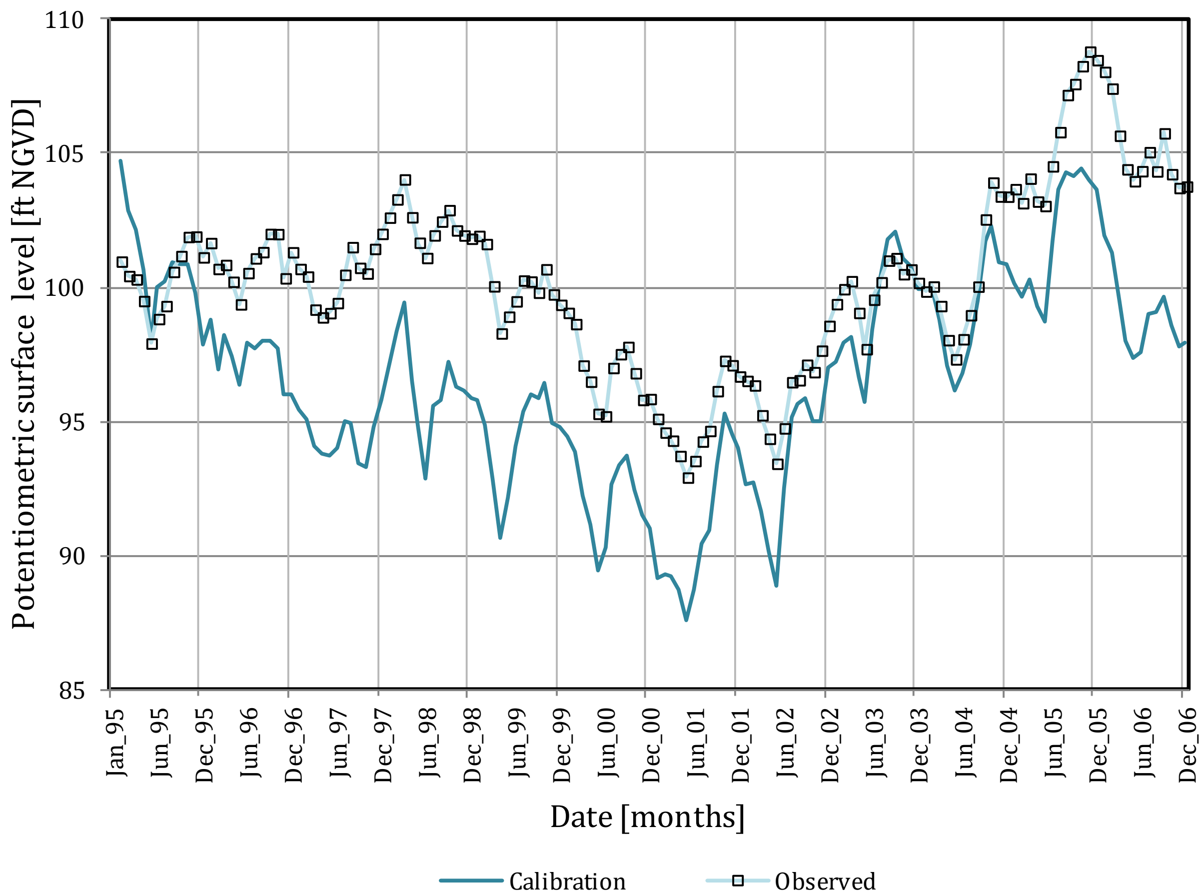


Figure B-17. Comparison of simulated (Calibration) and observed Upper Floridan aquifer potentiometric surface levels from the ECFT groundwater model for the calibration period at ROMP 57X, Polk County.

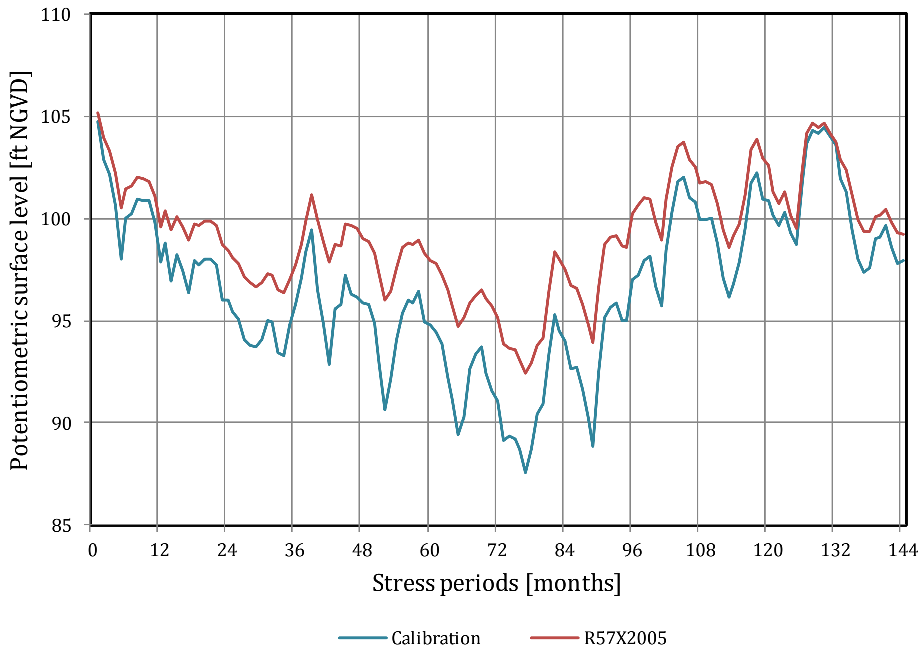


Figure B-18. Comparison of simulated Upper Floridan aquifer potentiometric surface levels at ROMP 57X for the calibration period and the Reference Condition (R57X2005) model runs from the ECFT groundwater model.

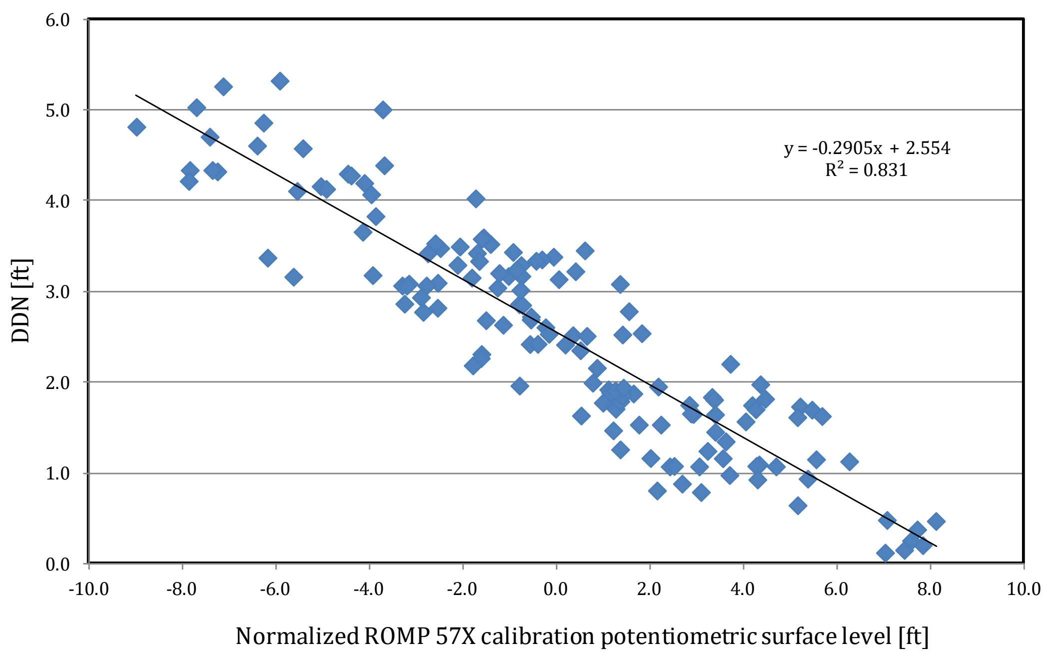


Figure B-19. Regression analysis to predict Upper Floridan aquifer drawdown (DDN) in feet between the calibration and Reference Condition simulations as a function of normalized potentiometric surface levels at ROMP 57X from the ECFT calibration model simulation.

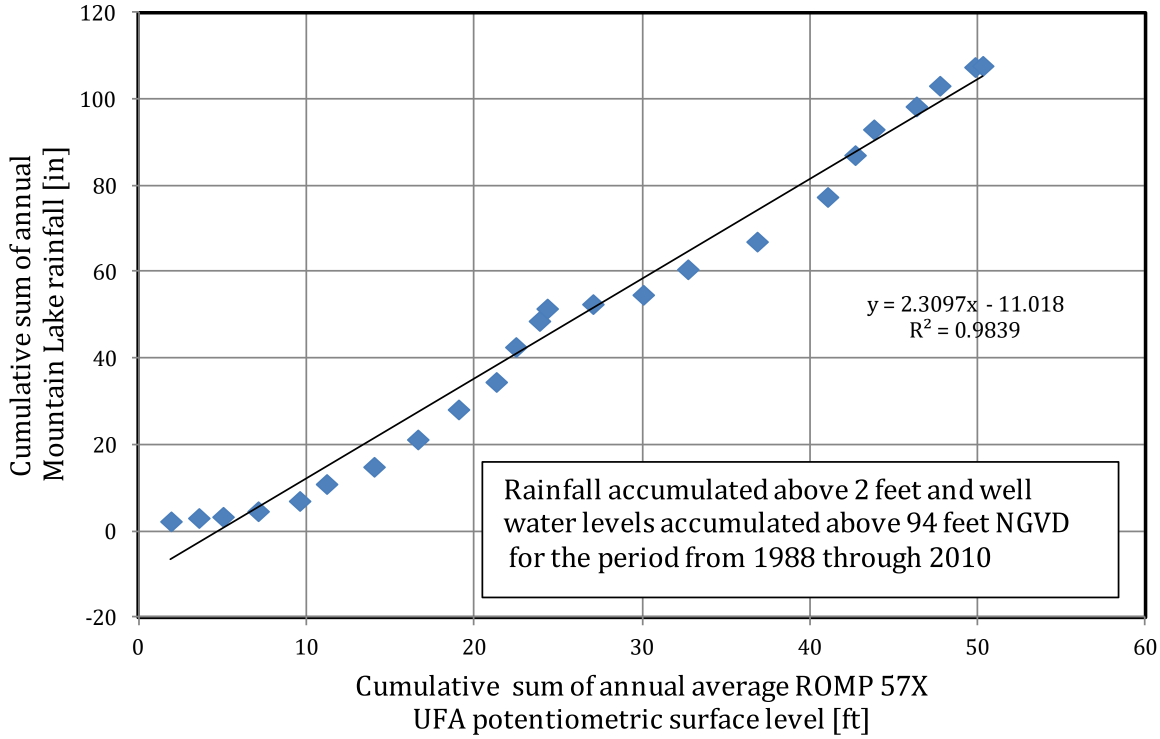
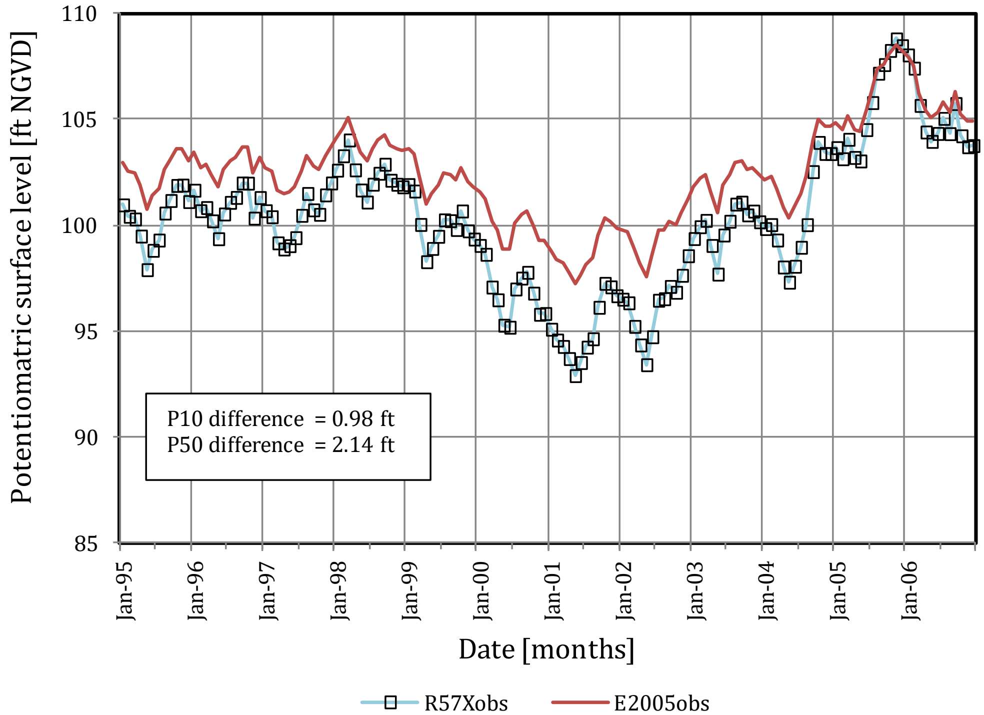


Figure B-20. Cumulative mass analysis used to determine the need for detrending Upper Floridan aquifer (UFA) potentiometric surface levels at ROMP 57X.



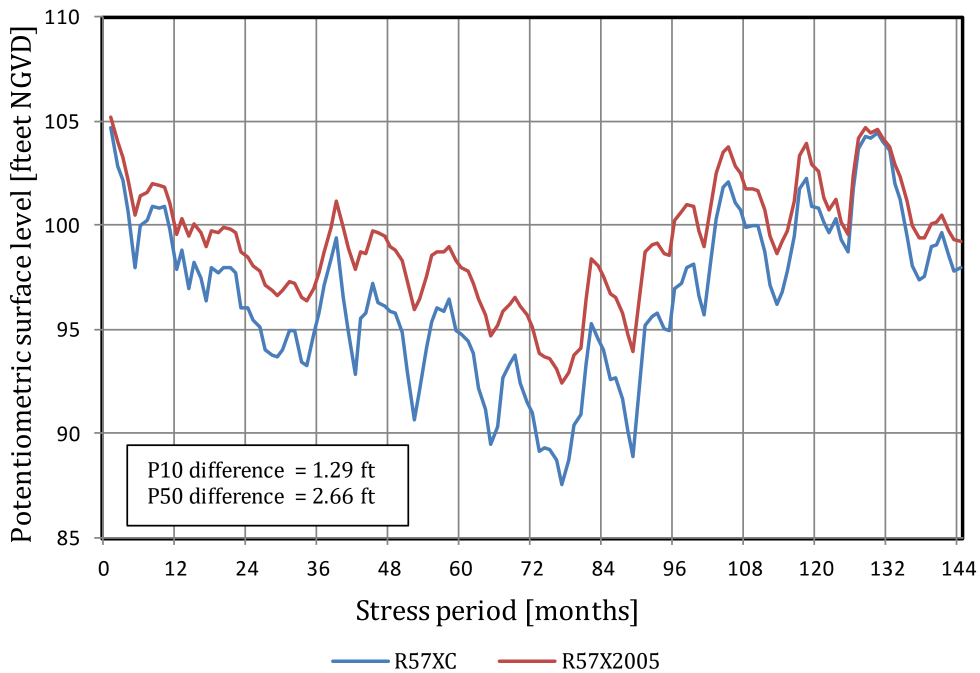


Figure B-21. Comparisons of Upper Florida aquifer water levels at ROMP 57X. Observed (R57Xobs) vs. modified observed potentiometric surface levels based on predicted drawdown "DDN" for the Reference Condition "RC" (E2005obs) [**upper panel**] and simulated calibration (R57XC) vs. modeled Reference Condition (R57X2005) potentiometric surface levels [**lower panel**].

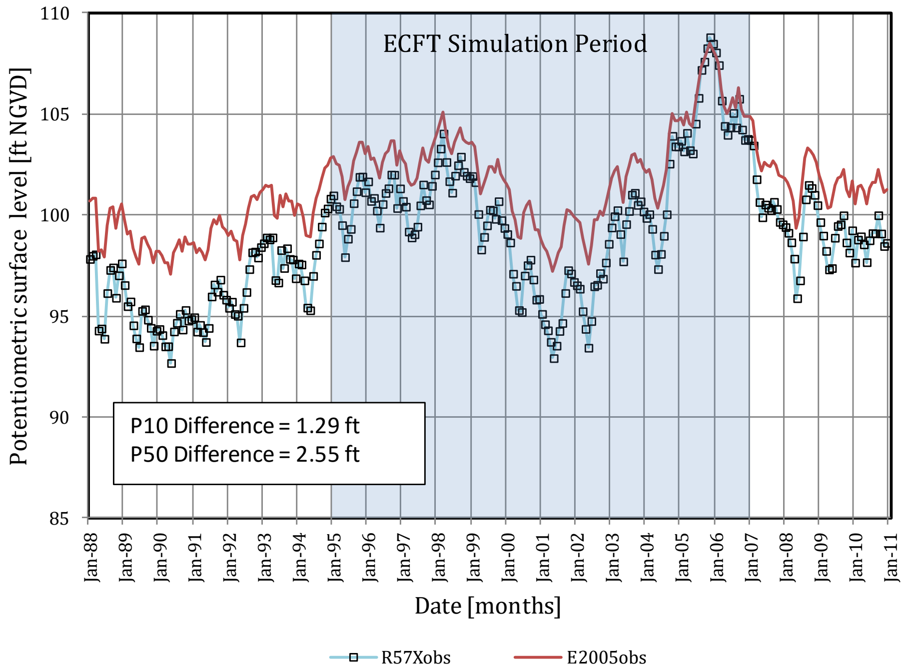


Figure B-22. Comparison of observed Upper Floridan aquifer potentiometric surface levels at ROMP 57X (R57Xobs) and simulated water levels for the Reference Condition derived using a regression analysis (E2005obs).

Table B-10. Modifications to ROMP 57X Upper Floridan Aquifer potentiometric surface levels used to estimate water levels for the Reference Condition (RC) based on predicted drawdown ("DDN").

Date	Observed Value (ft NGVD)	Normalized Value [a] (ft)	Predicted "DDN" [b] (ft)	Estimated 2005 RC [c] (ft NGVD)
1/31/1988	97.83	-1.06	-2.86	100.69
2/29/1988	97.98	-0.91	-2.82	100.80
3/31/1988	98.05	-0.84	-2.80	100.85
4/30/1988	94.28	-4.61	-3.89	98.17
5/31/1988	94.38	-4.51	-3.86	98.25
6/30/1988	93.88	-5.01	-4.01	97.89
7/31/1988	96.14	-2.75	-3.35	99.49
8/31/1988	97.28	-1.61	-3.02	100.30
9/30/1988	97.41	-1.48	-2.99	100.39
10/31/1988	95.90	-2.99	-3.42	99.33
11/30/1988	97.02	-1.87	-3.10	100.11
12/31/1988	97.61	-1.28	-2.93	100.53

[a] Calculated by subtracting the ROMP 57X median potentiometric surface level (98.89 ft) from the Observed Value.
[b] Regression use for calculation: Predicted "DDN" = 0.2905 * (Normalized Value) – 2.544.
[c] Calculated by subtracting Predicted "DDN" from the Observed Value.

Rivers in the SWFWMD

The SWFWMD portion of the CFWI Planning Area includes several rivers/streams where adopted or proposed MFLs may be affected by changes in groundwater withdrawals. Since many of these systems are included in the ECFT groundwater model domain, the effect of simulated withdrawal scenarios on the exchange of groundwater between the groundwater system and the rivers was evaluated. This information was used to identify the need for further evaluation regarding the potential for a particular withdrawal scenario to result in adverse impacts. River systems that were evaluated included:

- Peace River at Bartow
- Peace River at Fort Meade
- Peace River at Zolfo Springs
- Upper Hillsborough River
- Upper and Middle Withlacoochee River

Adopted minimum flows for segments of the Peace River upstream of the Peace River at Bartow, Peace River at Fort Meade and Peace River at Zolfo Springs are not being met. Recovery of these flows along with recovery of other MFLs is currently being addressed through implementation of the SWUCA Recovery Strategy (discussed in the next section of this appendix).

Based on the potential for withdrawals in the CFWI Planning Area to affect flows in the Peace River and possibly adversely affect recovery within the SWUCA, the effect of simulated withdrawal scenarios on the exchange of groundwater between the groundwater system and the upper Peace River was evaluated. This was accomplished by quantifying the exchange between ECFT groundwater model layer 1 and the river channel contained in model grid cells from the river's origin just south of Lake Hancock to the southern boundary of the model domain (see **Figure B-1**). For each withdrawal scenario, the average of the differences in flows between the scenario and Reference Condition was determined for the selected river segment, which represents the portion of the river associated with the MFLs established at Bartow, Ft. Meade, and Zolfo Springs. The magnitude of simulated difference was evaluated to determine whether additional analyses, such as reviewing withdrawals associated with the scenario(s) and evaluating the same pumping scenario(s) using other modeling tools would need to be completed. Because the ECFT groundwater model is a regional model, these assessments were used as MFLs-related considerations.

The Upper Hillsborough River extends into the western portion of the CFWI Planning Area and the Upper and Middle Withlacoochee River forms a portion of the CFWI Planning Area boundary in the same general area (see **Figure B-1**). Adopted minimum flows for the Upper Hillsborough River are currently being met, as are MFLs that have been proposed for the Upper and Middle Withlacoochee River. Adopted minimum flows for the lower segment of the Hillsborough River are not, however, being met, and the SWFWMD is implementing a recovery strategy for the lower Hillsborough River, as well as for other water bodies in a region of the SWFWMD designated as the Northern Tampa Bay Water Use Caution Area (NTBWUCA), where MFLs for several priority water bodies are not being met.

Based on the potential for withdrawals in the CFWI Planning Area to affect flows in the Hillsborough and Withlacoochee rivers and possibly adversely affect recovery in the NTBWUCA, changes in UFA boundary fluxes along portions of the western model boundary were quantified for the model scenarios. Flux across the ECFT groundwater model boundary in model grid cells column 1, rows 259 through 319 was used to evaluate potential withdrawal effects on the Upper Hillsborough River and the model boundary from model grid cell column 1, rows 44 through 258 was used to evaluate impacts on the Upper and Middle Withlacoochee River. For each withdrawal scenario, the average of the differences in flows between the scenario and Reference Condition were determined along these boundary segments. The magnitude of potential changes in flux was evaluated to determine whether additional analyses would need to be completed. For the Withlacoochee River, for segments of the river simulated in the ECFT groundwater model using the stream flow routing package, a process similar to what was described for the Peace River was also performed. Because the ECFT groundwater model is a regional model, other modeling tools would be investigated for evaluating withdrawal impacts to flows in the Upper Hillsborough and Upper and Middle Withlacoochee rivers, the assessments of model boundary flux used to evaluate potential impacts to these systems were used as other considerations.

Most Impacted Area of the Southern Water Use Caution Area in the SWFWMD

The SWUCA includes the 5,100 square mile southern portion of the SWFWMD and is an area where depressed aquifer levels have caused salt water to intrude into the UFA along the coast in a region identified as the Most Impacted Area (MIA) and contributed to reduced flows in the upper Peace River and lowered lake levels in portions of Polk and Highlands counties. The SWFWMD is currently implementing the SWUCA Recovery Strategy to ensure adequate water supplies are available to meet growing demands in the SWUCA, while at the same time protecting and restoring water levels, flows, and related natural resources of the area.

Although the MIA of the SWUCA is located outside of the CFWI Planning Area and ECFT groundwater model domain (**Figure B-23**), increased groundwater withdrawals in the CFWI Planning Area could affect groundwater levels in the MIA, especially in southwest Polk County. These potential withdrawal impacts are a function of the close geographic concordance between the SWUCA and the Southern West Central Florida Groundwater Basin. Based on the potential for CFWI Planning Area withdrawal effects to propagate to the MIA, it is important to identify information that can be obtained from the ECFT groundwater model to evaluate the potential increase in risk to the SWUCA Recovery Strategy resulting from different pumping scenarios. The UFA aquifer over much of the western and southern portions of the basin is generally well confined and highly transmissive. Increased withdrawals during the last century caused up to 50 feet of drawdown from predevelopment conditions in the MIA resulting in saltwater intrusion in coastal areas. In 2006, a Saltwater Intrusion Minimum Aquifer Level (SWIMAL) over the surface of the MIA was adopted (the rule became effective in 2007) based on the average

Upper Floridan aquifer water level in ten regional wells (**Figure B-23**), along with MFLs for several lakes on the Lake Wales Ridge and the upper Peace River. Because most of these levels and flows were not being met, the SWUCA Recovery Strategy was adopted with the goal of achieving the MFLs by 2025. All applications for withdrawals in the SWUCA are evaluated in terms of their projected effects on the Saltwater Intrusion Minimum Aquifer Level. Because the SWUCA Saltwater Intrusion Minimum Aquifer Level is not being met (**Figure B-24**), it must be demonstrated that planned changes in withdrawals do not cause drawdown to occur along the MIA boundary.

Potential withdrawal-associated drawdown along the MIA boundary predicted for scenarios simulated using the ECFT groundwater model were evaluated by quantifying changes in UFA boundary fluxes in the southwestern corner of the model domain, south of State Road 60 along the western model domain boundary (model grid cells in column 1, rows 352 through 472) and west of the Peace River along the southern model domain boundary (model grid cells in columns 1 through 52, row 472) (**Figure B-23**). Because the ECFT groundwater model is not as accurate as other tools used for evaluating withdrawal impacts to the MIA, this assessment was used as a consideration for groundwater availability assessments. For each ECFT groundwater modeling scenario, the anticipated change in flux was determined by comparing flow across the boundary in individual scenarios to the same flows determined for the Reference Condition scenario. A change of 1 mgd in boundary flux was used as a threshold for determining whether additional analysis was needed. The 1 mgd threshold is based on the fact that individual withdrawals in the southwestern portion of the ECFT groundwater model domain would likely exceed the regulatory threshold for impact at the MIA boundary. Additional analysis that would be completed based on modeled scenarios that result in boundary flux at the southwest corner of the ECFT groundwater model domain greater than or equal to 1 mgd would include reviewing withdrawals associated with the scenario(s) and evaluating the same pumping scenario(s) using the SWFWMD District-Wide Regulatory Model (DWRM).

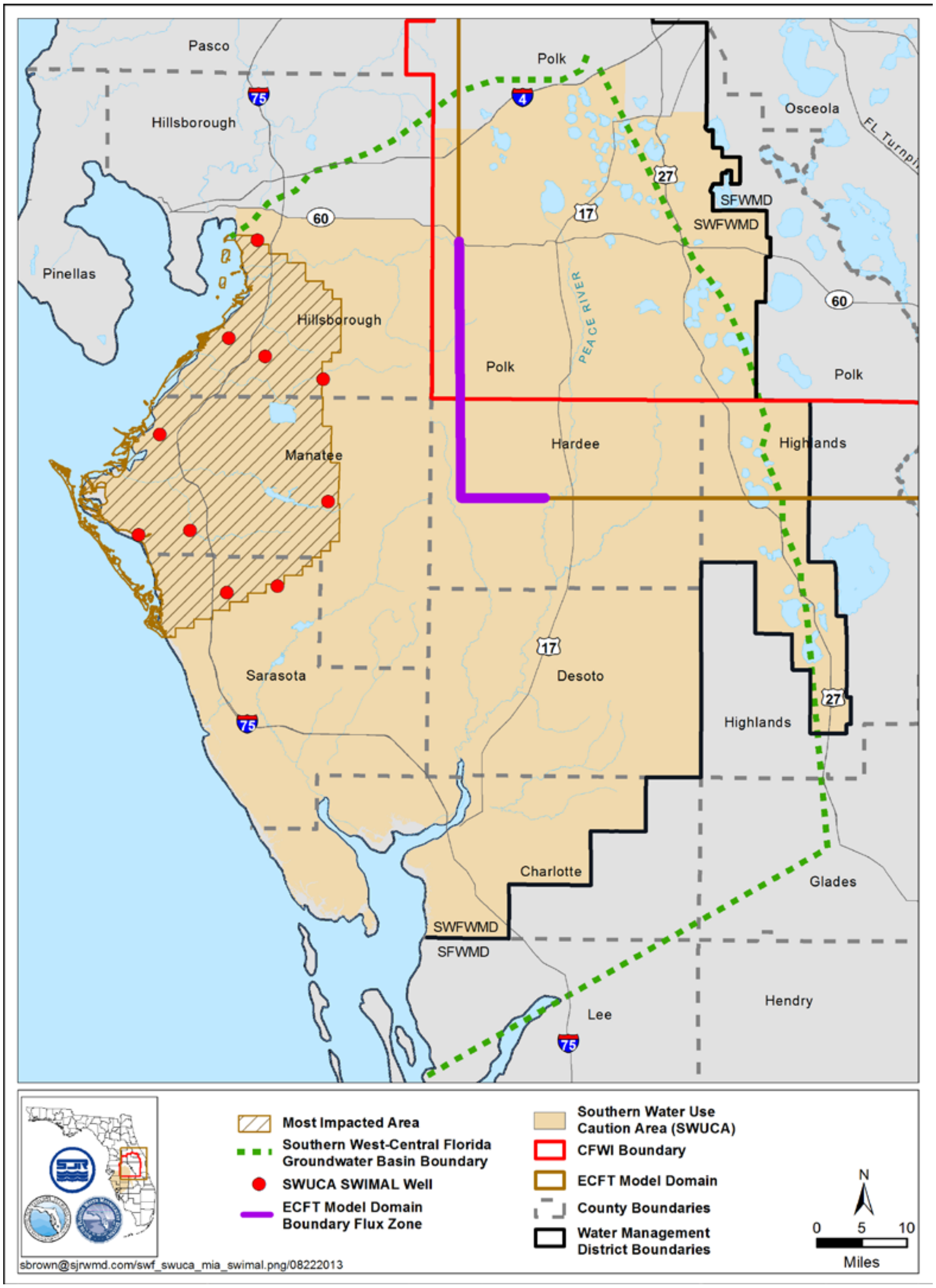


Figure B-23. Southern Water Use Caution Area (SWUCA), Most Impacted Area of the SWUCA and the Southern West-Central Florida groundwater basin relative to the CFWI Planning Area and ECFT groundwater model domain.

Note: Regulatory wells associated with the SWUCA Saltwater Intrusion Minimum Aquifer Level (SWIMAL) established for the Most Impacted Area are shown along with a groundwater flux zone along the southwestern corner of the ECFT groundwater model domain monitored as an indicator of potential withdrawal impacts to the Most Impacted Area. The flux zone was developed based on analyses which indicated that a 1 million gallon per day groundwater withdrawal in the southwestern portion of the ECFT groundwater model domain would be expected to lead to non-compliance with the adopted SWIMAL.

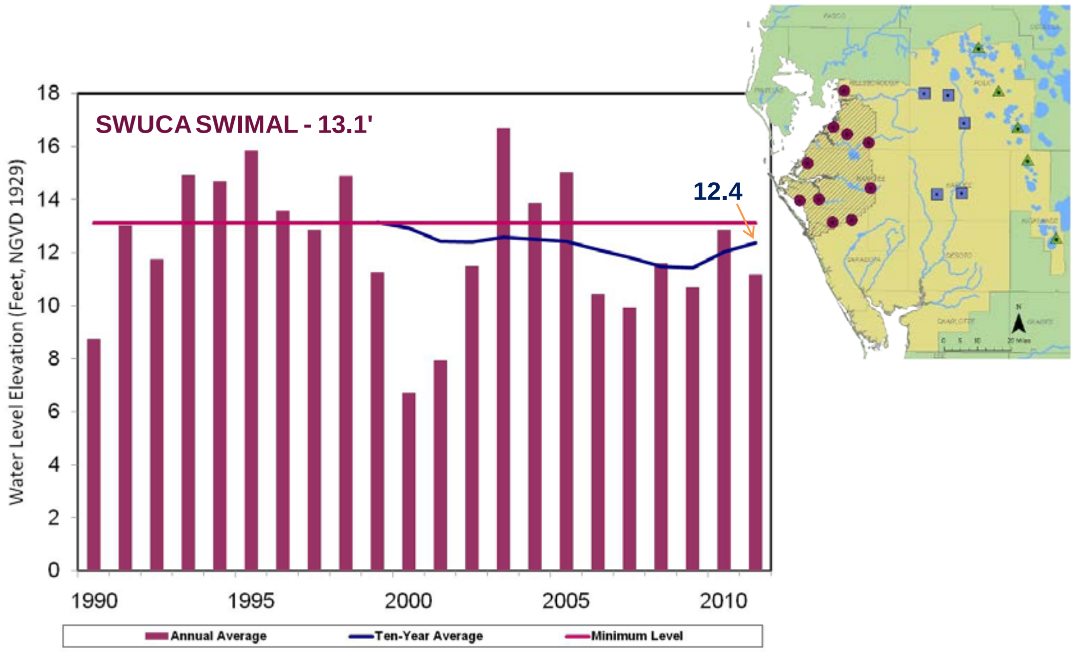


Figure B-24. Status of Upper Floridan aquifer levels at regulatory wells in the Most Impacted Area of the Southern Water Use Cautions Area (SWUCA) relative to the SWUCA Saltwater Intrusion Minimum Aquifer Level (SWIMAL).

Note: Bars in the plot show mean annual water levels for the ten regulatory wells depicted as red circles on the map; the red horizontal line identifies the SWIMAL elevation of 13.1 ft, NGVD; and the blue line represents running ten-year mean water levels for the wells through the 2011 value of 12.4 ft, NGVD.

Upper Peace River Wells (Regulatory Levels) in the SWFWMD

As part of the SWUCA Recovery Strategy, applications for groundwater withdrawals are evaluated to determine whether the proposed withdrawals impact groundwater levels below the upper Peace River, where MFLs are not being met. The first step in this process is to determine if current water levels in the UFA are above the established target regulatory level. The target level is 53.3 feet, NGVD (**Figure B-25**) and was established as the median of the 10-year moving average of water levels during the 1990s for five wells in the region (ROMP 30, ROMP 31, ROMP 45, ROMP 59, and ROMP 60). The current water level is determined as the recent 10-year moving average from these same five wells. A proposed withdrawal is determined not to cumulatively impact Upper Peace River flows if the current 10-year moving average water level in the area is above 53.3 feet and the proposed withdrawal individually meets the conditions of 40D-2.301(1)(b) and (c), F.A.C., and Basis of Review Section 4.2 C. If the above conditions are not met, the withdrawal can be authorized only if the applicant proposes to implement a Net Benefit (i.e., mitigation plus recovery). However, the applicant has the option to reduce or redistribute the withdrawals to achieve no impact, in which case the withdrawal can be authorized.

The intent for evaluation of this consideration in CFWI Planning Area groundwater availability assessments was to screen withdrawal scenarios for the potential to violate the established Upper Peace River target level. Because only two (ROMP 45 and 59) of the five

Upper Peace River wells can be adequately simulated with the ECFT groundwater model, the measure was used as a consideration and was developed to estimate a range of potential impact to groundwater levels in the Upper Peace River basin for ECFT groundwater model simulations. Direct results of the ECFT groundwater model were not used to determine if a particular scenario is potentially problematic with respect to water levels in the Upper Peace River regulatory wells, but were instead used to determine whether additional analyses were needed.

The general approach for determining the potential impacts to the Upper Peace River wells involved calculating the 10-year moving average water levels for each scenario and then comparing those averages to the 10-year moving average calculated from the Reference Condition model run. Difference between the scenario and Reference Condition averages were calculated and applied to the current observed 10-year moving average water level to determine if the Upper Peace River target elevation would be exceeded. Because not all five wells can be adequately simulated with the model, a range of potential impact to the 10-year averages was calculated. The process used to calculate the range involved the following steps:

1. For each withdrawal scenario and the Reference Condition, time-series of 10-year average water levels for each well were calculated.
2. A range of potential change in the combined 10 year average for the five wells between each scenario and the Reference Condition was determined:
    a. Least amount of change –
        i. Assuming there would be no change in the 10-year averages at ROMP 30, 31, and 60, the difference between the scenarios, was calculated in the following manner (using the 1995 scenario as an example):

           Change = 1995 average – 2005 average

        $= \{(w1+w2+w3+w4+w5)/5\}_{1995} - \{(w1+w2+w3+w4+w5)/5\}_{2005}$

        $= \{(w1+w2)_{1995} - (w1+w2)_{2005} + 0 + 0 + 0)/5\}$

        Where, w_i is the 10 year average for well "i" for the specified scenario year, ROMP 45 and 59 are represented as w1 and w2, and ROMP 30, 31, and 60 are represented as w3, w4, and w5, respectively.
    b. Maximum amount of change –
        i. Assuming the change at ROMP 30, 31, and 60 would be equal to the average change at ROMP 45 and 59, the difference between the scenarios was calculated in the following manner (again using the 1995 scenario as an example and using the variables described above):

           Change = 1995 average – 2005 average

        $= \{(w1+w2+w3+w4+w5)/5\}_{1995} - \{(w1+w2+w3+w4+w5)/5\}_{2005}$

        $= \{(w1+w2)_{1995} - (w1+w2)_{2005} + (w1+w2)/2 + (w1+w2)/2 + (w1+w2)/2)/5\}$

3. The change as determined in the previous steps was added to or subtracted from the "current observed 10-year average" well water level to determine if the adjusted level would be projected to fall below the Upper Peace River target level.

4. If the adjusted "current 10-year average" was projected to fall below the target level, simulated withdrawals were reviewed to identify potential alternatives and consider simulating withdrawal scenario using the DWRM to further evaluate potential withdrawal effects.

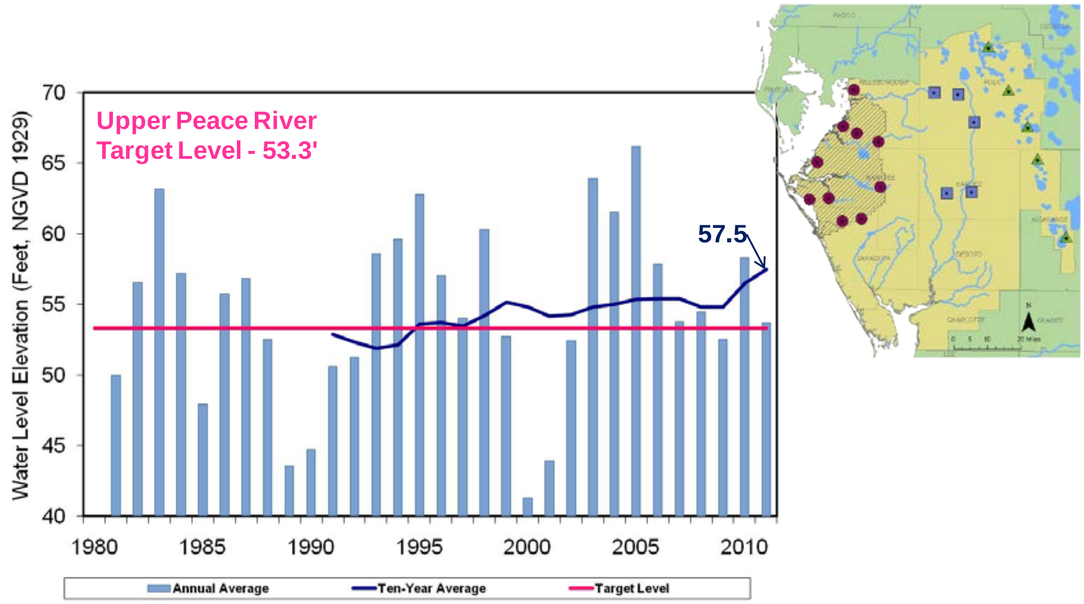


Figure B-25. Status of Upper Floridan aquifer levels at wells in the Upper Peace River area of the Southern Water Use Caution Area relative to a regulatory target water level.

Note: Bars show mean annual water levels for wells depicted as blue squares on the map; the magenta horizontal line identifies the target water level elevation of 53.3 ft, NGVD; and the blue line represents running ten-year mean water levels for the wells through the 2011 value of 57.5 ft, NGVD.

Ridge Lakes (Regulatory Levels) in the SWFWMD

As part of the SWUCA Recovery Strategy, applications for groundwater withdrawals are also evaluated to determine whether the proposed withdrawals impact groundwater levels below Lake Wales Ridge lakes, including several lakes where MFLs are not being met. The first step in this process is to determine if current water levels in the UFA are above the established target level. The target level is 91.5 feet, NGVD and was established as the median of the 10-year moving average of water levels during the 1990s for five wells in the region (Lake Alfred Deep, Coley Deep, ROMP 28X, ROMP 43XX, and ROMP 57). The current water level is determined as the recent 10-year moving average from these same five wells. A proposed withdrawal is determined not to cumulatively impact water levels in Lake Wales Ridge area lakes if the current 10-year moving average water level in the area is above 91.5 feet, NGVD (**Figure B-26**) and the proposed withdrawal individually meets the conditions of 40D-2.301(1)(b) and (c), F.A.C., and Basis of Review Section 4.2 C. If the above conditions are not met, the withdrawal can be authorized only if the applicant proposes to implement a Net Benefit (i.e., mitigation plus recovery). However, the applicant has the option to reduce or redistribute the withdrawals to achieve no impact, in which case the withdrawal can be authorized.

The intent for evaluation of this consideration in CFWI Planning Area groundwater availability assessments was to screen withdrawal scenarios for the potential to violate the established Lake Wales Ridge target level. Because only three of the five Lake Wales Ridge wells can be adequately simulated with the ECFT groundwater model (Lake Alfred Deep, Coley Deep, and ROMP 57), the measure was used as a consideration and developed to estimate a range of potential impact to groundwater levels in the Lake Wales Ridge area that could be associated with withdrawal simulations. Direct results from the ECFT groundwater model were not used to determine if a particular scenario was potentially problematic with respect to water levels in the Lake Wales Ridge regulatory wells, but were used to determine if additional analyses were needed.

The general approach to determining the potential impacts to the Lake Wales Ridge wells involved calculation of 10-year moving average water levels for each scenario and then comparing those averages to the 10-year moving average calculated from the Reference Condition scenario. Differences between the scenario and Reference Condition averages were calculated and applied to the current observed 10-year moving average water level to determine if the Lake Wales Ridge target elevation would be exceeded based on any water level drawdown associated with the simulation. Because not all five wells can be adequately simulated with the ECFT groundwater model, a range of potential impact to the 10-year averages was calculated. The process for calculating this range was as follows:

1. For each withdrawal scenario and the Reference Condition, time series of 10-year average water levels were calculated for each well.
2. A range of potential change in the combined 10-year average for the five wells between each scenario and the Reference Condition was determined:
   a. Least amount of change –
      i. Assuming there would be no change in the 10-year averages at ROMP 28X and 43XX. The difference between the scenarios was calculated in the following manner (using the 1995 scenario as an example):

         Change = 1995 average – 2005 average

         $$= \{(w1+w2+w3+w4+w5)/5\}_{1995} - \{(w1+w2+w3+w4+w5)/5\}_{2005}$$

         $$= \{(w1+w2 + w3)_{1995} - (w1+w2 + w3)_{2005} + 0 + 0)/5\}$$

         Where, w_i is the 10 year average for well "i" for the specified scenario year, Lake Alfred Deep, Coley Deep and ROMP 57 are represented as w1, w2 and w3, and ROMP 28X and 43XX are represented as w4 and w5, respectively
   b. Maximum amount of change –
      i. Assuming the change at ROMP28X and 43XX would be equal to the average change at Lake Alfred, Coley and ROMP 57, the difference between the scenarios was calculated in the following manner (again

based on the 1995 scenario as an example and using the variables described above):

Change = 1995 average – 2005 average

$$= \{(w1+w2+w3+w4+w5)/5\}_{1995} - \{(w1+w2+w3+w4+w5)/5\}_{2005}$$

$$= \{(w1+w2 + w3)_{1995} – (w1+w2 +w3)_{2005} + (w1+w2+w3)/2 + (w1+w2+w3)/2 + (w1+w2)/2)/5\}$$

3. The change as determined in the previous steps was added to or subtracted from the "current observed 10-year average" well water level to determine if the adjusted level would be projected to fall below the Lake Wales Ridge target level.
4. If the adjusted "current 10-year average" was projected to fall below the target level, simulated withdrawals were reviewed to identify potential alternatives and consider simulating withdrawal scenario using the DWRM to further evaluate potential withdrawal effects.

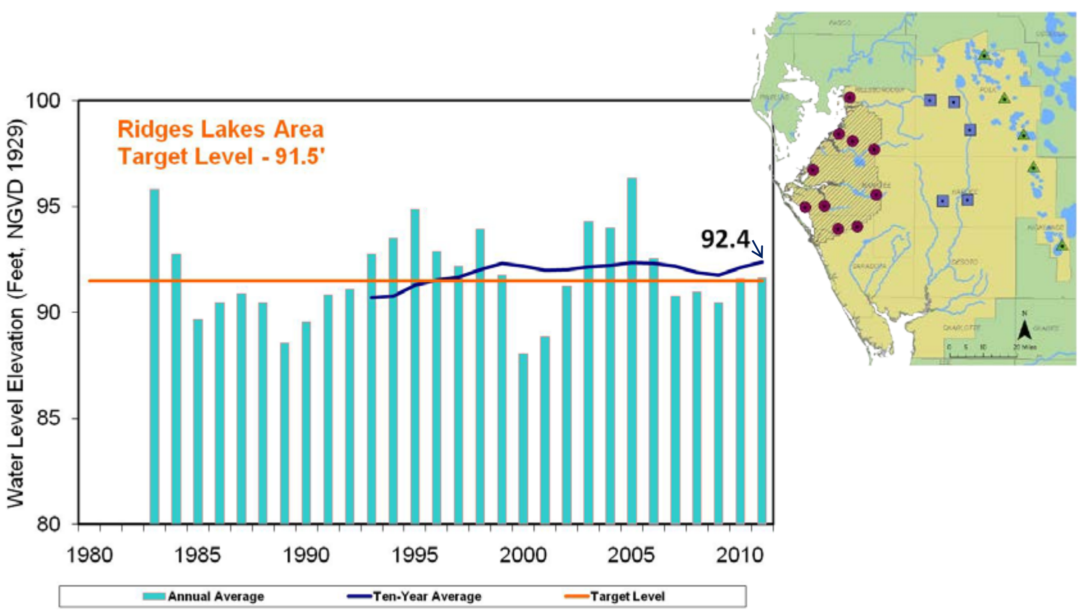


Figure B-26. Status of Upper Floridan aquifer levels at wells in the Lake Wales Ridge area of the Southern Water Use Caution Area relative to a regulatory target water level.

Note: Bars show mean annual water levels for wells depicted as green triangles on the map; the orange horizontal line identifies the target water level elevation of 91.5 ft, NGVD; and the blue line represents running ten-year mean water levels for the wells through the 2011 value of 92.4 ft, NGVD.

Methods for Color Coding Freeboard Determinations

Minimum flows and levels are discrete metrics with some uncertainty that are used for regulatory, planning and other water management purposes. Development of simple approaches for classification of freeboard or remaining freeboard estimates for MFLs constraints and the other considerations in the SJRWMD and SWFWMD described in the preceding sub-section of this appendix was undertaken to facilitate presentation and summarization of MFLs information expected to support planning level estimates of groundwater availability in the CFWI Planning Area.

A simple classification scheme involving use of two color codes for characterization of freeboard or remaining freeboard values and the metrics used for some of the other considerations was developed and implemented (**Figure B-27**). For this classification approach, sites where estimated freeboard or remaining freeboard values based on ECFT groundwater model simulations were greater than or equal to zero were coded green, as were sites where metrics used for some other considerations were determined to be acceptable. Green coding was therefore used to denote that modeled drawdown in the UFA would not be associated with water level or flow reductions expected to result in violation of established MFLs or targets identified for some other considerations. In contrast, estimated freeboard or remaining freeboard values that were less than zero and metrics used for some other considerations that indicated modeled withdrawal impacts were of sufficient magnitude to lower water levels or flows to levels beyond limits imposed by established MFLs or identified targets were coded red.

The two-color classification scheme was also used for characterization of recent MFLs compliance based on assessments that were separate from ECFT groundwater modeling approach developed to support CFWI Planning Area groundwater availability assessments. For this purpose, green coding was used to represent sites where MFLs are being met and red was used for sites where MFLs are not being met.

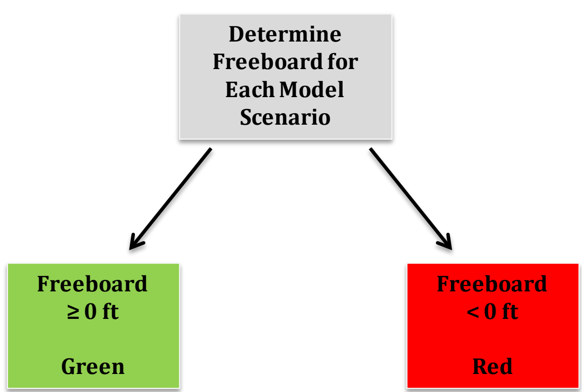


Figure B-27. Two-color coding scheme for classification of minimum flows and levels freeboard values. The approach was also used for metrics associated with other considerations that were evaluated.

A three-color classification scheme was considered appropriate for characterization of the potential need for recovery of MFLs or identification of the need for preventative measures to ensure continued MFLs compliance. For these purposes, green coding of MFLs constraints or other considerations was used to indicate compliance with adopted MFLs or other MFLs-related targets, red coding was considered indicative of the need for recovery of flows or water levels (recovery status) and yellow coding was considered indicative of the need for implementation of prevention strategies or activities to ensure that predicted future violations of MFLs or MFLs-related targets do not occur (prevention status).

To implement the three-color classification scheme, sites where estimated freeboard values were greater than or equal to zero for the earliest (i.e., for the Reference Condition scenario) and a subsequent modeled scenario or scenarios were coded green (**Figure B-28**). This "green" coding was used to indicate that modeled drawdown in the UFA would not be associated with water level or flow reductions that would result in violation of MFLs established for a site for any of the modeled scenarios evaluated. In contrast, sites where estimated freeboard or remaining freeboard values were less than zero for the earliest modeled scenario were coded red. Sites where freeboard values were greater than or equal to zero for the earliest modeled scenario, but less than zero for a subsequent scenario or scenarios, were coded yellow. This three-color classification scheme was also considered applicable for coding time-series of modeled results associated with some constraints that were characterized using metrics other than freeboard or remaining freeboard.

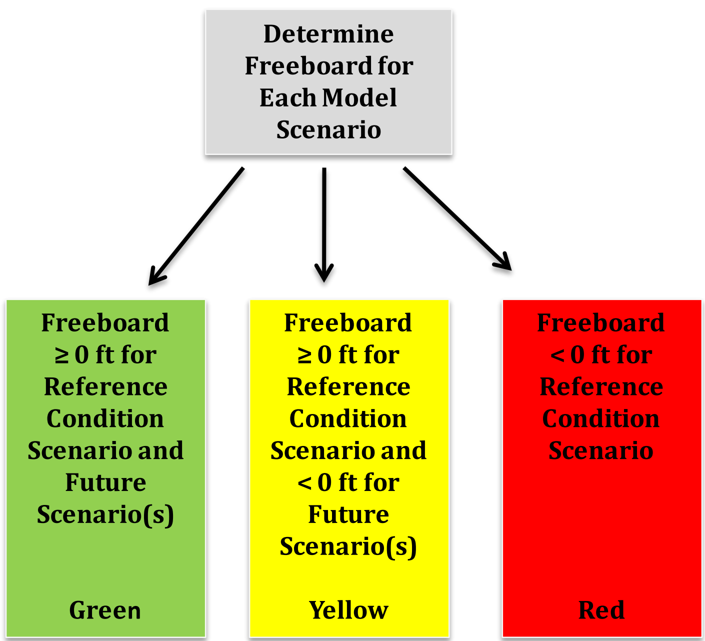


Figure B-28. Three-color coding scheme for classification of minimum flows and levels freeboard values. The approach was also used for metrics associated with other considerations that were evaluated.

SECTION 5: RESULTS

Based on ECFT-predicted changes in UFA water levels, spring flows or groundwater fluxes, a variety of methods were used for freeboard determinations and other metrics associated with the existing and proposed MFLs and MFL constraints and considerations (measuring sticks) described in Section 4 of this appendix. Different methods were used based on differences in water body types (e.g., lakes vs. springs) and based on unique evaluation requirements associated with MFLs that were established independently by the SJRWMD and SWFWMD with differing MFL development methods.

Minimum Flows and Levels measuring stick results for the modeled Reference Condition scenario and withdrawal scenarios associated with water-use demand projections for 2035 and the End of Permit (EOP) are presented in **Table B-11**. Results for withdrawal scenarios associated with "intermediate" demand projections for years 2015 and 2025 are included in **Table B-12**, along with the Reference Condition results. Summary status counts for MFLs constraints are listed in **Tables B-13** and **B-14** along with status counts for all other considerations evaluated by the Team. **Tables B-13** and **B-14** also include MFLs compliance information for the MFL constraints and other considerations evaluated for the model scenarios based on the recent MFLs compliance assessment.

Summary data for each scenario are presented in subsequent sub-sections and all results presented in this section were provided to the GAT to support the determination of groundwater availability in the CFWI Planning Area.

Table B-11. Summary results for MFL constraints and other considerations evaluated for the modeled Reference Condition (RC 2005), End of Permit (EOP), and 2035 withdrawal scenarios.

Map Grid	Water Body / Site Name	RC RFB [a]	RC Status	EOP RFB	EOP Status	2035 RFB	2035 Status
MFL Constraints							
Adopted Lake and Wetland MFLs within the CFWI Planning Area							
B-3	Boggy Marsh	2.1	MFLs Met	3.0	MFLs Met	1.8	MFLs Met
A-2	Cherry Lake	1.5	MFLs Met	0.3	MFLs Met	-0.8	MFLs Not Met (P)
B-4	Crooked Lake	-3.2	MFLs Not Met (R)	-5.2	MFLs Not Met (R)	-4.8	MFLs Not Met (R)
B-4	Eagle Lake	-4.0	MFLs Not Met (R)	-8.1	MFLs Not Met (R)	-7.8	MFLs Not Met (R)
B-4	Lake Annie	2.5	MFLs Met	0.5	MFLs Met	0.7	MFLs Met
C-2	Lake Brantley	2.2	MFLs Met	0.1	MFLs Met	-1.3	MFLs Not Met (P)
C-2	Lake Burkett	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
B-5	Lake Clinch	1.0	MFLs Met	-0.7	MFLs Not Met (P)	-0.1	MFLs Not Met (P)
A-2	Lake Emma	3.0	MFLs Met	2.0	MFLs Met	1.2	MFLs Met
C-2	Lake Howell	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
C-2	Lake Irma	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
B-2	Lake Louisa	2.0	MFLs Met	0.4	MFLs Met	-2.4	MFLs Not Met (P)
A-2	Lake Lucy	3.0	MFLs Met	2.0	MFLs Met	1.1	MFLs Met
C-2	Lake Martha	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
B-2	Lake Minneola	2.1	MFLs Met	0.4	MFLs Met	-1.4	MFLs Not Met (P)
A-4	Lake Parker	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
C-2	Lake Pearl	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
B-4	Lake Starr	-1.6	MFLs Not Met (R)	-3.6	MFLs Not Met (R)	-3.4	MFLs Not Met (R)
B-4	Lake Wailes	-4.9	MFLs Not Met (R)	-7.2	MFLs Not Met (R)	-6.9	MFLs Not Met (R)
D-2	Mills Lake	2.3	MFLs Met	0.9	MFLs Met	0.6	MFLs Met

Table B-11. Continued.

Map Grid	Water Body / Site Name	RC RFB [a]	RC Status	EOP RFB	EOP Status	2035 RFB	2035 Status
MFL Constraints (Continued)							
Adopted Lake and Wetland MFLs within the CFWI Planning Area (Continued)							
B-2	North Lake Apshawa [b]	0.4	MFLs Met	-0.9	MFLs Not Met (P)	-2.2	MFLs Not Met (P)
A-2	Pine Island Lake	1.5	MFLs Met	0.5	MFLs Met	-1.0	MFLs Not Met (P)
B-2	Prevatt Lake [b]	1.1	MFLs Met	0.1	MFLs Met	-0.6	MFLs Not Met (P)
B-2	South Lake Apshawa [b]	0.4	MFLs Met	-1.0	MFLs Not Met (P)	-2.4	MFLs Not Met (P)
C-2	Sylvan Lake [b]	1.1	MFLs Met	0.3	MFLs Met	0.2	MFLs Met
Adopted Spring MFLs within the CFWI Planning Area							
C-2	Miami Springs	1.0	MFLs Met	0.6 (15%)	MFLs Met	0.2 (5.0%)	MFLs Met
C-2	Palm Springs	-1.8	MFLs Not Met (R)	-2.8 (-40%)	MFLs Not Met (R)	-3.0 (-43%)	MFLs Not Met (R)
B-2	Rock Springs	2.4	MFLs Met	-1.3 (-2.5%)	MFLs Not Met (P)	-5.4 (-10%)	MFLs Not Met (P)
C-2	Sanlando Springs	4.0	MFLs Met	-0.1 (-0.7%)	MFLs Not Met (P)	-1.2 (-8.0%)	MFLs Not Met (P)
C-2	Starbuck Spring	0.1	MFLs Met	-1.9 (-15%)	MFLs Not Met (P)	-2.6 (-20%)	MFLs Not Met (P)
B-2	Wekiwa Springs	2.3	MFLs Met	-1.2 (1.9%)	MFLs Not Met (P)	-4.2 (-6.8%)	MFLs Not Met (P)
Other Considerations							
Proposed, Revised Lake MFLs within the CFWI Planning Area (Reevaluation MFLs)							
B-2	North Lake Apshawa [f]	0.7	MFLs Met	-0.6	MFLs Not Met (P)	-1.9	MFLs Not Met (P)
B-2	Prevatt Lake [f]	1.4	MFLs Met	0.4	MFLs Met	-0.3	MFLs Not Met (P)
B-2	South Lake Apshawa [f]	0.5	MFLs Met	-0.9	MFLs Not Met (P)	-2.3	MFLs Not Met (P)
C-2	Sylvan Lake [f]	2.1	MFLs Met	1.3	MFLs Met	1.2	MFLs Met
Proposed Lake MFLs within the CFWI Planning Area							
B-2	Johns Lake [f]	1.5	MFLs Met	-1.0	MFLs Not Met (P)	-3.1	MFLs Not Met (P)
B-2	Lake Avalon [f]	2.0	MFLs Met	-0.7	MFLs Not Met (P)	-2.9	MFLs Not Met (P)
B-2	Lake Hiawassee [f]	0.7	MFLs Met	-2.7	MFLs Not Met (P)	-4.2	MFLs Not Met (P)
Adopted River MFLs							
A-4	Peace River at Bartow [b f]	ND	MFLs Not Met (R)	ND	MFLs Not Met (R)	ND	MFLs Not Met (R)
B-5	Peace River at Ft. Meade [b f]	ND	MFLs Not Met (R)	ND	MFLs Not Met (R)	ND	MFLs Not Met (R)
A-5	Peace River at Zolfo Springs [b]	ND	MFLs Not Met (R)	ND	MFLs Not Met (R)	ND	MFLs Not Met (R)

Table B-11. Continued.

Map Grid	Water Body / Site Name	RC RFB [a]	RC Status	EOP RFB	EOP Status	2035 RFB	2035 Status
Other Considerations (Continued)							
Adopted River MFLs (Continued)							
C-2	St. Johns River at State Road 44 (near Deland)	217	MFLs Met	197	MFLs Met	180	MFLs Met
B-1	Wekiva River at State Road 46 [f]	8.0	MFLs Met	-6.7	MFLs Not Met (P)	-16.2	MFLs Not Met (P)
A-3	Upper Hillsborough River [c f]	ND	MFLs Met	ND	MFLs Met	ND	MFLs Met
Proposed River MFLs							
A-3	Upper and Middle Withlacoochee River (Green Swamp) [d f]	ND	MFLs Met	ND	MFLs Met	ND	MFLs Met
Adopted Aquifer MFLs and Regulatory Wells							
A-5	SWUCA Salt Water Intrusion Minimum Aquifer Level [e f]	ND	MFLs Not Met (R)	ND	MFLs Not Met (R)	ND	MFLs Not Met (R)
na	Upper Peace River Wells [f]	1.5	Target Met	0.5 to -0.2	Target Met	0.4 to 0.8	Target Met
na	Lake Wales Ridge Wells [f]	0.4	Target Met	-1.4 to -1.9	Target Not Met (P)	-1.1 to -1.8	Target Not Met (P)
Adopted Lake and Wetland MFLs Outside of the CFWI Planning Area and Within the ECFT Groundwater Model Domain							
C-1	Big Lake	0.6	MFLs Met	0.2	MFLs Met	0.1	MFLs Met
E-5	Blue Cypress WMA	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
A-1	Bowers Lake	4.0	MFLs Met	CNBD	CNBD	CNBD	CNBD
D-2	Fox Lake	0.8	MFLs Met	0.0	MFLs Met	-0.1	MFLs Not Met (P)
D-1	Lake Ashby	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
C-1	Lake Colby	0.9	MFLs Met	CNBD	CNBD	0.0	MFLs Met
C-1	Lake Daugharty	1.1	MFLs Met	CNBD	CNBD	CNBD	CNBD
B-1	Lake Dorr	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
C-1	Lake Helen	0.7	MFLs Met	CNBD	CNBD	0.0	MFLs Met
B-1	Lake Norris	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
E-3	Lake Washington	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met

Table B-11. Continued.

Map Grid	Water Body / Site Name	RC RFB [a]	RC Status	EOP RFB	EOP Status	2035 RFB	2035 Status
Other Considerations (Continued)							
Adopted Lake and Wetland MFLs Outside of the CFWI Planning Area and Within the ECFT Groundwater Model Domain (Continued)							
A-1	Lake Weir	1.6	MFLs Met	CNBD	CNBD	CNBD	CNBD
C-1	Lake Winnemissett	1.8	MFLs Met	CNBD	CNBD	1.0	MFLs Met
B-1	Nicotoon Lake	1.8	MFLs Met	CNBD	CNBD	CNBD	CNBD
C-1	North Lake Talmadge	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
A-1	Smith Lake	1.5	MFLs Met	CNBD	CNBD	CNBD	CNBD
D-2	South Lake	0.8	MFLs Met	0.0	MFLs Met	-0.1	MFLs Not Met (P)
C-1	The Savannah	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
C-1	Three Island Lakes	0.5	MFLs Met	CNBD	CNBD	-0.3	MFLs Not Met (P)
Adopted Spring MFLs Outside of the CFWI Planning Area and Within the ECFT Groundwater Model Domain							
C-1	Blue Spring	8.0	MFLs Met	-3.7 (-2.4%)	MFLs Not Met (P)	-24.7 (-16%)	MFLs Not Met (P)
B-1	Messant Spring	3.9	MFLs Met	2.8 (23%)	MFLs Met	2.3 (19%)	MFLs Met
B-1	Seminole Springs	3.6	MFLs Met	2.2 (6.5%)	MFLs Met	1.2 (3.5%)	MFLs Met

Notes: Map Grid refers to **Figure B-1**. Status addresses whether constraints and considerations are met based on remaining freeboard values (RFB) expressed in feet, cubic feet per second (rivers) or cubic feet per second and parenthetically, the percentage of remaining freeboard of the minimum flow regime (springs). (P) or (R) in the status columns respectively denote prevention and recovery status for the constraints and considerations. na = Wells not identified in **Figure B-1**. CNBD = Could not be determined, based on model/data limitations. MAC = Minimal aquifer connection (i.e., minimal connection between surficial and Upper Floridan aquifers). ND = Not determined

[a] Reference Condition (2005) remaining freeboard for MFL sites in the SJRWMD determined using site-specific surface water models and for MFLs sites in the SWFMWD using ECFT groundwater model output and site-specific surface water models.

[b] Adopted MFLs scheduled for reevaluation.

[c] Gage site associated with adopted MFLs for the Upper Hillsborough River is outside of the CFWI Planning Area and ECFT groundwater model domain; the river segment extends into the CFWI Planning Area, but not the ECFT groundwater model domain.

[d] Gage site associated with proposed MFLs for the Upper and Middle segments of the Withlacoochee River are outside of the CFWI Planning Area and ECFT groundwater model domain; the river extends into both.

[e] Well sites associated with the adopted SWUCA (Southern Water Use Caution Area) Salt Water Intrusion Minimum Aquifer Level are outside of the CFWI Planning Area and ECFT groundwater model domain, but groundwater withdrawals within both the CFWI Planning Area and the ECFT groundwater model domain may affect water levels in the wells.

[f] Other considerations included in the subset identified by the GAT to support the assessment of groundwater availability in the CFWI Planning Area.

Table B-12. Summary results for MFL constraints and other considerations evaluated for the modeled Reference Condition (RC 2005), 2015, and 2025 withdrawal scenarios.

Map Grid	Water Body / Site Name	RC RFB [a]	RC Status	2015 RFB	2015 Status	2025 RFB	2025 Status
MFL Constraints							
Adopted Lake and Wetland MFLs within the CFWI Planning Area							
B-3	Boggy Marsh	2.1	MFLs Met	3.6	MFLs Met	3.1	MFLs Met
A-2	Cherry Lake	1.5	MFLs Met	1.0	MFLs Met	0.1	MFLs Met
B-4	Crooked Lake	-3.2	MFLs Not Met (R)	-4.0	MFLs Not Met (R)	-4.1	MFLs Not Met (R)
B-4	Eagle Lake	-4.0	MFLs Not Met (R)	-5.9	MFLs Not Met (R)	-6.5	MFLs Not Met (R)
B-4	Lake Annie	2.5	MFLs Met	1.9	MFLs Met	1.5	MFLs Met
C-2	Lake Brantley	2.2	MFLs Met	0.7	MFLs Met	-0.3	MFLs Not Met (P)
C-2	Lake Burkett	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
B-5	Lake Clinch	1.0	MFLs Met	0.2	MFLs Met	0.2	MFLs Met
A-2	Lake Emma	3.0	MFLs Met	2.5	MFLs Met	1.7	MFLs Met
C-2	Lake Howell	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
C-2	Lake Irma	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
B-2	Lake Louisa	2.0	MFLs Met	1.4	MFLs Met	0.1	MFLs Met
A-2	Lake Lucy	3.0	MFLs Met	2.6	MFLs Met	1.7	MFLs Met
C-2	Lake Martha	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
B-2	Lake Minneola	2.1	MFLs Met	1.5	MFLs Met	0.2	MFLs Met
A-4	Lake Parker	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
C-2	Lake Pearl	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
B-4	Lake Starr	-1.6	MFLs Not Met (R)	-2.2	MFLs Not Met (R)	-2.6	MFLs Not Met (R)
B-4	Lake Wailes	-4.9	MFLs Not Met (R)	-5.6	MFLs Not Met (R)	-6.1	MFLs Not Met (R)
D-2	Mills Lake	2.3	MFLs Met	1.8	MFLs Met	1.3	MFLs Met
B-2	North Lake Apshawa [b]	0.4	MFLs Met	-0.1	MFLs Not Met (P)	-1.1	MFLs Not Met (P)
A-2	Pine Island Lake	1.5	MFLs Met	1.1	MFLs Met	0.3	MFLs Met

Table B-12. Continued.

Map Grid	Water Body / Site Name	RC RFB [a]	RC Status	2015 RFB	2015 Status	2025 RFB	2025 Status
MFL Constraints (Continued)							
Adopted Lake and Wetland MFLs within the CFWI Planning Area (Continued)							
B-2	Prevatt Lake [b]	1.1	MFLs Met	0.4	MFLs Met	-0.1	MFLs Not Met (P)
B-2	South Lake Apshawa [b]	0.4	MFLs Met	-0.1	MFLs Not Met (P)	-1.2	MFLs Not Met (P)
C-2	Sylvan Lake [b]	1.1	MFLs Met	1.0	MFLs Met	0.5	MFLs Met
Adopted Spring MFLs within the CFWI Planning Area							
C-2	Miami Springs	1.0	MFLs Met	0.6 (15%)	MFLs Met	0.4 (10%)	MFLs Met
C-2	Palm Springs	-1.8	MFLs Not Met (R)	-2.2 (-31%)	MFLs Not Met (R)	-2.6 (-37%)	MFLs Not Met (R)
B-2	Rock Springs	2.4	MFLs Met	-0.2 (-0.4%)	MFLs Not Met (P)	-3.1 (-5.8%)	MFLs Not Met (P)
C-2	Sanlando Springs	4.0	MFLs Met	2.3 (15%)	MFLs Met	0.6 (4.0%)	MFLs Met
C-2	Starbuck Spring	0.1	MFLs Met	-0.8 (-6.2%)	MFLs Not Met (P)	-1.7 (-13%)	MFLs Not Met (P)
B-2	Wekiwa Springs	2.3	MFLs Met	-0.4 (-0.6%)	MFLs Not Met (P)	-2.3 (-3.7%)	MFLs Not Met (P)
Other Considerations							
Proposed, Revised Lake MFLs within the CFWI Planning Area (Reevaluation MFLs)							
B-2	North Lake Apshawa [f]	0.7	MFLs Met	0.2	MFLs Met	-0.8	MFLs Not Met (P)
B-2	Prevatt Lake [f]	1.4	MFLs Met	0.7	MFLs Met	0.2	MFLs Met
B-2	South Lake Apshawa [f]	0.5	MFLs Met	0.0	MFLs Met	-1.1	MFLs Not Met (P)
C-2	Sylvan Lake [f]	2.1	MFLs Met	2.0	MFLs Met	1.5	MFLs Met
Proposed Lake MFLs within the CFWI Planning Area							
B-2	Johns Lake [f]	1.5	MFLs Met	1.1	MFLs Met	-0.2	MFLs Not Met (P)
B-2	Lake Avalon [f]	2.0	MFLs Met	1.4	MFLs Met	0.2	MFLs Met
B-2	Lake Hiawassee [f]	0.7	MFLs Met	-0.5	MFLs Not Met (P)	-2.2	MFLs Not Met (P)
Adopted River MFLs							
A-4	Peace River at Bartow [b f]	ND	MFLs Not Met (R)	ND	MFLs Not Met (R)	ND	MFLs Not Met (R)
B-5	Peace River at Ft. Meade [b f]	ND	MFLs Not Met (R)	ND	MFLs Not Met (R)	ND	MFLs Not Met (R)
A-5	Peace River at Zolfo Springs [b]	ND	MFLs Not Met (R)	ND	MFLs Not Met (R)	ND	MFLs Not Met (R)

Table B-12. Continued.

Map Grid	Water Body / Site Name	RC RFB [a]	RC Status	2015 RFB	2015 Status	2025 RFB	2025 Status
Other Considerations (Continued)							
Adopted River MFLs (Continued)							
C-2	St. Johns River at State Road 44 (near Deland)	217	MFLs Met	205	MFLs Met	191	MFLs Met
B-1	Wekiva River at State Road 46 [f]	8.0	MFLs Met	-0.7	MFLs Not Met (P)	-8.7	MFLs Not Met (P)
A-3	Upper Hillsborough River [c f]	ND	MFLs Met	ND	MFLs Met	ND	MFLs Met
Proposed River MFLs							
A-3	Upper and Middle Withlacoochee River (Green Swamp) [d f]	ND	MFLs Met	ND	MFLs Met	ND	MFLs Met
Adopted Aquifer MFLs and Regulatory Wells							
A-5	SWUCA Salt Water Intrusion Minimum Aquifer Level [e f]	ND	MFLs Not Met (R)	ND	MFLs Not Met (R)	ND	MFLs Not Met (R)
na	Upper Peace River Wells [f]	1.5	Target Met	0.7 to 1.0	Target Met	0.6 to 1.0	Target Met
na	Lake Wales Ridge Wells [f]	0.4	Target Met	-0.5 to -0.7	Target Not Met	-0.8 to -1.2	Target Not Met
Adopted Lake and Wetland MFLs Outside of the CFWI Planning Area and Within the ECFT Groundwater Model Domain							
C-1	Big Lake	0.6	MFLs Met	0.5	MFLs Met	0.3	MFLs Met
E-5	Blue Cypress WMA	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
A-1	Bowers Lake	4.0	MFLs Met	CNBD	CNBD	CNBD	CNBD
D-2	Fox Lake	0.8	MFLs Met	0.5	MFLs Met	0.2	MFLs Met
D-1	Lake Ashby	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
C-1	Lake Colby	0.9	MFLs Met	0.7	MFLs Met	0.3	MFLs Met
C-1	Lake Daugharty	1.1	MFLs Met	CNBD	CNBD	CNBD	CNBD
B-1	Lake Dorr	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
C-1	Lake Helen	0.7	MFLs Met	0.5	MFLs Met	0.2	MFLs Met
B-1	Lake Norris	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met

Table B-12. Continued.

Map Grid	Water Body / Site Name	RC RFB [a]	RC Status	2015 RFB	2015 Status	2025 RFB	2025 Status
Other Considerations (Continued)							
Adopted Lake and Wetland MFLs Outside of the CFWI Planning Area and Within the ECFT Groundwater Model Domain (Continued)							
E-3	Lake Washington	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
A-1	Lake Weir	1.6	MFLs Met	CNBD	CNBD	CNBD	CNBD
C-1	Lake Winnemissett	1.8	MFLs Met	1.6	MFLs Met	1.3	MFLs Met
B-1	Nicotoon Lake	1.8	MFLs Met	CNBD	CNBD	CNBD	CNBD
C-1	North Lake Talmadge	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
A-1	Smith Lake	1.5	MFLs Met	CNBD	CNBD	CNBD	CNBD
D-2	South Lake	0.8	MFLs Met	0.5	MFLs Met	0.2	MFLs Met
C-1	The Savannah	MAC	MFLs Met	MAC	MFLs Met	MAC	MFLs Met
C-1	Three Island Lakes	0.5	MFLs Met	0.3	MFLs Met	-0.1	MFLs Not Met (P)
Adopted Spring MFLs Outside of the CFWI Planning Area and Within the ECFT Groundwater Model Domain							
C-1	Blue Spring	8.0	MFLs Met	-3.2 (-2.0%)	MFLs Not Met (P)	-22.0 (-14%)	MFLs Not Met (P)
B-1	Messant Spring	3.9	MFLs Met	3.4 (28%)	MFLs Met	2.7 (23%)	MFLs Met
B-1	Seminole Springs	3.6	MFLs Met	2.9 (8.5%)	MFLs Met	1.9 (5.6%)	MFLs Met

Notes: Map Grid refers to **Figure B-1**. Status addresses whether constraints and considerations are met based on remaining freeboard values (RFB) expressed in feet, cubic feet per second (rivers) or cubic feet per second and parenthetically, the percentage of remaining freeboard of the minimum flow regime (springs). (P) or (R) in the status columns respectively denote prevention and recovery status for the constraints and considerations. na = Wells not identified in **Figure B-1**. CNBD = Could not be determined, based on model/data limitations. MAC = Minimal aquifer connection (i.e., minimal connection between surficial and Upper Floridan aquifers). ND = Not determined.

[a] Reference Condition remaining freeboard for MFL sites in the SJRWMD determined using site-specific surface water models and for MFLs sites in the SWFMWD using ECFT model output and site-specific surface water models.

[b] Adopted MFLs scheduled for reevaluation.

[c] Gage site associated with adopted MFLs for the Upper Hillsborough River is outside of the CFWI Planning Area and ECFT groundwater model domain; the river segment extends into the CFWI Planning Area, but not the ECFT groundwater model domain.

[d] Gage site associated with proposed MFLs for the Upper and Middle segments of the Withlacoochee River are outside of the CFWI Planning Area and ECFT groundwater model domain; the river extends into both.

[e] Well sites associated with the adopted SWUCA (Southern Water Use Caution Area) Salt Water Intrusion Minimum Aquifer Level are outside of the CFWI Planning Area and ECFT groundwater model domain, but groundwater withdrawals within both the CFWI Planning Area and the ECFT groundwater model domain may affect water levels in the wells.

[f] Other considerations included in the subset identified by the GAT to support the assessment of groundwater availability in the CFWI Planning Area.

Table B-13. Summary status counts of MFL constraints and all other considerations evaluated by the MFLRT for the recent compliance status assessment and modeled 2005 Reference Condition, 2015, 2025, 2035 and End of Permit withdrawal scenarios.

MFL Constraint and Other Considerations Status	Recent Status [a]	ECFT groundwater model Withdrawal Scenario				
		Reference Condition	2015	2025	2035	End of Permit
MFL Constraints						
Number Met	26	26	21	19	13	19
Number Not Met	5	5	10	12	18	12
Other Considerations						
Number Met	35	35	26	21	18	18
Number Not Met	2	2	6	11	14	10
Number Not Usable	0	0	5	5	5	9
Combined MFL Constraints and Other Considerations						
Number Met	61	61	47	40	31	37
Number Not Met	7	7	16	23	32	22
Number Not Usable	0	0	5	5	5	9

[a] Recent status based on existing SJRWMD and SWFWMD MFLs compliance approaches is provided for comparison with ECFT groundwater model withdrawal scenario results (refer to Figure B-2 and Table B-5 for recent compliance status for all MFLs in the CFWI Planning Area and ECFT areas). For the SJRWMD the recent status and Reference Condition are equivalent.

Table B-14. Summary status counts of MFL constraints and other considerations identified for use by the GAT for the recent compliance status assessment and for the modeled 2005 Reference Condition, 2015, 2025, 2035 and End of Permit withdrawal scenarios.

MFL Constraint and Other Considerations Status	Recent Status [a]	ECFT groundwater model Withdrawal Scenario				
		Reference Condition	2015	2025	2035	End of Permit
MFL Constraints						
Number Met	26	26	21	19	13	19
Number Not Met	5	5	10	12	18	12
Other Considerations						
Number Met	12	12	9	6	4	5
Number Not Met	2	2	5	8	10	9
Number Not Usable	0	0	0	0	0	0
Combined MFL Constraints and Other Considerations						
Number Met	38	38	30	25	17	24
Number Not Met	7	7	15	20	28	21
Number Not Usable	0	0	0	0	0	0

[a] Recent status based on existing SJRWMD and SWFWMD MFLs compliance approaches is provided for comparison with ECFT groundwater model withdrawal scenario results (refer to Figure B-2 and Table B-5 for recent compliance status for all MFLs in the CFWI Planning Area and ECFT areas). For the SJRWMD the recent status and Reference Condition are equivalent.

Reference Condition (2005) Results

The Reference Condition (2005) was used to establish "reference" water levels or flows for calculating projected changes in water levels or flows in response to varying levels of future groundwater withdrawals. Results of different withdrawal scenarios were compared to this Reference Condition to estimate projected changes due to changes in withdrawals. The goal for developing the Reference Condition was to estimate the response of water resources to groundwater withdrawals needed to meet water demands beyond 2005 under the climatic conditions that occurred during the 12-year simulation period (i.e., rainfall for the period 1995 through 2006). Withdrawal amounts vary from year to year based on climate but, the demands serviced using groundwater, such as the number of people and agricultural acreage was maintained as a constant throughout the simulation period.

MFL Constraints and Other Considerations

Twenty-six of the 31 MFL constraints evaluated for the 2005 Reference Condition were met (i.e., exhibited positive freeboard values; see **Tables B-11** and **B-13**). Five constraints, including MFLs established for four lakes (Crooked Lake, Eagle Lake, Lake Starr, and Lake Wailes) and one spring (Palm Springs) were not met for the 2005 Reference Condition. The status of MFL constraints for the Reference Condition using the two-color classification scheme described in Section 4 is shown in **Figure B-29**.

Remaining UFA freeboard values for the lake and wetland MFL constraints ranged from 3.0 ft to -4.9 ft for the Reference Condition, although six sites are only minimally influenced by UFA drawdown and therefore may be expected to exhibit relatively large remaining freeboard values. Spring constraint freeboard values ranged from 4.0 to -1.8 cfs for the Reference Condition.

Thirty-five of the 37 other considerations evaluated by the MFLRT were met for the Reference Condition scenario and two were not met (**Tables B-11** and **B-13**). The considerations that were not met included the SWUCA Saltwater Intrusion Minimum Aquifer Level and the consideration based collectively on the MFLs established for the Peace River at Bartow, Ft. Meade, and Zolfo Springs. The status of the other considerations for the Reference Condition based on the two-color classification scheme is shown in **Figure B-29**.

As part of their groundwater availability assessment effort, the GAT determined that it would be appropriate to use a subset of the other considerations developed by the MFLRT for identification of available groundwater quantities. This decision was based on acknowledgement that the ECFT groundwater model is most appropriate for evaluation of withdrawal impacts on water bodies within the CFWI Planning Area and that effects of withdrawals on many non-CFWI Planning Area water bodies may be better evaluated using other models. The subset identified by the GAT was restricted to 14 of the other considerations evaluated by the MFLRT, including proposed MFLs for seven lakes within the CFWI Planning Area (new MFLs proposed for Johns Lake, Lake Avalon, and Lake

Hiawassee and “reevaluation” MFLs proposed for North Lake Apshawa, Prevatt Lake, South Lake Apshawa, and Sylvan Lake). Other considerations included in the GAT sub-set were those identified for the Peace River in the CFWI Planning Area (at Bartow and Fort Mead, collectively), Wekiva River at State Road 46, Upper Hillsborough River, and Upper and Middle Withlacoochee River, the SWUCA Saltwater Intrusion Minimum Aquifer Level and the Upper Peace River and Lake Wales Ridge regulatory wells.

Twelve of the subset of 14 other considerations identified for use by the GAT were met for the Reference Condition (**Tables B-11** and **B-14**). The two considerations that were not met in the GAT subset included the SWUCA Saltwater Intrusion Minimum Aquifer Level and the consideration based collectively on the MFLs established for the Peace River at Bartow and Ft. Meade. **Figure B-30** includes a spatial representation of the status of the subset of other considerations identified by the GAT for the Reference Condition.

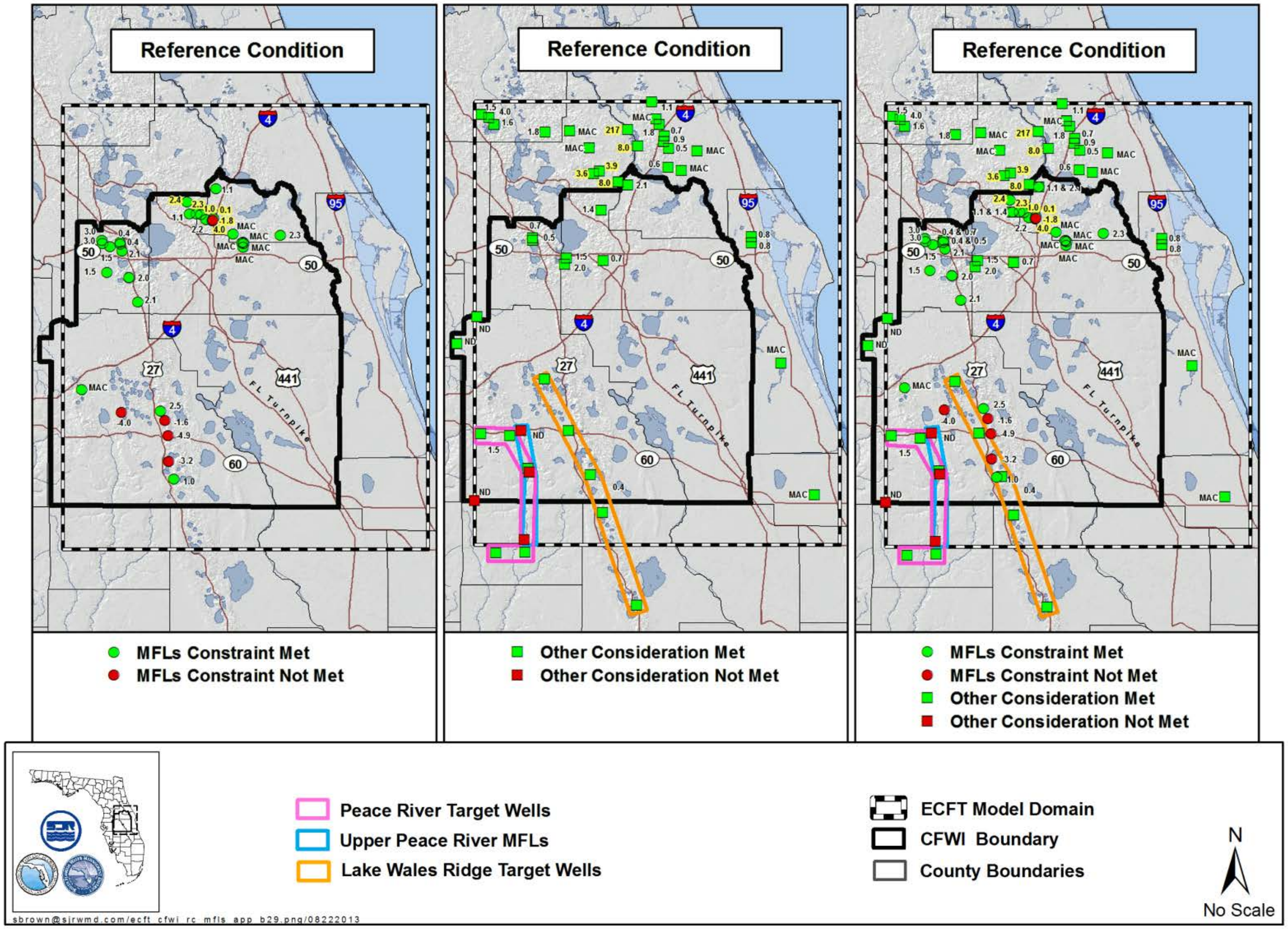


Figure B-29. Reference Condition (2005): Status (met or not met) and remaining freeboard for MFL constraints (left panel), other considerations (middle panel), and combined constraints and considerations (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating freeboard was not established due to minimal aquifer connection at the site and ND indicating freeboard not determined.

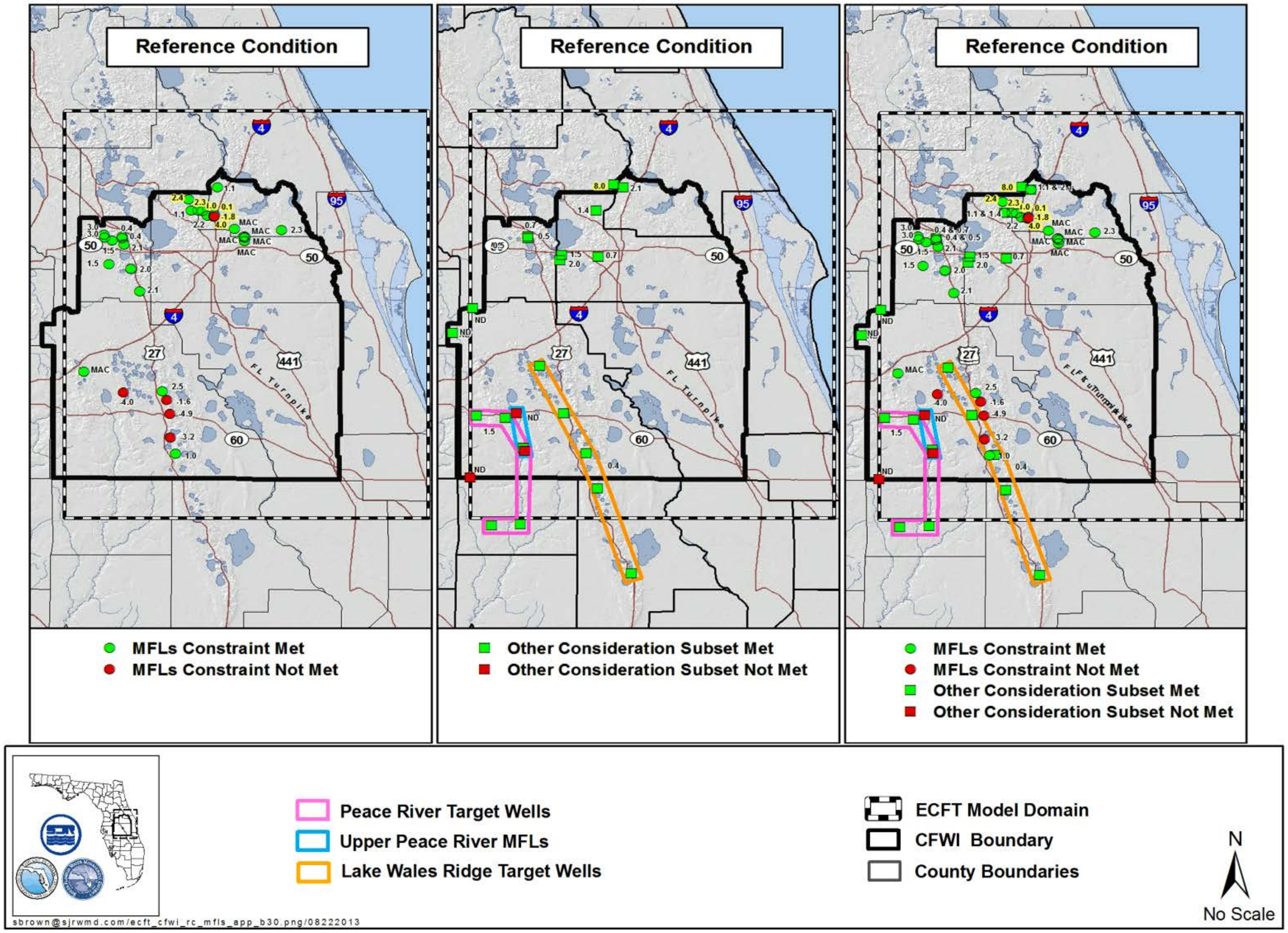


Figure B-30. Reference Condition (2005): Status (met or not met) and remaining freeboard for MFL constraints (left panel), other considerations identified for use by the GAT (middle panel), and combined constraints and GAT identified considerations (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating freeboard was not established due to minimal aquifer connection at the site and ND indicating freeboard not determined

2035 Withdrawal Scenario Results

The 2035 withdrawal scenario was used to compare projected changes in water level or flows to the Reference Condition (2005) for evaluation of withdrawal related impacts for the 20-year planning horizon used to develop the regional water supply plan (RWSP) for the CFWI Planning Area.

MFL Constraints

Thirteen of the 31 MFL constraints evaluated for the 2035 withdrawal scenario were met, (i.e., exhibited positive freeboard values; see **Tables B-11** and **B-13**). Constraints were not met for 18 constraints and included 13 lakes and five springs. Lake MFLs that were not met included those established for Cherry Lake, Crooked Lake, Eagle Lake, Lake Brantley, Lake Clinch, Lake Louisa, Lake Mineola, Lake Starr, Lake Wailes, North Lake Apshawa, Pine Island Lake, Prevatt Lake, and South Lake Apshawa. Spring MFLs that were not met for the 2035 withdrawal scenario included those established for the Palm, Rock, Sanlando, Starbuck, and Wekiwa springs.

Excluding the sites that exhibited minimal interaction between the surficial and UFA systems, remaining UFA freeboard values for the lake and wetland MFL constraints ranged from 1.8 ft to -7.8 ft for the 2035 withdrawal scenario. Spring constraint freeboard values ranged from 0.2 to -5.4 cfs for the 2035 withdrawal scenario. Expressed as a percentage of remaining freeboard based on the adopted minimum flow regimes, the remaining freeboard for the spring constraints ranged from 5% to -43%.

The status of MFL constraints for the 2035 withdrawal scenario based on the two-color classification scheme described in Section 4 is shown in **Figure B-31** along with constraint status for the Reference Condition (2005) for comparative purposes. Spatial representation of MFL constraint status for the 2035 withdrawal scenario and 2005 Reference Condition based on the three-color classification scheme, which incorporates additional information regarding differences between model scenarios, is also shown in **Figure B-31**. As noted in the Section 3 of this appendix, red coding in the three-color classification scheme used in **Figure B-31** and in other similarly formatted figures in this appendix, identifies the potential need for recovery of flows or water levels (recovery status) and yellow coding identified the potential need for implementation of prevention strategies or activities to ensure that predicted future violations of MFLs or MFL-related targets do not occur (prevention status).

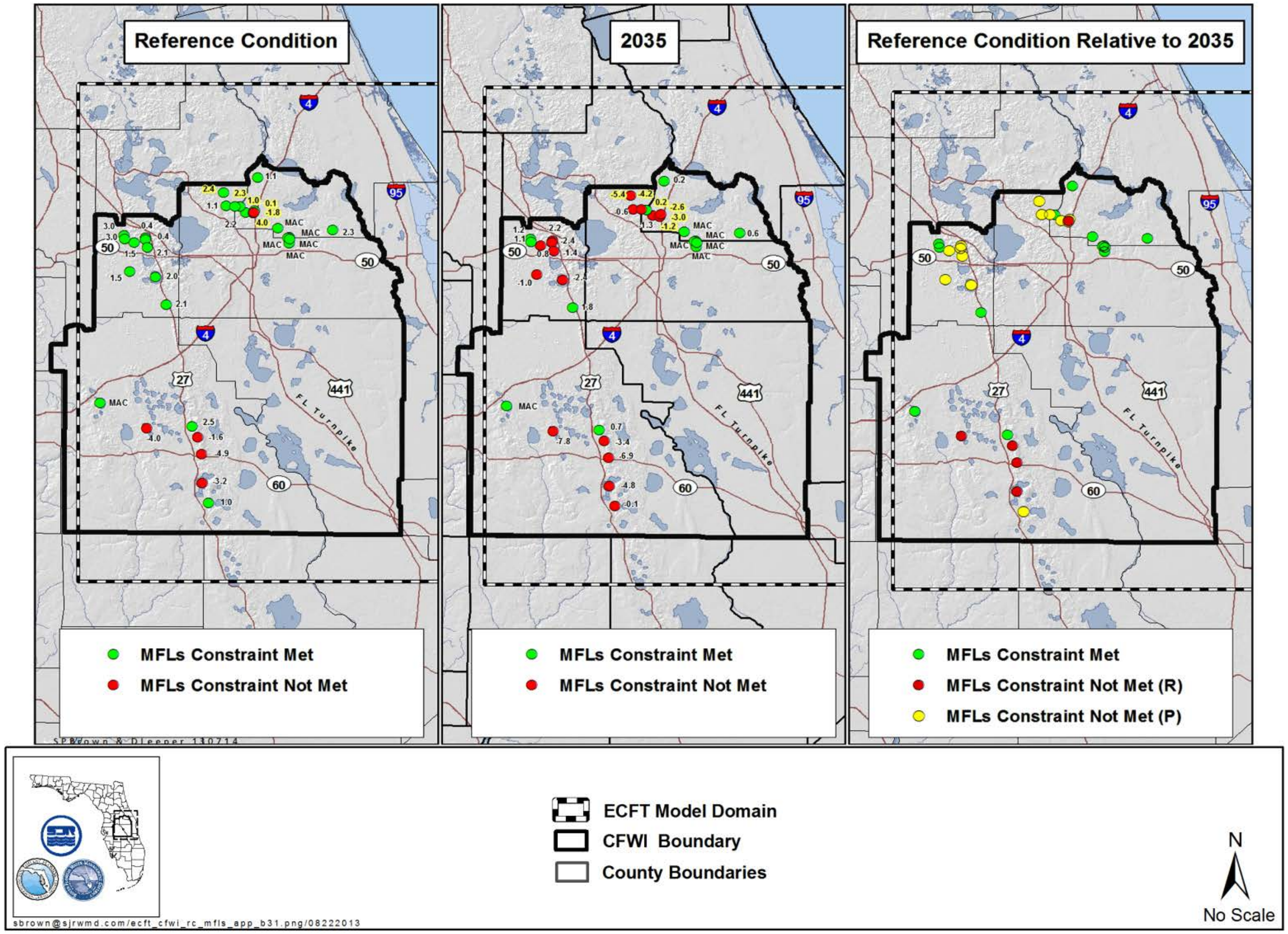


Figure B-31. 2035 Withdrawal Scenario - MFL Constraints: Status (met or not met) and remaining freeboard for the Reference Condition (2005) and the 2035 withdrawal scenario (left and middle panels) and status for the Reference Condition (2005) relative to the 2035 withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site.

Other Considerations

Eighteen of the 37 other considerations evaluated by the MFLRT were met for the 2035 withdrawal scenario, 14 were not met and ECFT groundwater model results were not usable for five considerations (refer to **Tables B-11** and **B-13**). Considerations that were not met for the 2035 withdrawal scenario included those associated with established or proposed MFLs for nine lakes, established MFLs for Blue Springs, the SWUCA Saltwater Intrusion Minimum Aquifer Level, the consideration based collectively on the MFLs established for the Peace at Bartow, Ft. Meade and Zolfo Springs, the established Wekiva River MFLs, and the Lake Wales Ridge regulatory wells. The nine lake-MFL considerations that were not met included proposed MFLs for Fox Lake, Johns Lake, Lake Avalon, Lake Hiawassee, North Apshawa Lake, Prevatt Lake, South Apshawa Lake, South Lake, and Three Island Lake.

The status of the 37 other considerations for the 2035 withdrawal scenario based on the two-color classification scheme described in Section 4 is shown in **Figure B-32** along with the status of the considerations for the Reference Condition scenario for comparative purposes. Spatial representation of the other consideration status for the 2035 withdrawals scenario and Reference Condition based on the three-color classification scheme, which incorporates more information regarding changes between model scenarios, is also shown in **Figure B-32**.

Evaluation of the subset of 14 other considerations identified for use by the GAT indicated that four considerations were met for the 2035 withdrawal scenario and 10 were not met (see **Tables B-11** and **B-14**). Considerations in the subset that were not met included proposed MFLs for six lakes (Johns Lake, Lake Avalon, Lake Hiawassee, North Lake Apshawa, Prevatt Lake, and South Lake Apshawa), established MFLs for the Wekiva River, the consideration based collectively on the MFLs established for the Peace River at Bartow and Ft. Meade, the SWUCA Saltwater Intrusion Minimum Aquifer Level, and the target water level for the Lake Wales Ridge regulatory wells.

The status of the subset of 14 other considerations identified by the GAT for the 2035 withdrawal scenario based on the two-color classification scheme is shown in **Figure B-33** along with the status of the considerations for the Reference Condition scenario for comparative purposes. Spatial representation of the status of the subset of other considerations for the 2035 withdrawal scenario and Reference Condition based on the three-color classification scheme, is also shown in **Figure B-33**.

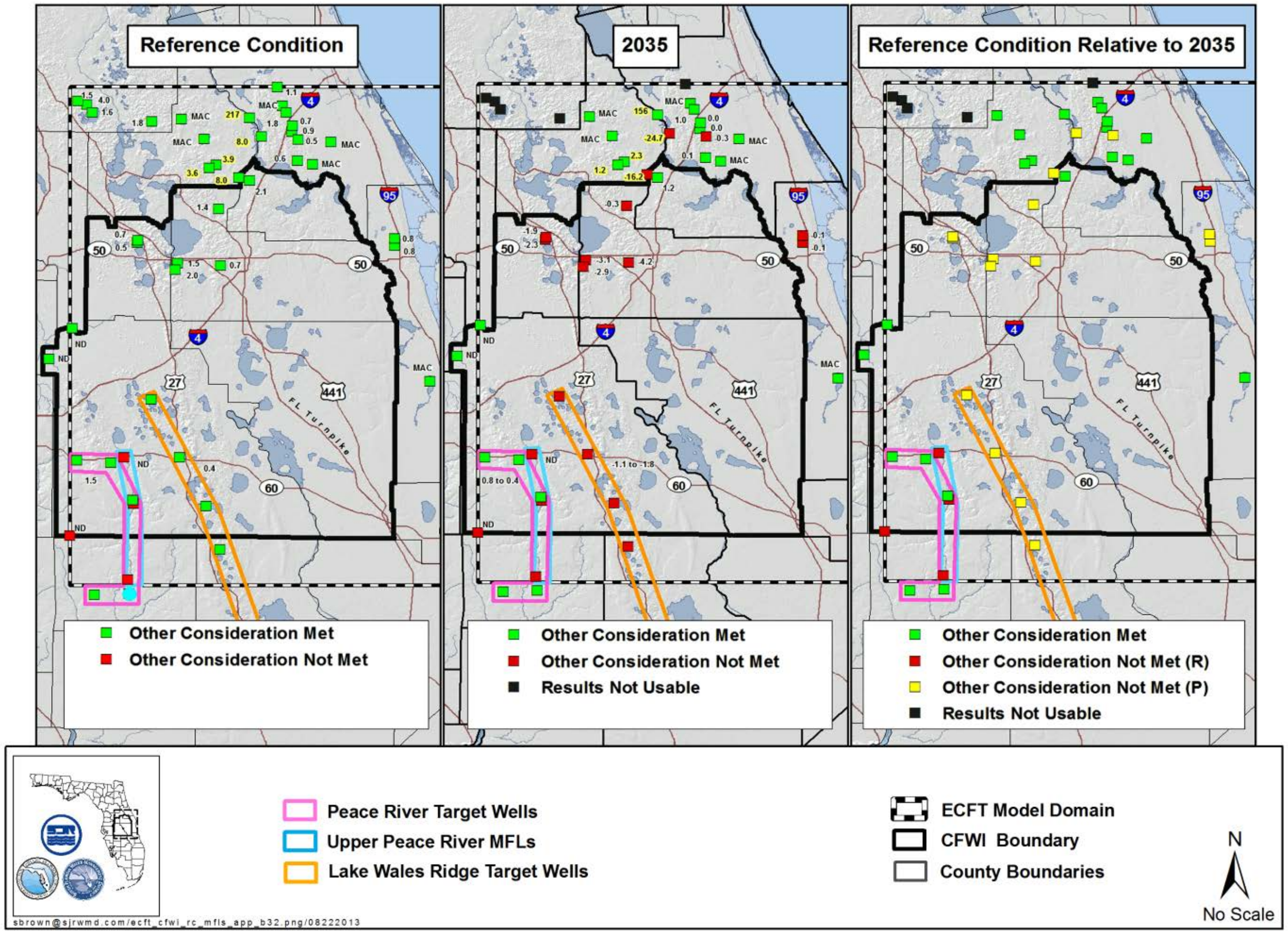


Figure B-32. 2035 Withdrawal Scenario – Other Considerations: Status (met or not met) and remaining freeboard for the Reference Condition (2005) and 2035 withdrawal scenarios (left and middle panels) and status for the Reference Condition (2005) relative to the 2035 withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site and ND indicating that freeboard was not determined. A range of freeboard values is shown for each set of wells based on the method used for their derivation (see Section 4). Symbols for Blue Cypress Water Management Area (other consideration met; remaining freeboard value = MAC) and the southernmost of the Lake Wales Ridge wells grouped by the orange polygon are not shown in the mapped area.

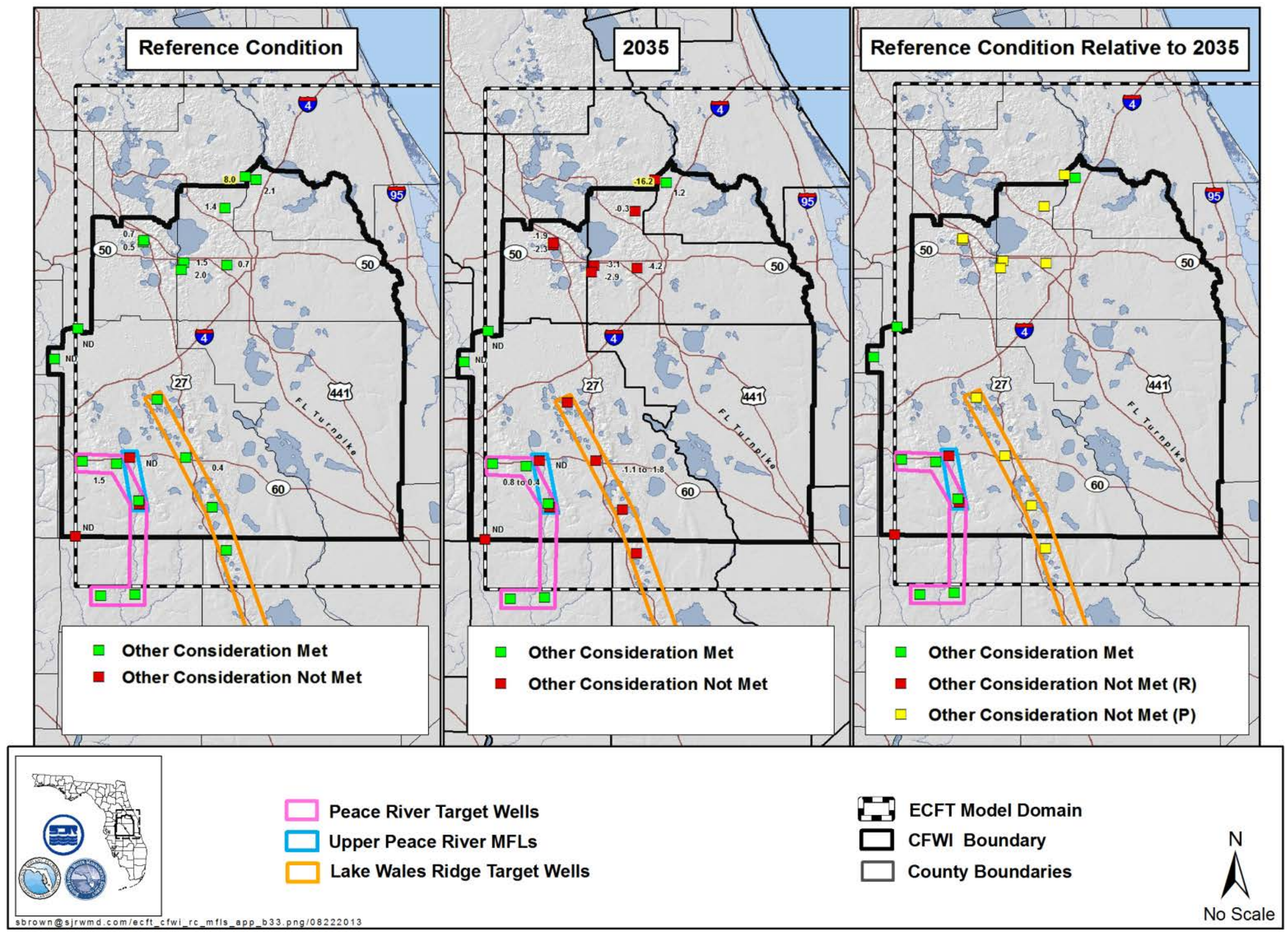


Figure B-33. 2035 GAT Withdrawal Scenario – Other Considerations: Status (met or not met) and remaining freeboard identified by the GAT for the Reference Condition (2005) and 2035 withdrawal scenarios (left and middle panels) and status for the Reference Condition (2005) relative to the 2035 withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site and ND indicating that freeboard was not determined. A range of freeboard values is shown for each set of wells based on the method used for their derivation (see Section 4). Note that a symbol for the southernmost Lake Wales Ridge well is not shown in the mapped area.

Combined Constraints and Considerations

The combined status of MFL constraints and other considerations identified by the MFLRT for the 2035 withdrawal scenario and Reference Condition (2005) based on the two-color classification scheme described in Section 4 is shown in **Figure B-34**. Spatial representation of the status of the combined constraints and considerations for the 2035 withdrawal scenario and Reference Condition (2005) based on the three-color classification scheme, which incorporates additional information regarding differences between model scenarios, is also included in **Figure B-34**.

The combined status of MFL constraints and other considerations identified for use by the GAT for the 2035 withdrawal scenario and Reference Condition (2005) is shown in **Figure B-35**.

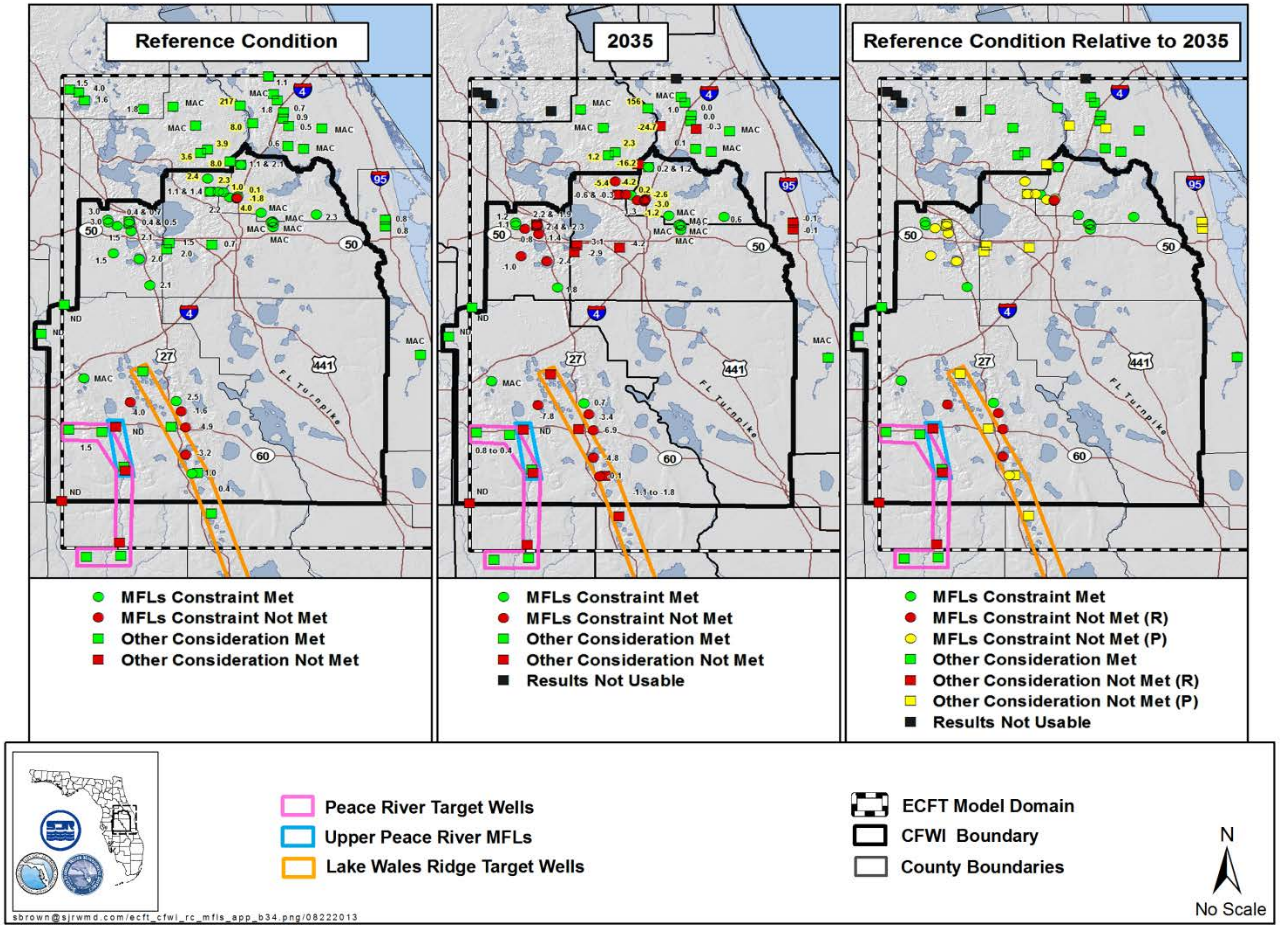


Figure B-34. 2035 Withdrawal Scenario – MFL Constraints and Other Considerations: Status (met or not met) and remaining freeboard for the Reference Condition (2005) and 2035 withdrawal scenario (left and middle panels) and status for the Reference Condition (2005) relative to the 2035 withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site and ND indicating that freeboard was not determined. Two freeboard values are shown for four sites with adopted and proposed MFLs that were used respectively, as MFLs constraints and other considerations. A range of freeboard values is shown for each set of wells based on the method used for their derivation (see Section 4). Symbols for Blue Cypress Water Management Area (other consideration met; remaining freeboard value = MAC) and the southernmost of the Lake Wales Ridge wells grouped by the orange polygon are not shown in the mapped area.

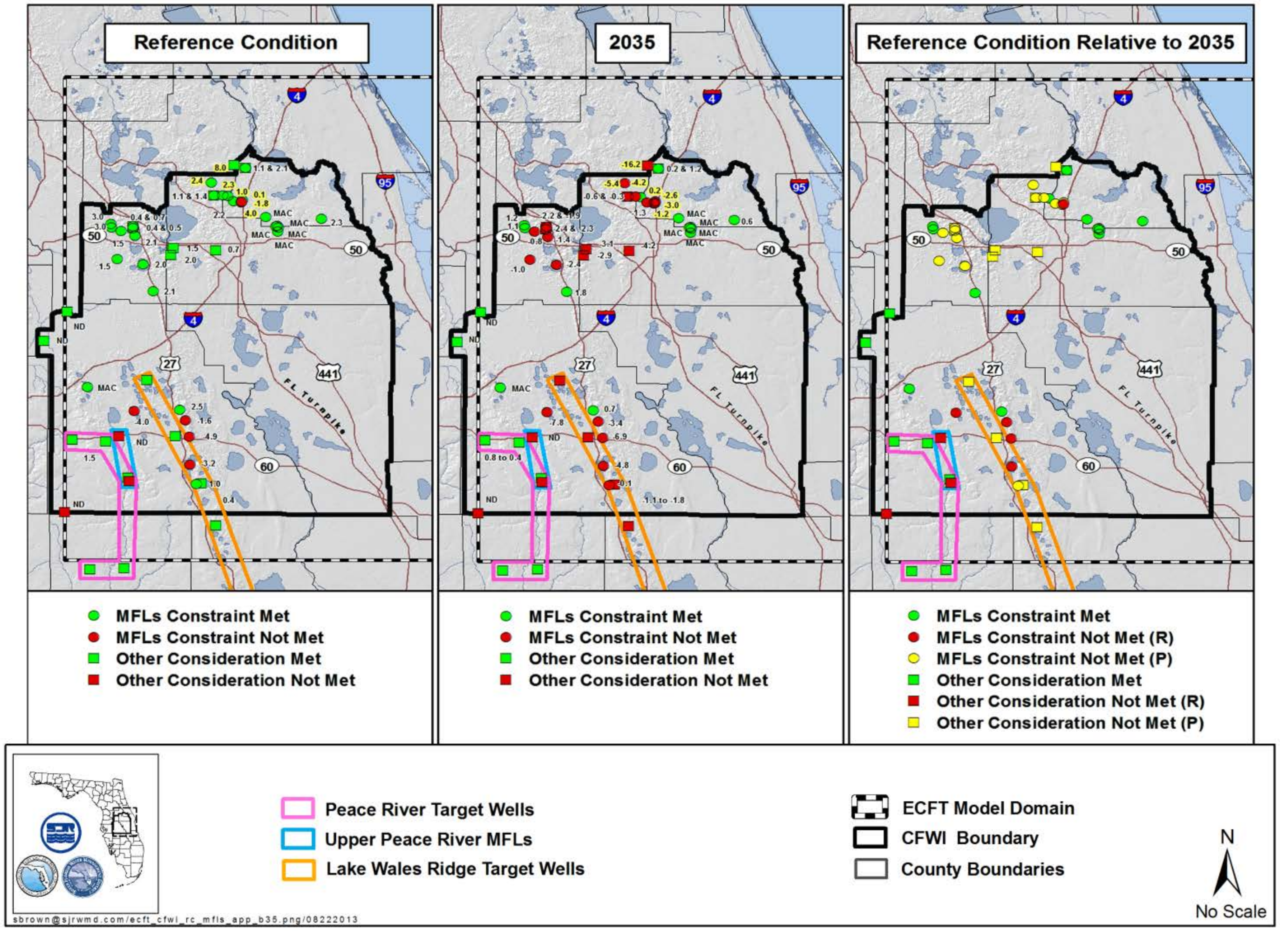


Figure B-35. 2035 GAT Withdrawal Scenario – MFL Constraints and Other Considerations: Status (met or not met) and remaining freeboard identified by the GAT for the Reference Condition (2005) and 2035 withdrawal scenario (left and middle panels) and status for the Reference Condition (2005) relative to the 2035 withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site and ND indicating that freeboard was not determined. Two freeboard values are shown for four sites with adopted and proposed MFLs that were used respectively, as MFLs constraints and other considerations. A range of freeboard values is shown for each set of wells based on the method used for their derivation (see Section 4). A symbol for the southernmost of the Lake Wales Ridge wells grouped by the orange polygon is not shown in the mapped area.

End of Permit (EOP) Withdrawal Scenario Results

The End of Permit (EOP) withdrawal scenario was used to compare projected changes in water level or flows to the Reference Condition scenario for evaluation of withdrawal related impacts for CFWI Planning Area resources based on currently permitted withdrawal quantities.

MFL Constraints

Nineteen of the 31 MFL constraints evaluated for the EOP withdrawal scenario were met (i.e., exhibited positive freeboard values), while 12 constraints were not met (refer to **Tables B-11** and **B-13**). Constraints that were not met for the scenario included seven lakes and five springs. Lake MFLs that were not met included those established for Crooked Lake, Eagle Lake, Lake Clinch, Lake Starr, Lake Wailes, North Lake Apshawa, and South Lake Apshawa. Spring MFLs that were not met for the scenario included those established for Palm, Rock, Sanlando, Starbuck and Wekiwa springs.

Excluding the sites that exhibited minimal interaction between the surficial and UFA systems, remaining UFA freeboard values for the lake and wetland MFL constraints ranged from 3.0 ft to -8.1 ft for the EOP withdrawal scenario. Spring constraint freeboard values ranged from 0.6 to -2.8 cfs for the EOP withdrawal scenario. Expressed as a percentage of remaining freeboard based on the adopted minimum flow regimes, the remaining freeboard for the spring constraints ranged from 15% to -40%.

The status of MFL constraints for the EOP withdrawal scenario based on the two-color classification scheme described in Section 4 is shown in **Figure B-36** along with constraint status for the Reference Condition scenario for comparative purposes. Spatial representation of MFLs constraint status for the EOP withdrawal scenario and Reference Condition based on the three-color classification scheme, which incorporates additional information regarding changes between model scenarios, is also shown in **Figure B-36**.

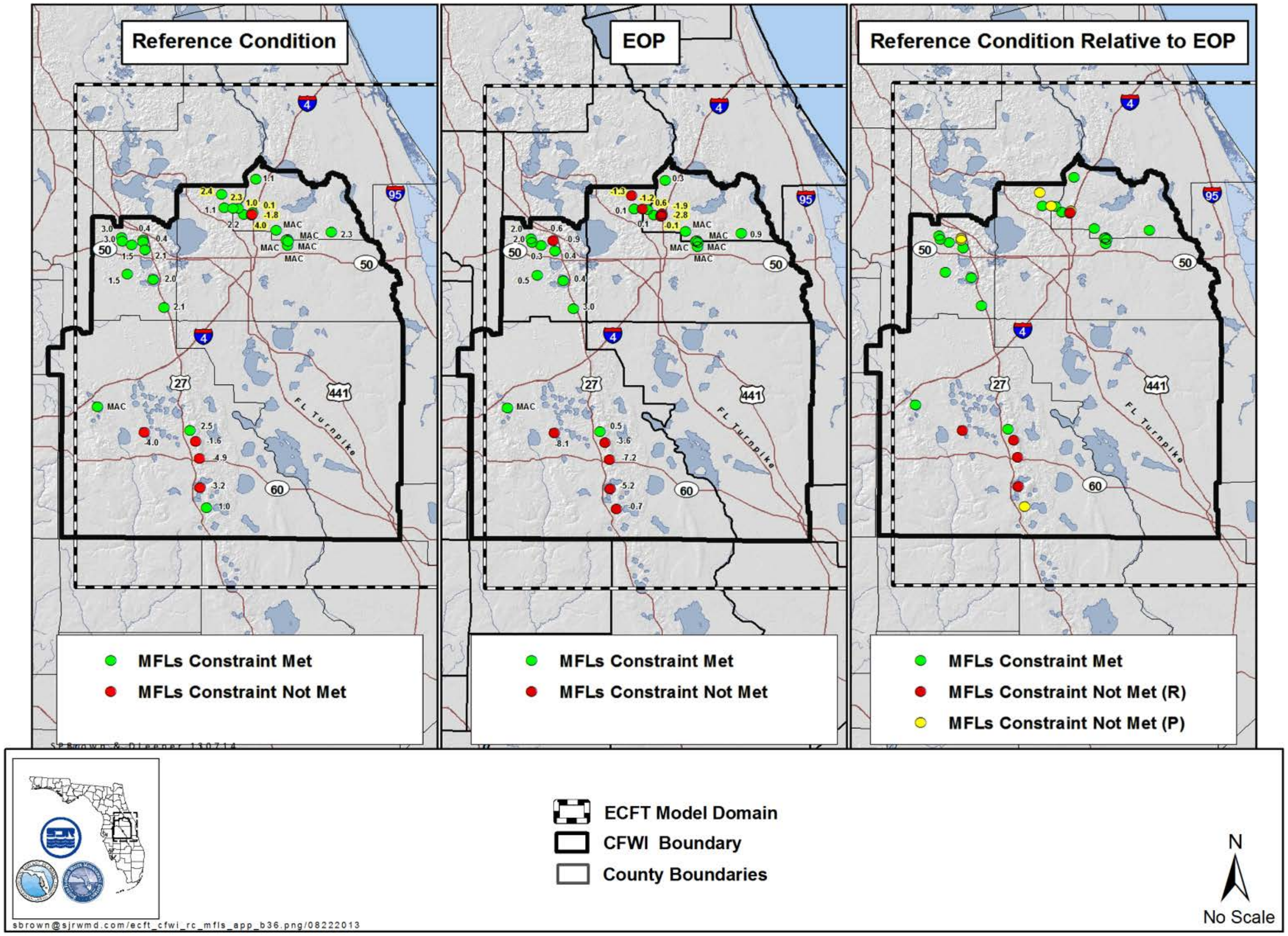


Figure B-36. EOP Withdrawal Scenario – MFL Constraints: Status (met or not met) and remaining freeboard for the Reference Condition (2005) and End of Permit (EOP) withdrawal scenario (left and middle panels) and status for the Reference Condition (2005) relative to the EOP withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site.

Other Considerations

Eighteen of the 37 other considerations evaluated by the MFLRT were met for the EOP withdrawal scenario, 10 were not met and ECFT groundwater model results were not usable for nine considerations (see **Tables B-11** and **B-13**). Considerations that were not met for the scenario included those associated with established or proposed MFLs for five lakes, established MFLs for Blue Springs, the SWUCA Saltwater Intrusion Minimum Aquifer Level, the consideration based collectively on the MFLs established for the Peace River at Bartow, Ft. Meade and Zolfo Springs, established MFLs for the Wekiva River and the Lake Wales Ridge regulatory wells. The five lake-MFL considerations that were not met included proposed MFLs for Johns Lake, Lake Avalon, Lake Hiawassee, North Apshawa Lake, and South Apshawa Lake.

The status of the 37 other considerations for the EOP withdrawal scenario based on the two-color classification scheme described in Section 4 is shown in **Figure B-37** along with the status of the considerations for the Reference Condition scenario for comparative purposes. Spatial representation of the status of the considerations for the EOP and Reference Condition scenarios based on the three-color classification scheme, which incorporates more information regarding changes between model scenarios, is also shown in **Figure B-37**.

Evaluation of the subset of 14 other considerations identified for use by the GAT indicated that five considerations were met for the EOP withdrawal scenario and nine were not met (refer to **Tables B-11** and **B-14**). Considerations in the subset that were not met included proposed MFLs for five lakes (Johns Lake, Lake Avalon, Lake Hiawassee, North Lake Apshawa, and South Lake Apshawa), established MFLs for the Wekiva River, the consideration based collectively on the MFLs established for the Peace River at Bartow and Ft. Meade, the SWUCA Saltwater Intrusion Minimum Aquifer Level and the target water level for the Lake Wales Ridge regulatory wells.

The status of the subset of 14 other considerations identified by the GAT for the EOP withdrawal scenario based on the two-color classification scheme is shown in **Figure B-38** along with the status of the considerations for the Reference Condition scenario for comparative purposes. Spatial representation of the status of the subset of considerations for the EOP withdrawal scenario and Reference Condition based on the three-color classification scheme is also included in **Figure B-38**.

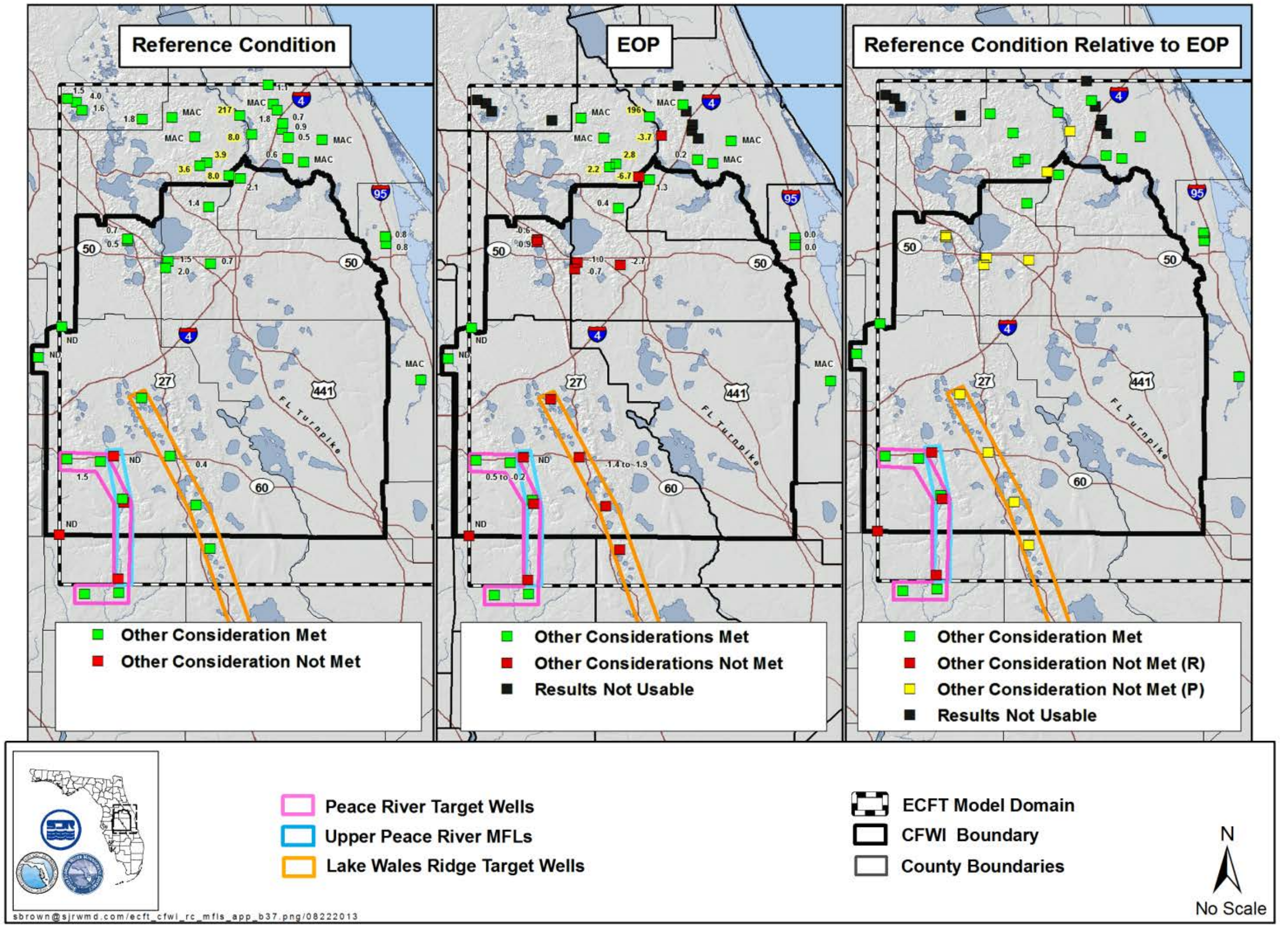


Figure B-37. EOP Withdrawal Scenario – Other Considerations: Status (met or not met) and remaining freeboard for the Reference Condition (2005) and End of Permit (EOP) withdrawal scenario (left and middle panels) and status for the Reference Condition (2005) relative to the EOP withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site and ND indicating that freeboard was not determined. Colored polygons in the lower portion of each panel identify sets of grouped considerations for the Peace River, Lake Wales Ridge wells and Upper Peace River wells. A range of freeboard values is shown for each set of wells based on the method used for their derivation (see Section 4). Symbols for Blue Cypress Water Management Area (other consideration met; remaining freeboard value = MAC) and the southernmost of the Lake Wales Ridge wells grouped by the orange polygon are not shown in the mapped area.

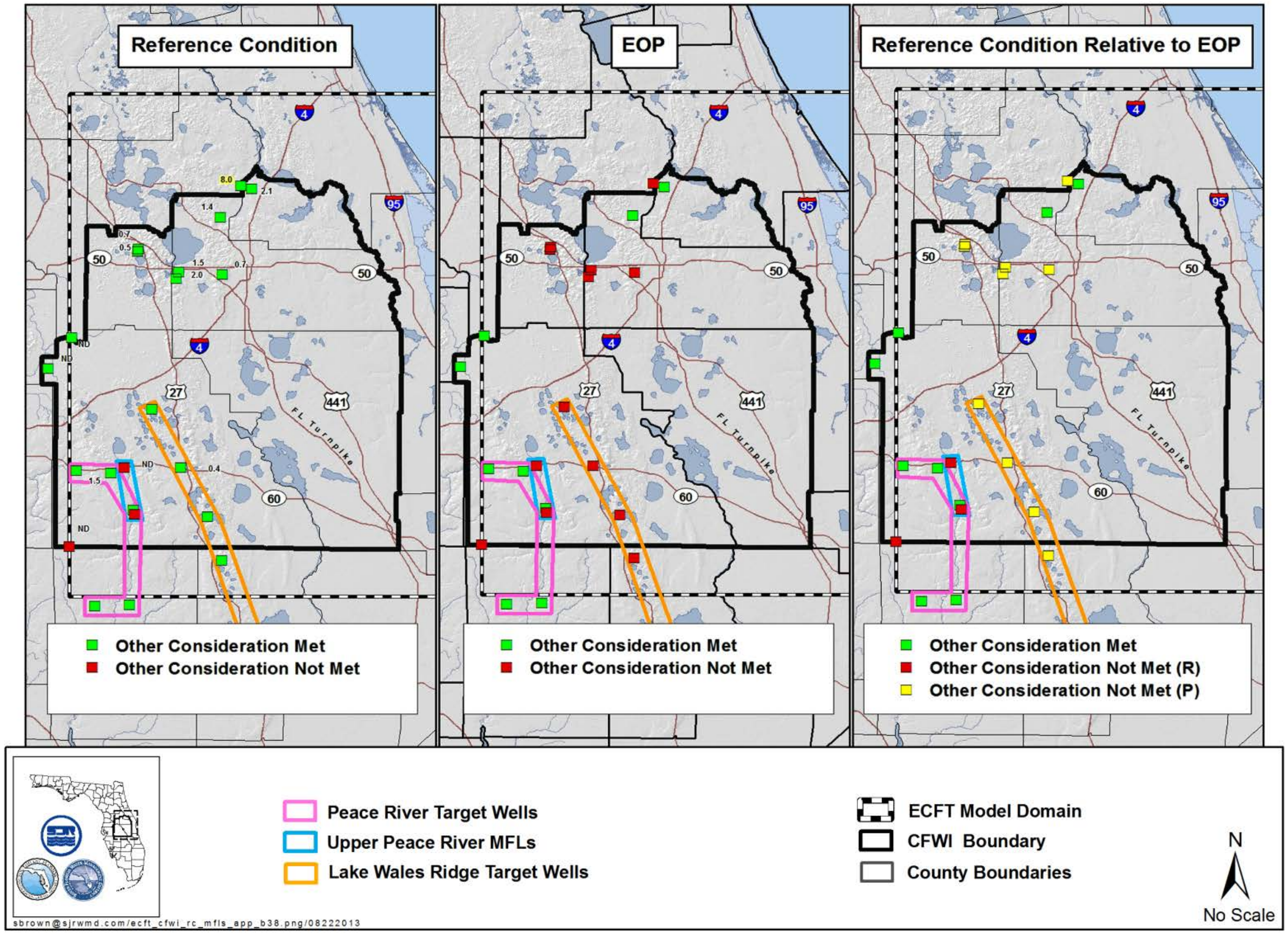


Figure B-38. EOP Withdrawal GAT Scenario – Other Considerations: Status (met or not met) and remaining freeboard identified by the GAT for the Reference Condition (2005) and End of Permit (EOP) withdrawal scenario (left and middle panels) and status for the Reference Condition (2005) relative to the EOP withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site and ND indicating that freeboard was not determined. A range of freeboard values is shown for each set of wells based on the method used for their derivation (see Section 4). Note that a symbol for the southernmost Lake Wales Ridge well is not shown in the mapped area.

Combined Constraints and Considerations

The combined status of MFL constraints and other considerations identified by the MFLRT for the EOP withdrawal scenario and Reference Condition (2005) based on the two-color classification scheme described in Section 4 is shown in **Figure B-39**. Spatial representation of the status of the combined considerations and constraints for the EOP withdrawal scenario and Reference Condition (2005) based on the three-color classification scheme, which incorporates additional information regarding differences between model scenarios, is also included in **Figure B-39**.

The combined status of MFL constraints and other considerations identified for use by the GAT for the EOP withdrawal scenario and Reference Condition (2005) is shown in **Figure B-40**.

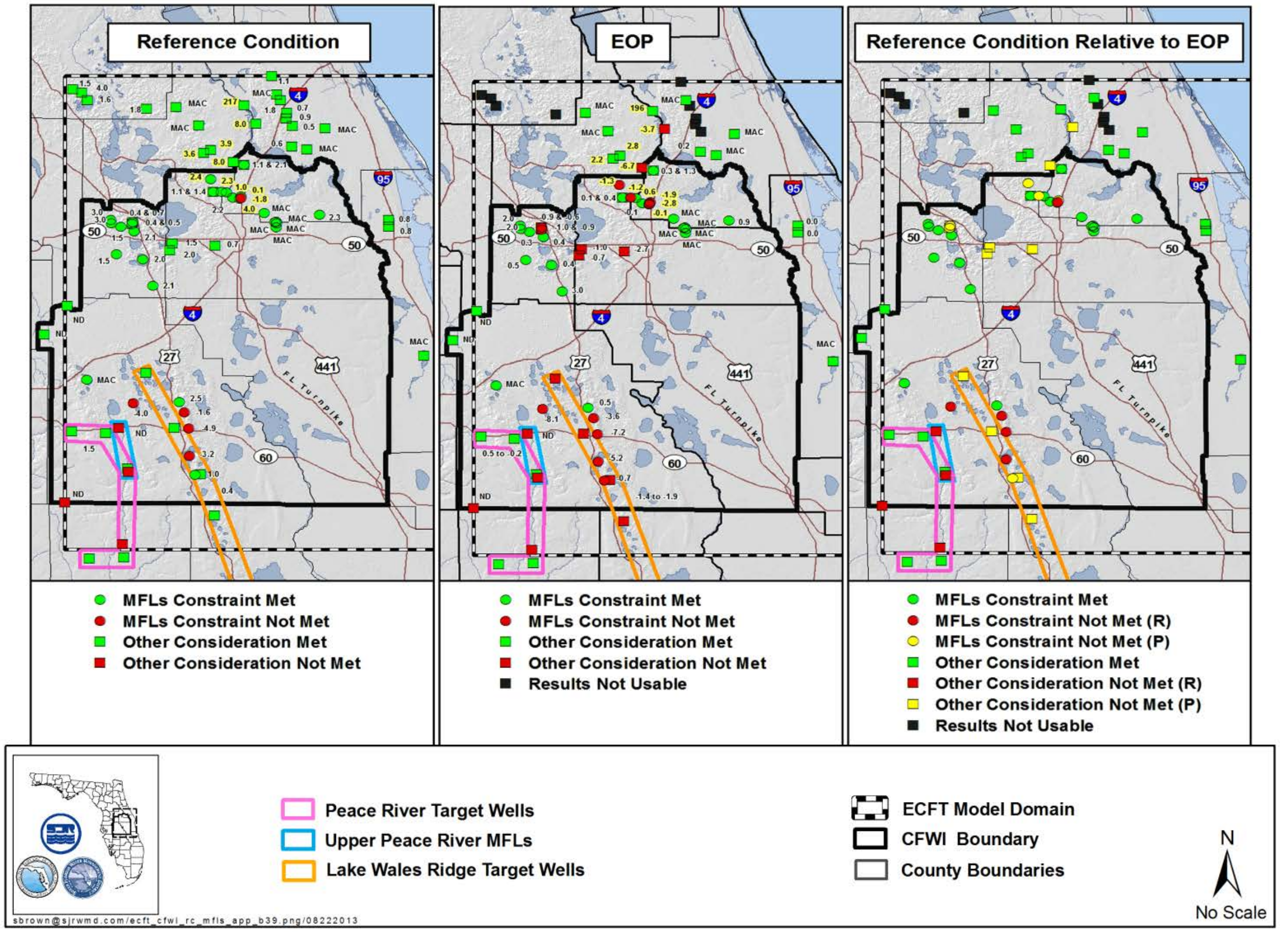


Figure B-39. EOP Withdrawal Scenario – MFL Constraints and Other Considerations: Status (met or not met) and remaining freeboard for the Reference Condition (2005) and End of Permit (EOP) withdrawal scenario (left and middle panels) and status for the Reference Condition (2005) relative to the EOP withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site and ND indicating that freeboard was not determined. Two freeboard values are shown for four sites with adopted and proposed MFLs that were used respectively, as MFLs constraints and other considerations. A range of freeboard values is shown for each set of wells based on the method used for their derivation (see Section 4). Symbols for Blue Cypress Water Management Area (other consideration met; remaining freeboard value = MAC) and the southernmost of the Lake Wales Ridge wells grouped by the orange polygon are not shown in the mapped area.

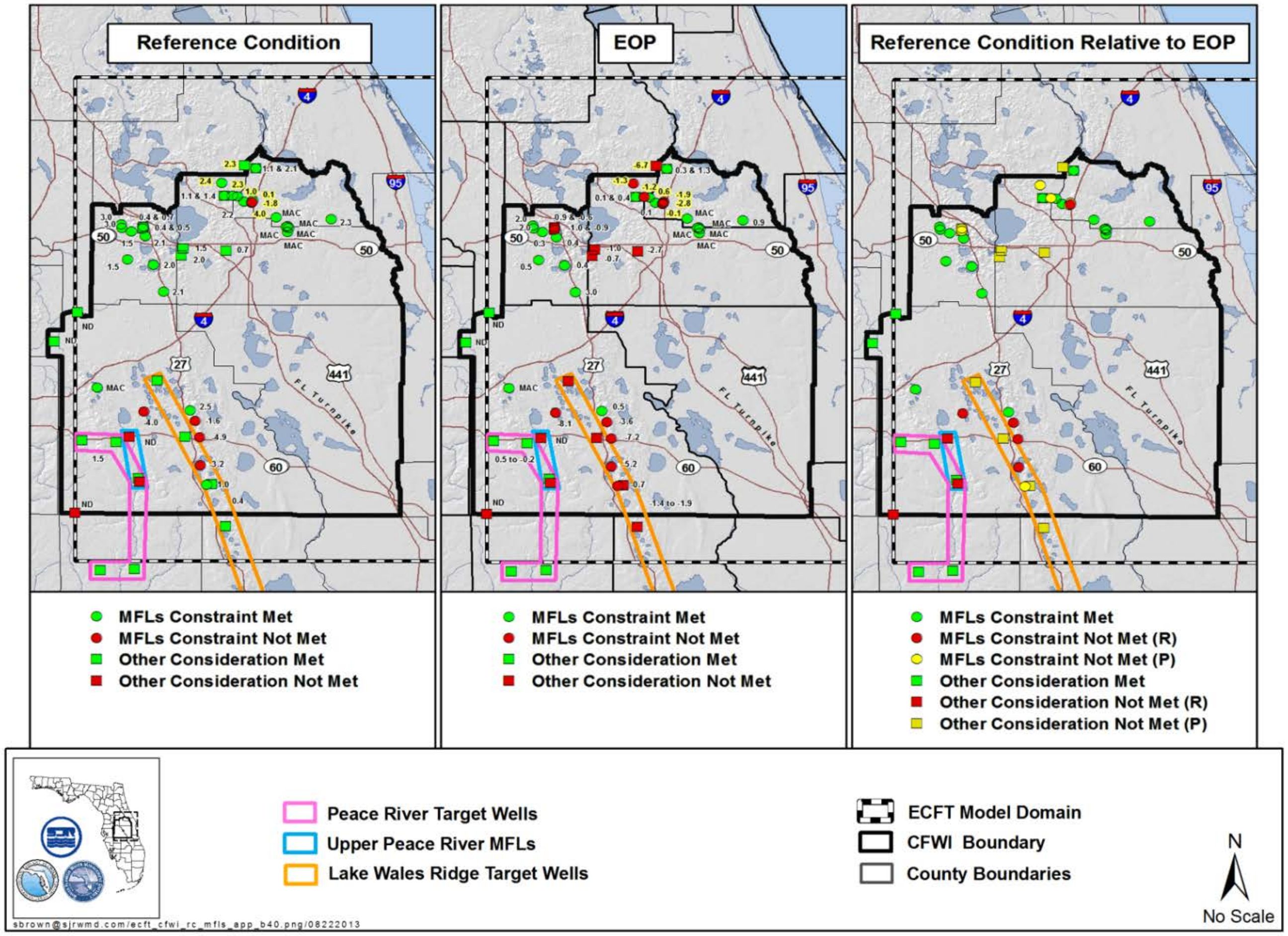


Figure B-40. EOP Withdrawal GAT Scenario -– MFL Constraints and Other Considerations: Status (met or not met) and remaining freeboard identified by the GAT for the Reference Condition (2005) and End of Permit (EOP) withdrawal scenario (left and middle panels) and status for the Reference Condition (2005) relative to the EOP withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site and ND indicating that freeboard was not determined. Two freeboard values are shown for four sites with adopted and proposed MFLs that were used respectively, as MFLs constraints and other considerations. A range of freeboard values is shown for each set of wells based on the method used for their derivation (see Section 4). A symbol for the southernmost of the Lake Wales Ridge wells grouped by the orange polygon is not shown in the mapped area.

Intermediate 2025 Withdrawal Scenario Results

The intermediate 2025 withdrawal scenario was used to compare projected changes in water level or flows to the Reference Condition (2005) for evaluation of withdrawal related impacts for a period less than the 20-year planning horizon used for development of a regional water supply plan for the CFWI Planning Area. This scenario was evaluated based on the assumption that impacts associated with the 2035 withdrawal scenario may limit groundwater availability, and if this were the case, it would be necessary to evaluate impacts associated with demands less than those projected for 2035.

MFL Constraints

Nineteen of the 31 MFL constraints evaluated for the 2025 withdrawal scenario were met (i.e., exhibited positive freeboard values), while 12 constraints were not met (refer to **Tables B-12** and **B-13**). Constraints that were not met for the scenario included eight lakes and four springs. Lake MFLs that were not met included those established for Crooked Lake, Eagle Lake, Lake Brantley, Lake Starr, Lake Wailes, North Lake Apshawa, Prevatt Lake and South Lake Apshawa. Spring MFLs that were not met for the scenario included those established for Palm, Rock, Starbuck and Wekiwa springs.

Excluding the sites that exhibited minimal interaction between the surficial and UFA systems, remaining UFA freeboard values for the lake and wetland MFLs constraints ranged from 3.1 ft to -6.5 ft for the 2025 withdrawal scenario. Spring constraint freeboard values ranged from 0.6 to -3.1 cfs for the 2025 withdrawal scenario. Expressed as a percentage of remaining freeboard based on the adopted minimum flow regimes, the remaining freeboard for the spring constraints ranged from 10% to -37%.

The status of MFL constraints for the 2025 withdrawal scenario based on the two-color classification scheme described in Section 4 is shown in **Figure B-41** along with constraint status for the Reference Condition scenario for comparative purposes. Spatial representation of MFLs constraint status for the 2025 withdrawal scenario and Reference Condition based on the three-color classification scheme, which incorporates more information regarding changes between model scenarios, is also included in **Figure B-41**.

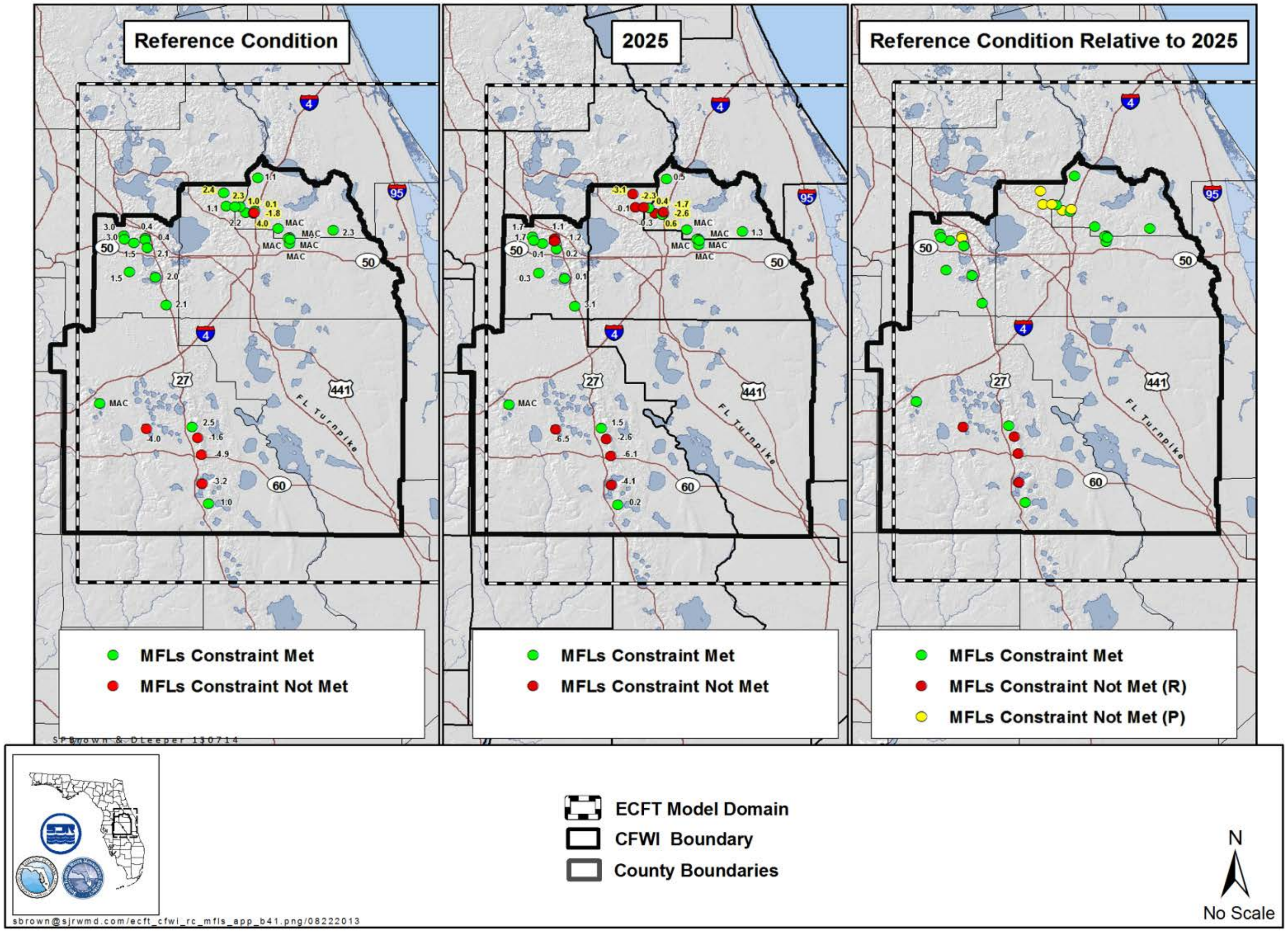


Figure B-41. Intermediate 2025 Withdrawal Scenario- MFL Constraints: Status (met or not met) and remaining freeboard for the Reference Condition (2005) and 2025 withdrawal scenario (left and middle panels) and status for the Reference Condition(2005) relative to the 2025 withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site.

Other Considerations

Twenty-one of the 37 other considerations evaluated by the MFLRT were met for the 2025 withdrawal scenario, 11 were not met and ECFT groundwater model results were not usable for five considerations (see **Tables B-12** and **B-13**). Considerations that were not met for the 2025 withdrawal scenario included those associated with established or proposed MFLs for five lakes, established MFLs for Blue Springs, the SWUCA Saltwater Intrusion Minimum Aquifer Level and established MFLs for the Wekiva River, the consideration based collectively on MFLs established for the Peace at Bartow, Ft. Meade and Zolfo Springs and the target water level for the Lake Wales Ridge regulatory wells. The five lake-MFL considerations that were not met included proposed MFLs for Johns Lake, Lake Hiawassee, North Apshawa Lake, South Apshawa Lake and Three Island Lakes.

The status of the 37 other considerations for the 2025 withdrawal scenario based on the two-color classification scheme described in Section 4 is shown in **Figure B-42** along with the status of the considerations for the Reference Condition scenario for comparative purposes. Spatial representation of consideration status for the 2025 withdrawal scenario and Reference Condition based on the three-color classification scheme, which incorporates more information regarding changes between model scenarios, is also shown in **Figure B-42**.

Evaluation of the subset of 14 other considerations identified for use by the GAT indicated that six considerations were met for the 2025 withdrawal scenario and eight were not met (refer to **Tables B-12** and **B-14**). Considerations in the subset that were not met included proposed MFLs for four lakes (Johns Lake, Lake Hiawassee, North Lake Apshawa and South Lake Apshawa), established MFLs for the Wekiva River, the consideration based collectively on the MFLs established for the Peace River at Bartow and Ft. Meade, the SWUCA Saltwater Intrusion Minimum Aquifer Level and the target water level for the Lake Wales Ridge regulatory wells.

The status of the subset of 14 other considerations identified by the GAT for the 2025 withdrawal scenario based on the two-color classification scheme is shown in **Figure B-43** along with the status of the considerations for the Reference Condition scenario for comparative purposes. Spatial representation of the status of the subset of other considerations for the 2025 withdrawal scenario and Reference Condition based on the three-color classification scheme is also shown in **Figure B-43**.

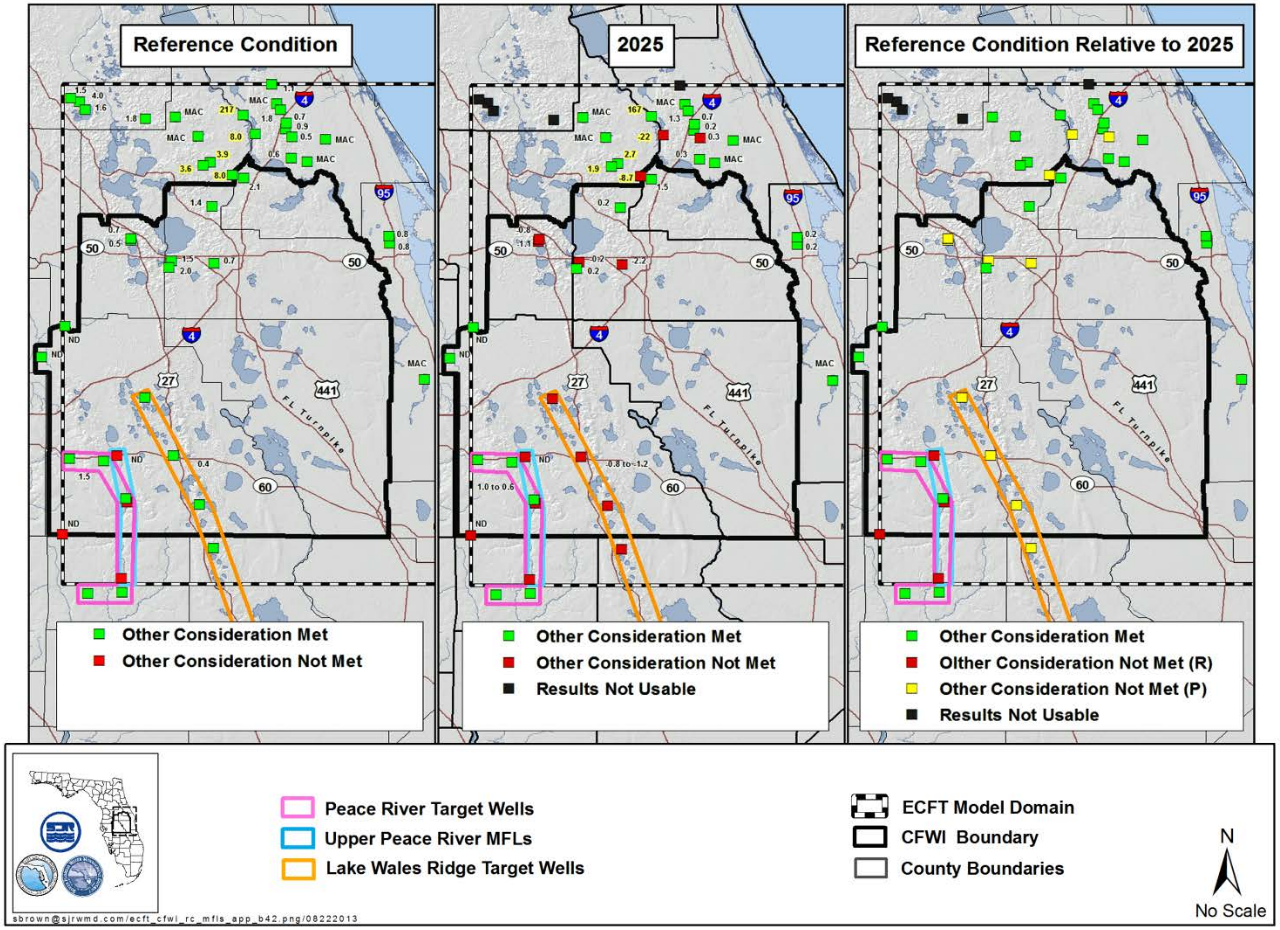


Figure B-42. Intermediate 2025 Withdrawal Scenario – Other Considerations: Status (met or not met) and remaining freeboard for the Reference Condition(2005) and 2025 withdrawal scenario (left and middle panels) and status for the Reference Condition (2005) relative to the 2025 withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site and ND indicating that freeboard was not determined. A range of freeboard values is shown for each set of wells based on the method used for their derivation (see Section 4). Symbols for Blue Cypress Water Management Area (other consideration met; remaining freeboard value = MAC) and the southernmost of the Lake Wales Ridge wells grouped by the orange polygon are not shown in the mapped area.

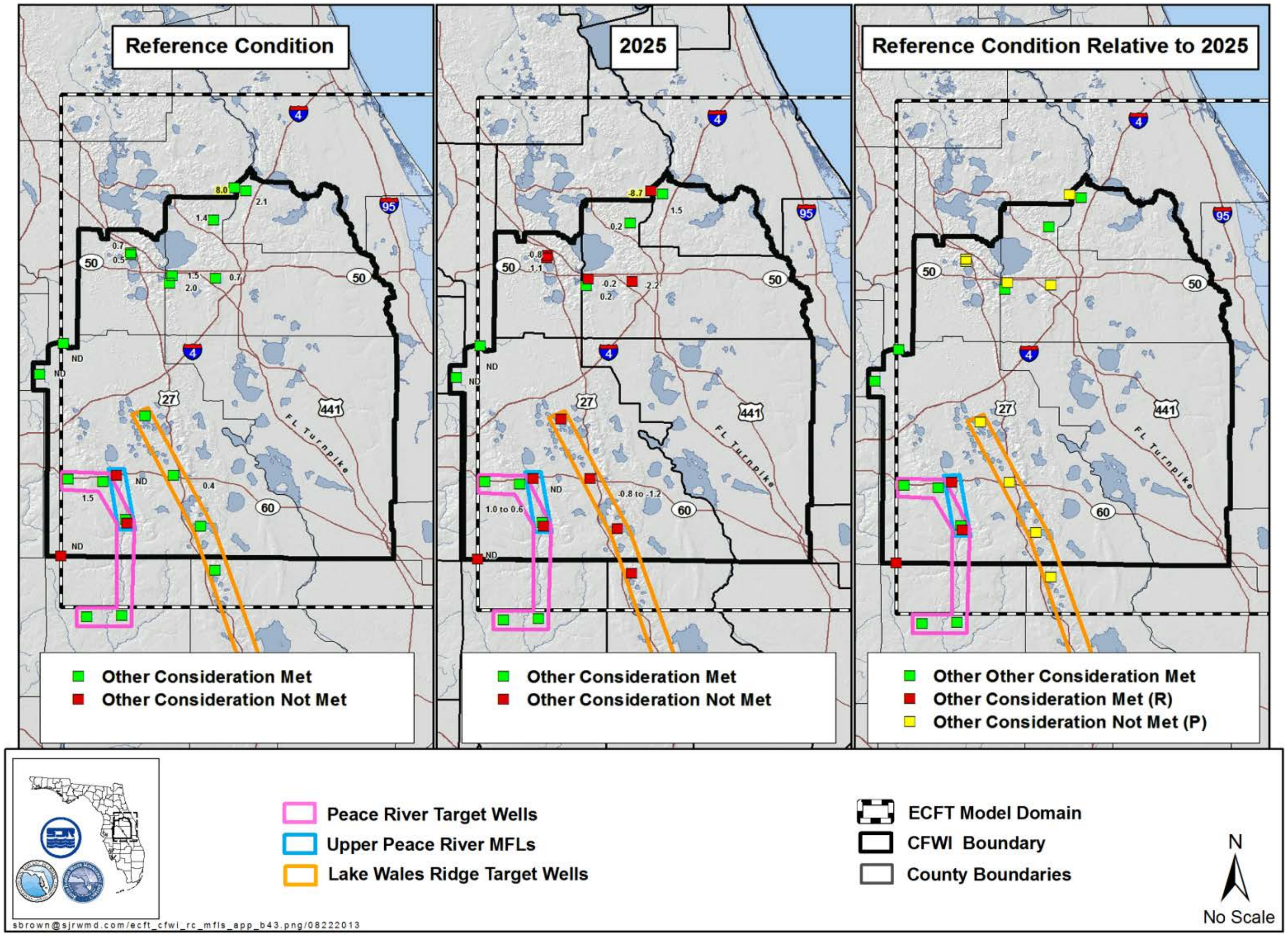


Figure B-43. Intermediate 2025 Withdrawal GAT Scenario – Other Considerations: Status (met or not met) and remaining freeboard identified by the GAT for the Reference Condition (2005) and 2025 withdrawal scenario (left and middle panels) and status for the Reference Condition (2005) relative to the 2025 withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site and ND indicating that freeboard was not determined. A range of freeboard values is shown for each set of wells based on the method used for their derivation (see Section 4). Note that a symbol for the southernmost Lake Wales Ridge well is not shown in the mapped area.

Combined Constraints and Considerations

The combined status of MFL constraints and other considerations identified by the MFLRT for the 2025 withdrawal scenario and Reference Condition (2005) based on the two-color classification scheme described in Section 4 is shown in **Figure B-44**. Spatial representation of the status of the combined considerations and constraints for the 2025 withdrawal scenario and Reference Condition (2005) based on the three-color classification scheme is also included in **Figure B-44**.

The combined status of MFL constraints and other considerations identified for use by the GAT for the 2025 withdrawal scenario and Reference Condition (2005) is shown in **Figure B-45**.

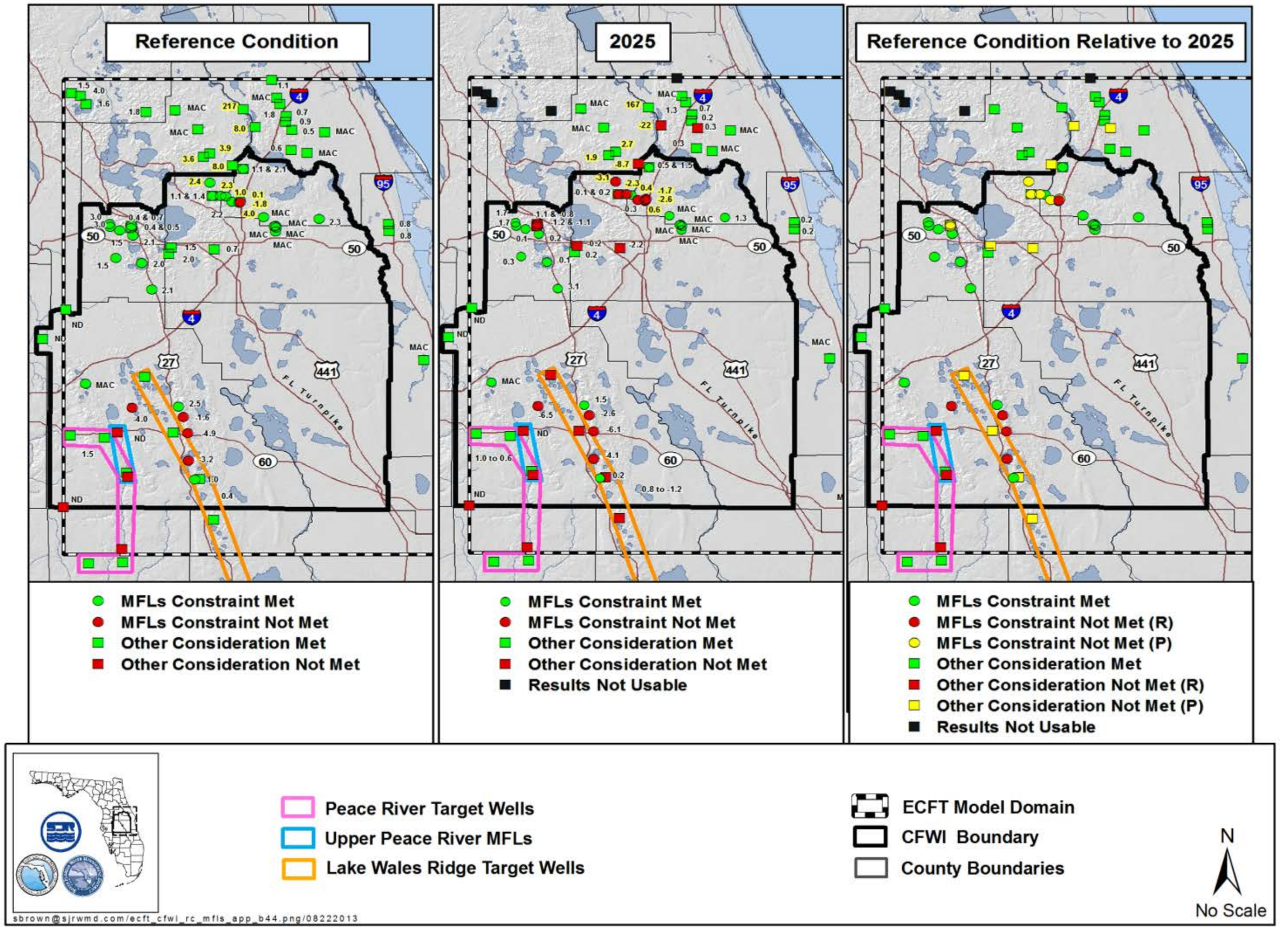


Figure B-44. Intermediate 2025 Withdrawal Scenario – MFL Constraints and Other Considerations: Status (met or not met) and remaining freeboard for the Reference Condition (2005) and 2025 withdrawal scenario (left and middle panels) and status for the Reference Condition (2005) relative to the 2025 withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site and ND indicating that freeboard was not determined. Two freeboard values are shown for four sites with adopted and proposed MFLs that were used respectively, as MFLs constraints and other considerations. A range of freeboard values is shown for each set of wells based on the method used for their derivation (see Section 4). Symbols for Blue Cypress Water Management Area (other consideration met; remaining freeboard value = MAC) and the southernmost of the Lake Wales Ridge wells grouped by the orange polygon are not shown in the mapped area.

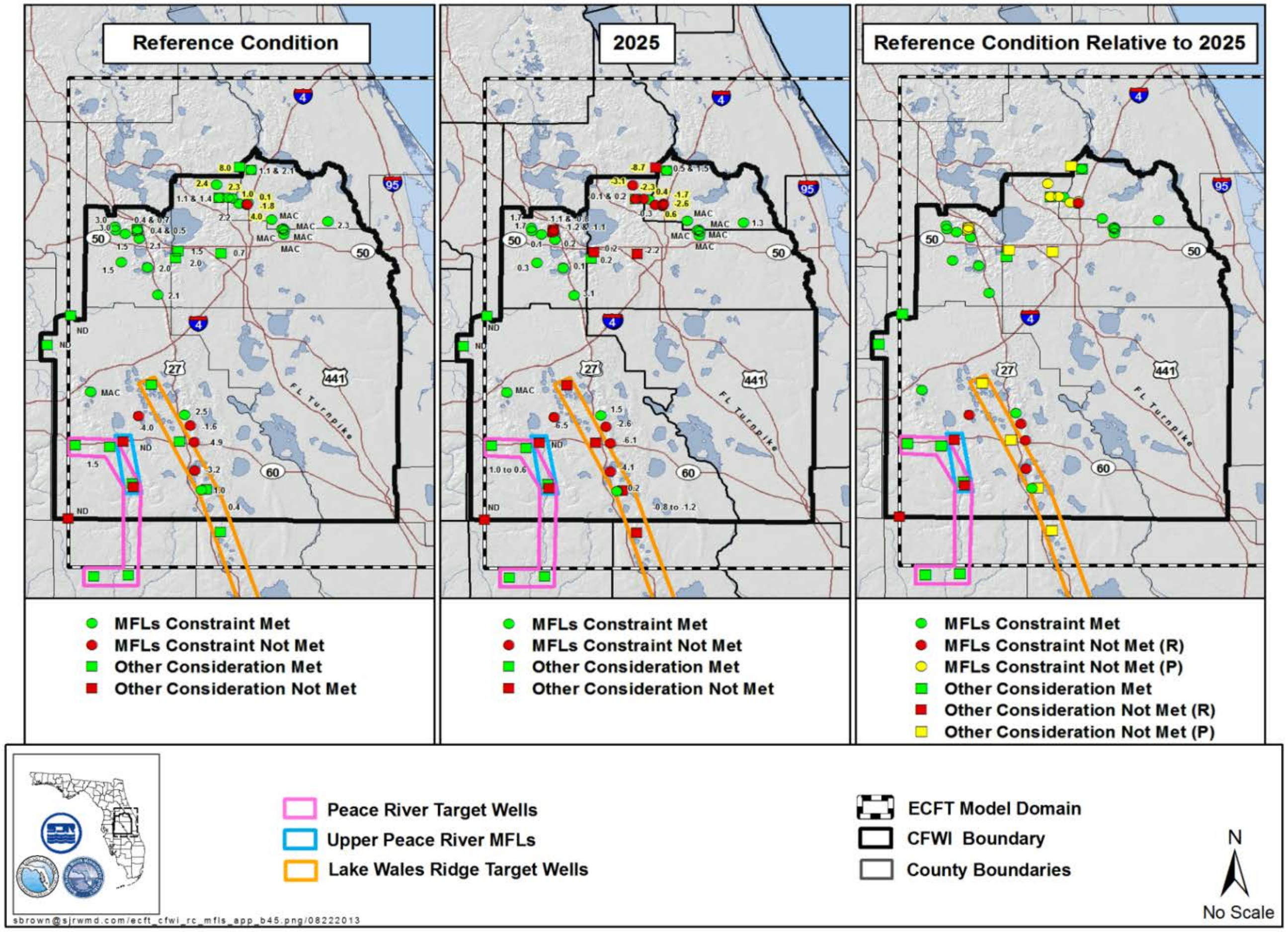


Figure B-45. Intermediate 2025 Withdrawal GAT Scenario – MFL Constraints and Other Considerations: Status (met or not met) and remaining freeboard identified by the GAT for the Reference Condition (2005)and 2025 withdrawal scenario (left and middle panels) and status for the Reference Condition (2005) relative to the 2025 withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site and ND indicating that freeboard was not determined. Two freeboard values are shown for four sites with adopted and proposed MFLs that were used respectively, as MFLs constraints and other considerations. A range of freeboard values is shown for each set of wells based on the method used for their derivation (see Section 4). A symbol for the southernmost of the Lake Wales Ridge wells grouped by the orange polygon is not shown in the mapped area.

Intermediate 2015 Withdrawal Scenario Results

As was the case for the intermediate 2025 withdrawal scenario, the intermediate 2015 withdrawal scenario was used to compare projected changes in water level or flows to the Reference Condition (2005) for evaluation of withdrawal related impacts for a period less than the twenty year planning horizon used for development of a regional water supply plan for the CFWI Planning Area. This scenario was evaluated based on the assumption that impacts associated with the 2035 withdrawal scenario may limit groundwater availability, and if this were the case, it would be necessary to evaluate impacts associated with demands less than those projected for 2035.

MFL Constraints

Twenty-one of the 31 MFL constraints evaluated for the 2015 withdrawal scenario were met (i.e., exhibited positive freeboard values), while 10 constraints were not met (refer to **Tables B-12** and **B-13**). Constraints that were not met for the scenario included six lakes and four springs. Lake MFLs that were not met included those established for Crooked Lake, Eagle Lake, Lake Starr, Lake Wailes, North Lake Apshawa, and South Lake Apshawa. Spring MFLs that were not met for the scenario included those established for Palm, Rock, Starbuck, and Wekiwa springs.

Excluding the sites that exhibited minimal interaction between the surficial and UFA systems, remaining UFA freeboard values for the lake and wetland MFL constraints ranged from 3.6 ft to -5.9 ft for the 2015 withdrawal scenario. Spring constraint freeboard values ranged from 2.3 to -2.2 cfs for the 2015 withdrawal scenario. Expressed as a percentage of remaining freeboard based on the adopted minimum flow regimes, the remaining freeboard for the spring constraints ranged from 15% to -31%.

The status of MFL constraints for the 2015 withdrawal scenario based on the two-color classification scheme described in Section 4 is shown in **Figure B-46** along with constraint status for the Reference Condition (2005) for comparative purposes. Spatial representation of status of the MFL constraints for the 2015 withdrawal scenario and Reference Condition (2005) based on the three-color classification scheme which incorporates more information regarding changes between model scenarios, is also included in **Figure B-46**.

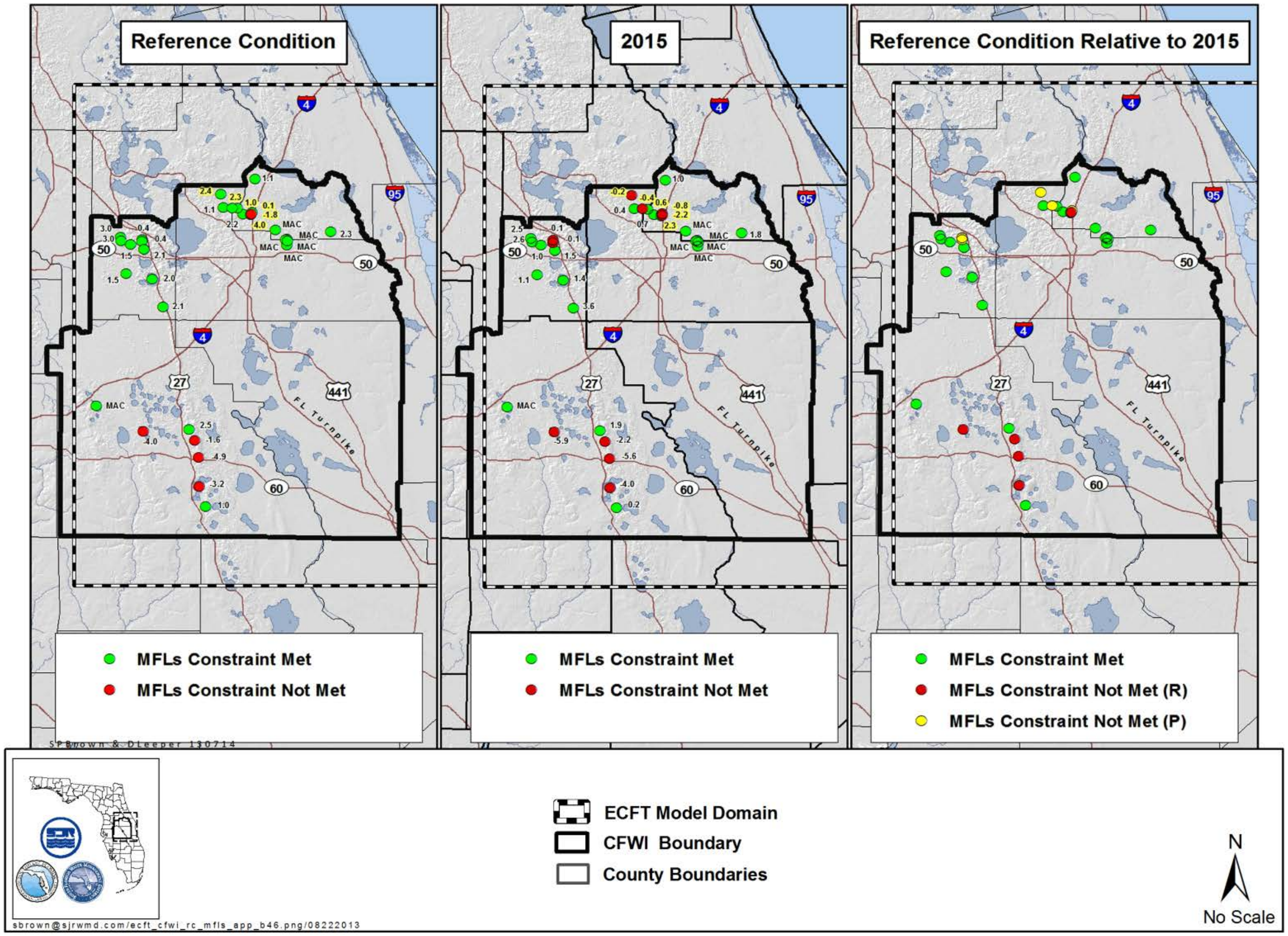


Figure B-46. Intermediate 2015 Withdrawal Scenario – MFL Constraints: Status (met or not met) and remaining freeboard for the Reference Condition (2005) and 2015 withdrawal scenarios(left and middle panels) and status for the Reference Condition (2005) relative to the 2015 withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site.

Other Considerations

Twenty-six of the 37 other considerations evaluated by the MFLRT were met for the 2015 withdrawal scenario, six were not met and ECFT groundwater model results were not usable for five considerations (see **Tables B-12** and **B-13**). Other considerations that were not met for the 2015 withdrawal scenario included those associated with proposed MFLs for Lake Hiawassee, established MFLs for Blue Springs, the established SWUCA Saltwater Intrusion Minimum Aquifer Level established MFLs for the Wekiva River, the target water level for the Lake Wales Ridge regulatory wells, and the consideration based collectively on the MFLs established for the Peace River at Bartow, Ft. Meade, and Zolfo Springs.

The status of the 37 other considerations for the 2015 withdrawal scenario based on the two-color classification scheme described in Section 4 is shown in **Figure B-47** along with the status of the considerations for the Reference Condition (2005) for comparative purposes. Spatial representation of the other considerations status for the 2015 withdrawal scenario and Reference Condition (2005) based on the three-color classification scheme which incorporates more information regarding changes between model scenarios, is also shown in **Figure B-47**.

Evaluation of the subset of 14 other considerations identified for use by the GAT indicated that nine considerations were met for the 2015 withdrawal scenario and five were not met (refer to **Tables B-12** and **B-14**). Considerations in the subset that were not met included proposed MFLs for Lake Hiawassee, established MFLs for the Wekiva River, the consideration based collectively on MFLs established for the Peace River at Bartow and Ft. Meade, the target water level for the Lake Wales Ridge regulatory wells, and the established SWUCA Saltwater Intrusion Minimum Aquifer Level.

The status of the subset of 14 other considerations identified by the GAT for the 2015 withdrawal scenario based on the two-color classification scheme is shown in **Figure B-48** along with the status of the considerations for the Reference Condition (2005) for comparative purposes. Spatial representation of the subset of other consideration status for the 2015 withdrawal scenario and Reference Condition (2005) based on the three-color classification scheme is also included in **Figure B-48**.

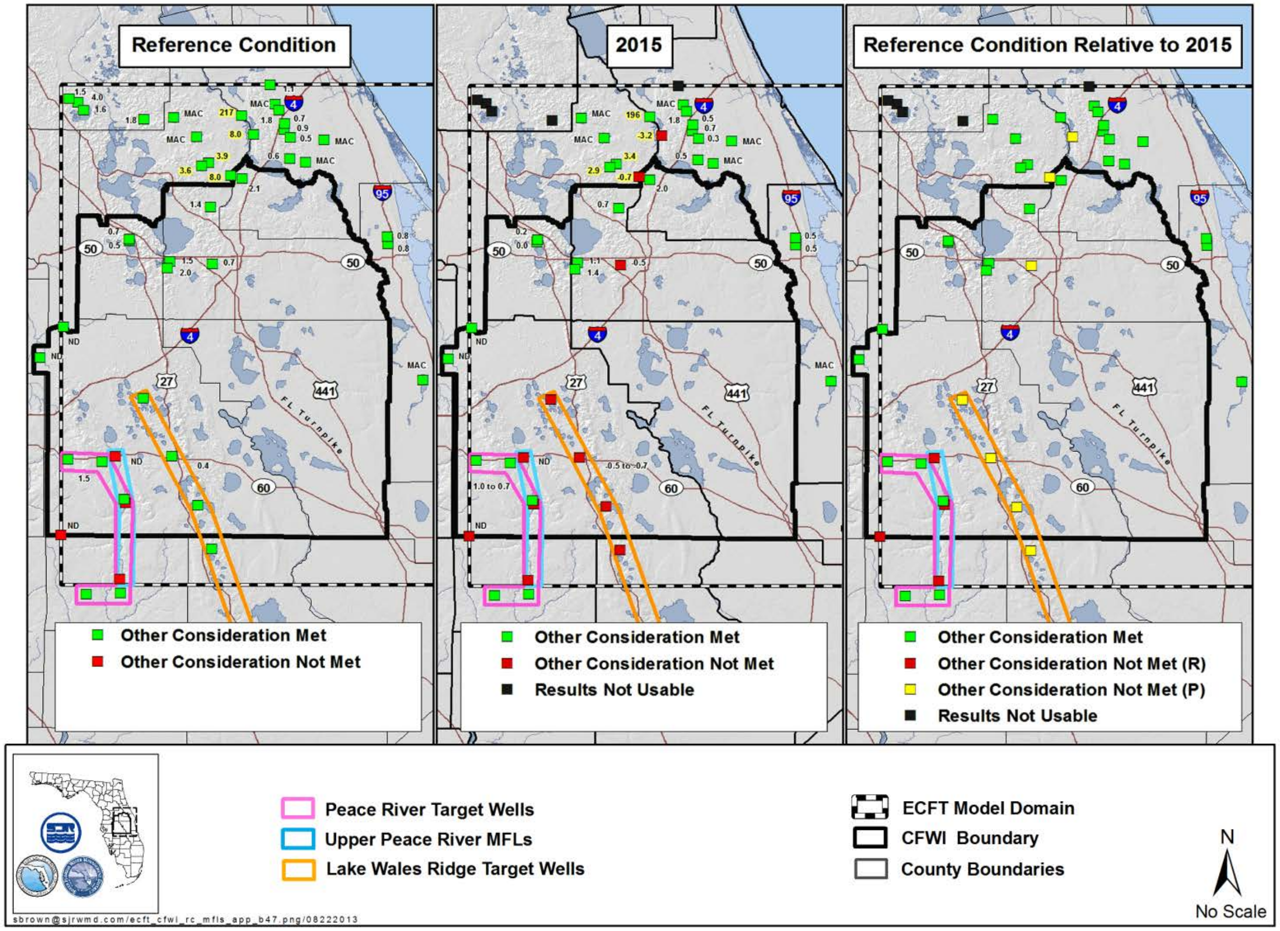


Figure B-47. Intermediate 2015 Withdrawal Scenario – Other Considerations: Status (met or not met) and remaining freeboard for the Reference Condition (2005) and 2015 withdrawal scenario (left and middle panels) and status for the Reference Condition (2005) relative to the 2015 withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site and ND indicating that freeboard was not determined. A range of freeboard values is shown for each set of wells based on the method used for their derivation (see Section 4). Symbols for Blue Cypress Water Management Area (other consideration met; remaining freeboard value = MAC) and the southernmost of the Lake Wales Ridge wells grouped by the orange polygon are not shown in the mapped area.

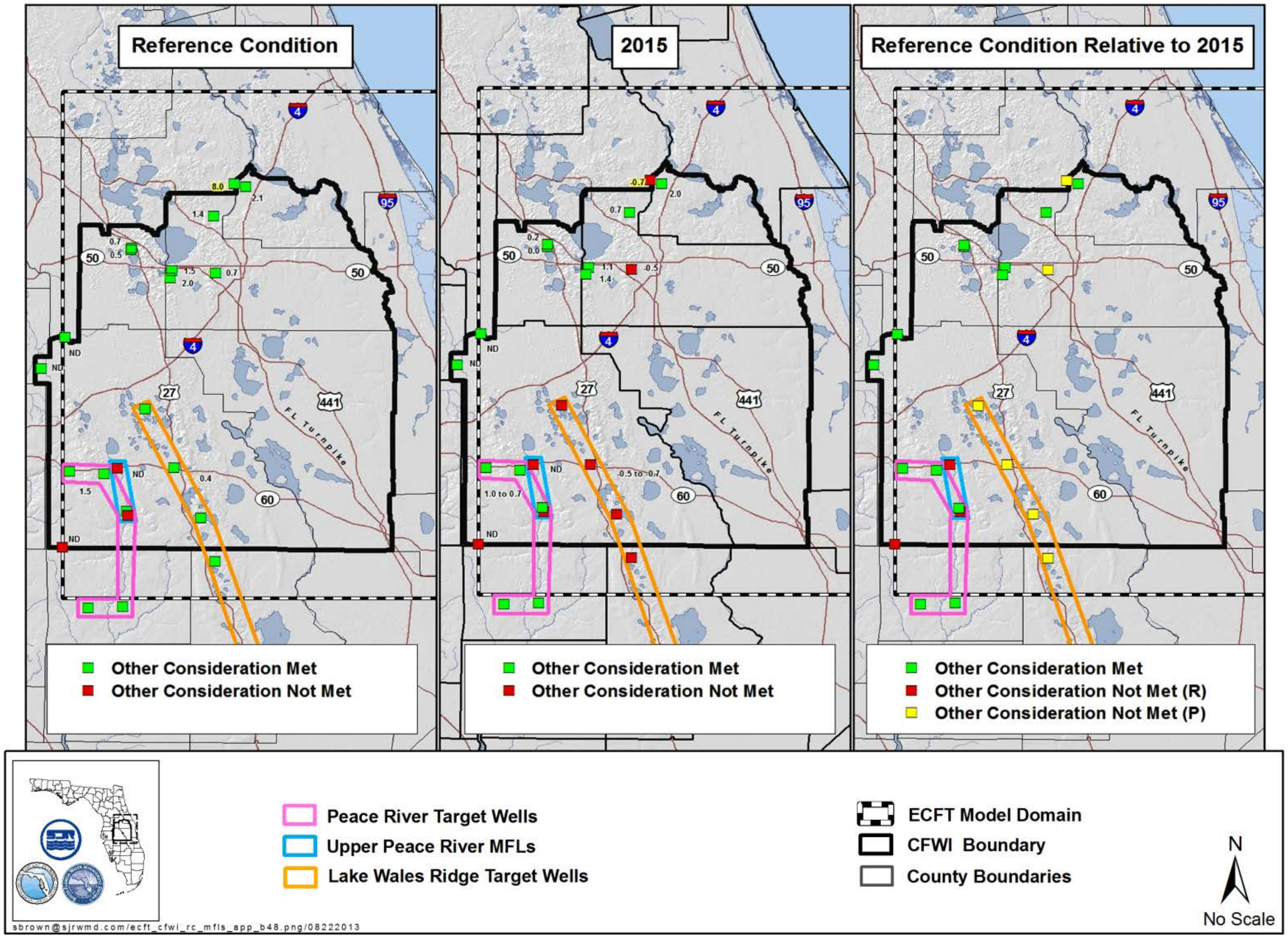


Figure B-48. Intermediate 2015 Withdrawal GAT Scenario – Other Considerations: Status (met or not met) and remaining freeboard identified by the GAT for the Reference Condition (2005) and 2015 withdrawal scenario (left and middle panels) and status for the Reference Condition (2005) relative to the 2015 withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site and ND indicating that freeboard was not determined. A range of freeboard values is shown for each set of wells based on the method used for their derivation (see Section 4). Note that a symbol for the southernmost Lake Wales Ridge well is not shown in the mapped area.

Combined Constraints and Considerations

The combined status of MFL constraints and other considerations identified by the MFLRT for the 2015 withdrawal scenario and Reference Condition (2005) based on the two-color classification scheme described in Section 4 is shown in **Figure B-49**. Spatial representation of the status of the combined considerations and constraints for the 2015 withdrawal scenario and Reference Condition (2005) based on the three-color classification scheme, is also included in **Figure B-49**.

The combined status of MFL constraints and other considerations identified for use by the GAT for the 2015 withdrawal scenario and Reference Condition (2005) is shown in **Figure B-50**.

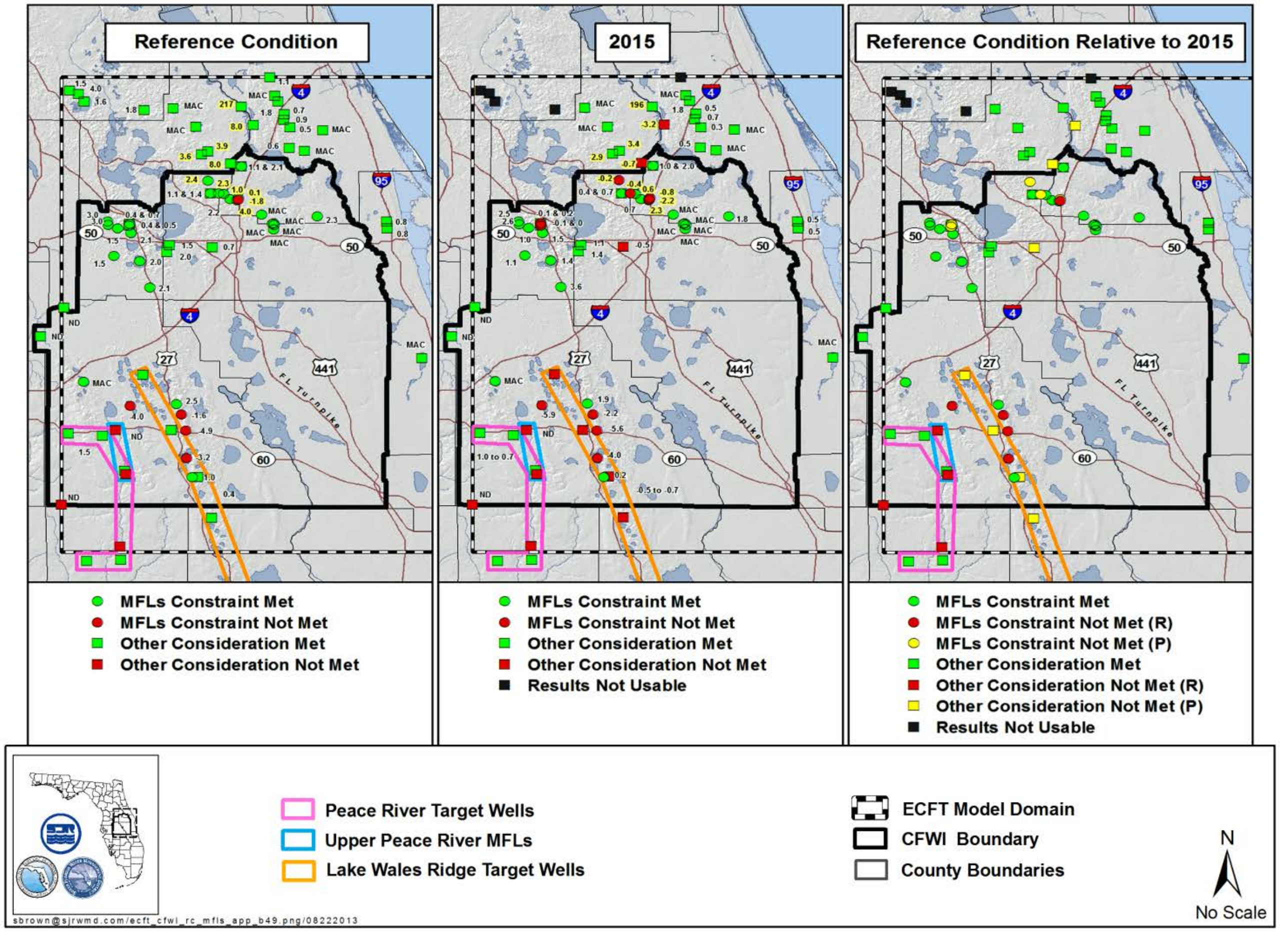


Figure B-49. Intermediate 2015 Withdrawal Scenario – MFL Constraints and Other Considerations: Status (met or not met) and remaining freeboard for the Reference Condition (2005) and 2015 withdrawal scenario (left and middle panels) and status for the Reference Condition (2005) relative to the 2015 withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site and ND indicating that freeboard was not determined. Two freeboard values are shown for four sites with adopted and proposed MFLs that were used respectively, as MFLs constraints and other considerations. A range of freeboard values is shown for each set of wells based on the method used for their derivation (see Section 4). Symbols for Blue Cypress Water Management Area (other consideration met; remaining freeboard value = MAC) and the southernmost of the Lake Wales Ridge wells grouped by the orange polygon are not shown in the mapped area.

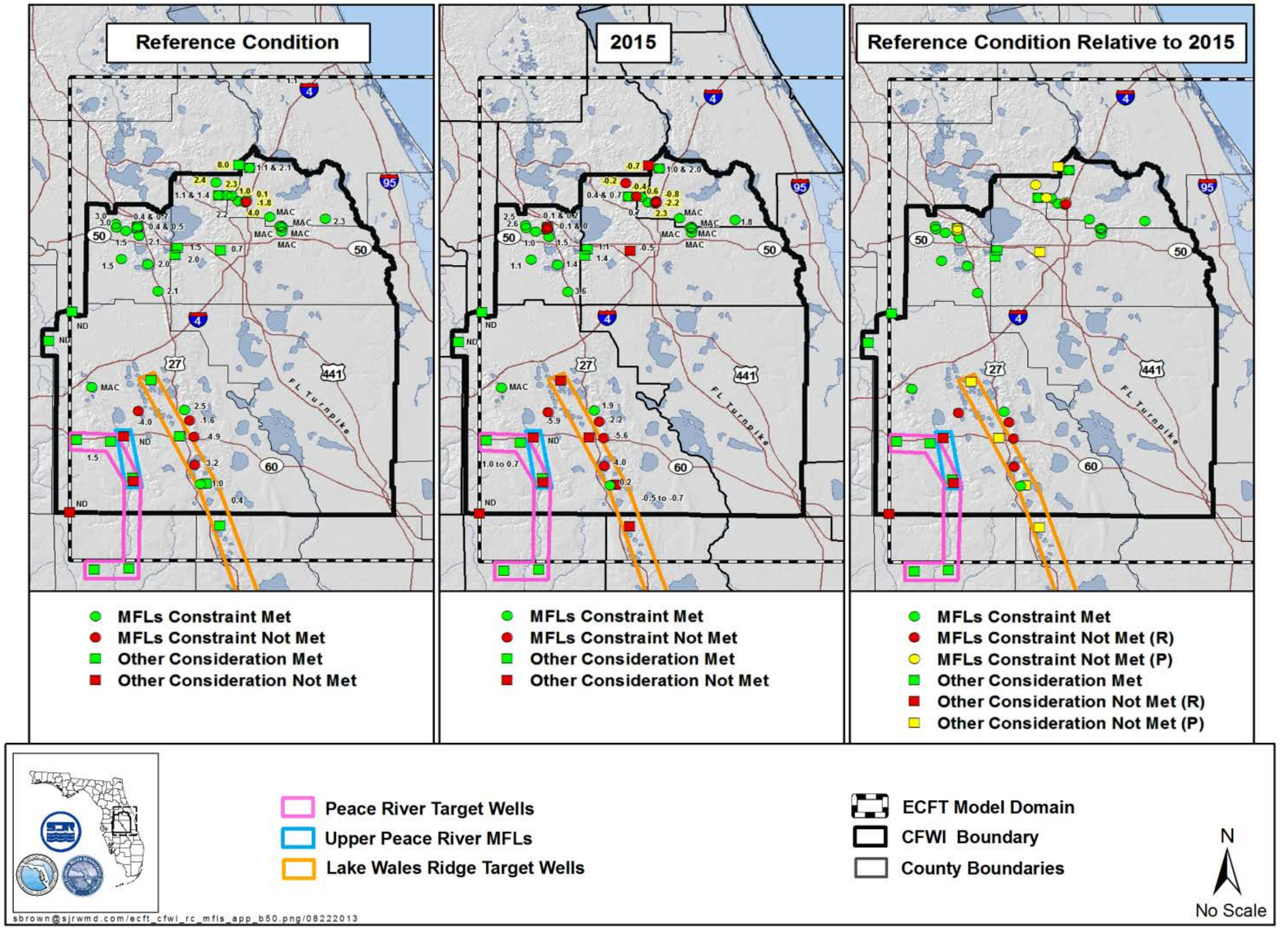


Figure B-50. Intermediate 2015 Withdrawal GAT Scenario – MFL Constraints and Other Considerations: Status (met or not met) and remaining freeboard identified by the GAT for the Reference Condition and 2015 withdrawal scenarios (left and middle panels) and status for the Reference Condition relative to the 2015 withdrawal scenario with recovery (R) and prevention (P) status differentiated (right panel).

Note: Remaining freeboard values expressed in feet (non-highlighted values) or cubic feet per second (yellow highlighted values), with MAC indicating that freeboard was not established due to minimal aquifer connection at the site and ND indicating that freeboard was not determined. Two freeboard values are shown for four sites with adopted and proposed MFLs that were used respectively, as MFLs constraints and other considerations. A range of freeboard values is shown for each set of wells based on the method used for their derivation (see Section 4). A symbol for the southernmost of the Lake Wales Ridge wells grouped by the orange polygon is not shown in the mapped area.

SECTION 6 - LIMITATIONS IN MFL ASSESSMENTS

The analyses and results presented in this appendix are based upon recent conditions and hydrologic modeling which is both appropriate and necessary for planning-level assessments of conditions of the water resources in the CFWI Planning Area under various potential water demand, (i.e., withdrawal scenarios). It is important, however, to recognize the characteristics and limitations of this and any other study. For surface water features, the MFLs development process typically consists of three parts. There is a biological/ecological assessment based on field observations and ecologically-based assumptions and information to determine the key water level elevations/flows that are needed to sustain the resource. A surface water budget model is used to link water levels in the surface water feature to groundwater level fluctuations. A groundwater model, such as the ECFT groundwater model, is then used to estimate the effects of groundwater withdrawals.

Each part of this process contains important characteristics and limitations. The models are used to evaluate the influence of groundwater pumping in isolation. However, increased groundwater pumping is associated with other factors such as changes in land use and drainage that also may affect groundwater levels. Because groundwater withdrawals do not occur in isolation the ability of models to simulate the influence of groundwater withdrawals alone is difficult to field verify.

General Considerations

Limitations of the data used in development and calibration of the hydrologic models identified in this appendix must be considered. Subsurface conditions cannot be known in detail, and key features such as solution channels through Karst are rarely mapped and yet extremely important to the movement of water through the CFWI Planning Area. Much of the geologic data are estimates from spatially sparse locations (such as well cores and well water level data). Other data are numerically estimated based on physical equations (such as evapotranspiration). This is not to suggest that there are necessarily better options for development and use of these types of information, but we need to recognize the effects of these generalities on the conclusions that can be drawn from the models. When a model is driven by estimates with limited accuracy, the predictions coming from the model are limited by the data driving them. For example, if input data has been estimated to one significant digit, the accuracy of the models cannot appropriately be assumed to be accurate to three significant digits.

Biological Considerations

The biological assessments used to develop the needed surface water regime are limited in accuracy and interpretations. The investigator measures features about whose hydrologic requirements are known or assumed. But these requirements are limited by the availability and applicability of the studies that were used to develop them. For example, the saturation/inundation duration needed to maintain hydric soils has been used in setting many lake MFLs, but actual studies of soil oxidation have been conducted only for limited situations, and oxidation/organic accumulation rates are known to vary based on a variety of environmental variables that are not considered in MFL analyses (for instance, shade, local temperature, depth of organics, etc.). Features identified in the field are assumed stable, yet we known that some change dramatically in accordance with natural fluctuation regimes (such as Atlantic Multidecadal Oscillation cycles) – for example, some vegetative marsh zonation indicators shift up and down as multi-year rainfall patterns shift. Field measurements vary in accuracy, and some are subject to interpretation by the scientists operating in the field. Of necessity, some methods vary by system type and water management district.

Although MFL regulations specify the types of environmental characteristics to be considered, the environmental and water resource values identified and used for any given surface water body are based on the best available information, the characteristics of the individual water body, and often a single, specific feature is assumed to be limiting. Which environmental values are considered and which are deemed appropriate as limiting are potentially subjective choices often made on practicalities. Exactly how much change can occur without significant harm to the water resource is also subject to interpretation and policy decisions.

Surface Water Budget Model Issues

Surface water budget models are long-term simulations that do not predict the status of an MFLs water body at any specific point in time, but estimate long-term change as a result of groundwater elevation changes, the latter typically assumed to be due to groundwater withdrawals. Surface water budget models are developed by combining surface effects and groundwater effects into a single MFLs water body specific water budget model.

Use of surface effects is limited by the quality of available meteorological and land use data. Characterization of groundwater effects is limited by the prediction limits of the groundwater model, the estimated connectivity between groundwater and the surface water body, and the distance to the reference monitoring well used in model development. Given the limitations of the surface water budget model and the groundwater model, combined with the biological assumptions upon which assessments are made, there is more certainty associated with current and near term MFL status evaluations than long-term assessments.

Groundwater Model Issues

The ECFT groundwater model combines weather, land use, groundwater withdrawals, and underground conditions into a single simulation that is calibrated to a known recent condition. The resulting model is limited by the quality of data used in the development process. Simulations of future conditions are then developed for use in forecasting withdrawal related impacts. The future simulations are subject to the ability to predict future patterns of growth, land use, and changes in water use behavior such as conservation. The predictive capability of the groundwater model progressively declines as simulations deviate from water use patterns and land use used in the calibrated condition. The groundwater model error also varies spatially, and the amount of error in one part of the model domain may differ substantially from error in other parts of the model domain for a variety of reasons including calibration points and model edge effects.

Simulations intended to evaluate the efficacy of potential future projects are subject to these limitations, and potentially others. The ECFT groundwater model has been recently developed to aid in assessments for the CFWI process. The Hydrologic Assessment Team (HAT) team is currently in the process of reviewing and improving the model for use in implementation phases of the CFWI process. A more complete explanation of assumptions and limitations of the ECFT groundwater model is available in Appendix C.

Monitoring

These limitations speak to the need for future monitoring that can be used both to determine direction and intensity of actual change (versus modeled change) and which can be used to reduce unknowns for future. The Team anticipates that future studies of water conditions in the CFWI Planning Area region can benefit from ongoing, and in some cases, increased levels of monitoring. Such monitoring can be used to verify existing model predictions and improve future ones. It can also be used to help determine whether or not individual and general types of proposed alternative water supply, prevention and recovery strategies are effective.

REFERENCES

Florida Administrative Code (2013) Chapter 40C-2, Permitting and Consumptive Use of Water, Rules of the St. Johns River Water Management District.

Florida Administrative Code (2013) Chapter 40C-8, Minimum Flows and Levels, Rules of the St. Johns River Water Management District.

Florida Administrative Code (2013) Chapter 40D-2, Consumptive Use of Water, Rules of the Southwest Florida Water Management District.

Florida Administrative Code (2013) Chapter 40D-8, Water Levels and Rates of Flow, Rules of the Southwest Florida Water Management District.

Florida Administrative Code (2013) Chapter 40-D80, Recovery and Prevention Strategies for Minimum Flows and Levels, Rules of the Southwest Florida Water Management District.

Florida Administrative Code (2013) Chapter 40E-2, Consumptive, Rules of the South Florida Water Management District.

Florida Administrative Code (2013) Chapter 40E-8, Minimum Flows and Levels, Rules of the South Florida Water Management District.

Florida Administrative Code (2013) Chapter 62-40, Water Resource Implementation Rule, Rules of the Florida Department of Environmental Protection.

Florida Administrative Code (proposed) Chapter 62-330, Environmental Resource Permitting Rule, Rules of the Florida Department of Environmental Protection.

Florida Statutes § 373.042 (2013)

Florida Statutes § 373.0421 (2013)

C

Overview and Use of the ECFT Groundwater Model

OVERVIEW

The Central Florida Water Initiative (CFWI) Regional Water Supply Plan (RWSP) relies on planning-level estimates of current and future groundwater availability. Projected changes in groundwater quality and quantity can impact public water supplies and potentially cause harm, significant harm, or other adverse impacts to water resources and the associated natural systems.

The ECFT Groundwater Model

As described in **Volume I**, **Chapter 4,** the East Central Florida Transient (ECFT) groundwater model was developed and used to estimate changes in groundwater withdrawals on water levels and spring flows in the CFWI Planning Area.

ECFT Groundwater Model Construction

The Hydrologic Analysis Team (HAT) assessed, improved upon, and used the ECFT groundwater model for simulations supporting the identification of groundwater availability for the CFWI Planning Area. The model was prepared by the U.S. Geological Survey (USGS). Information on the details of the USGS version of the ECFT groundwater model presented to HAT is described in *Groundwater Flow and Water Budget in the Surficial and Floridan Aquifer Systems in East-Central Florida*, Sepúlveda et al., 2012. The model is positioned in central-Florida as shown in **Figure C-1** and covers nearly 10,300 square miles. It is constructed of 472 rows oriented east-west and 388 columns oriented north-south; the horizontal dimensions of each cell are 1,250 feet by 1,250 feet, or approximately 36 acres. The model contains seven layers that represent the hydrogeologic units from land surface to the base of the Floridan aquifer system. The thicknesses of the layers vary by location and layer depending on the position within the model grid and hydrogeologic unit that a particular layer represents. The base of the Floridan aquifer system is greater than 2,500 feet below sea level in the CFWI Planning Area. The correlation between the geology, hydrogeology, and model layers is shown in **Figure C-2**.

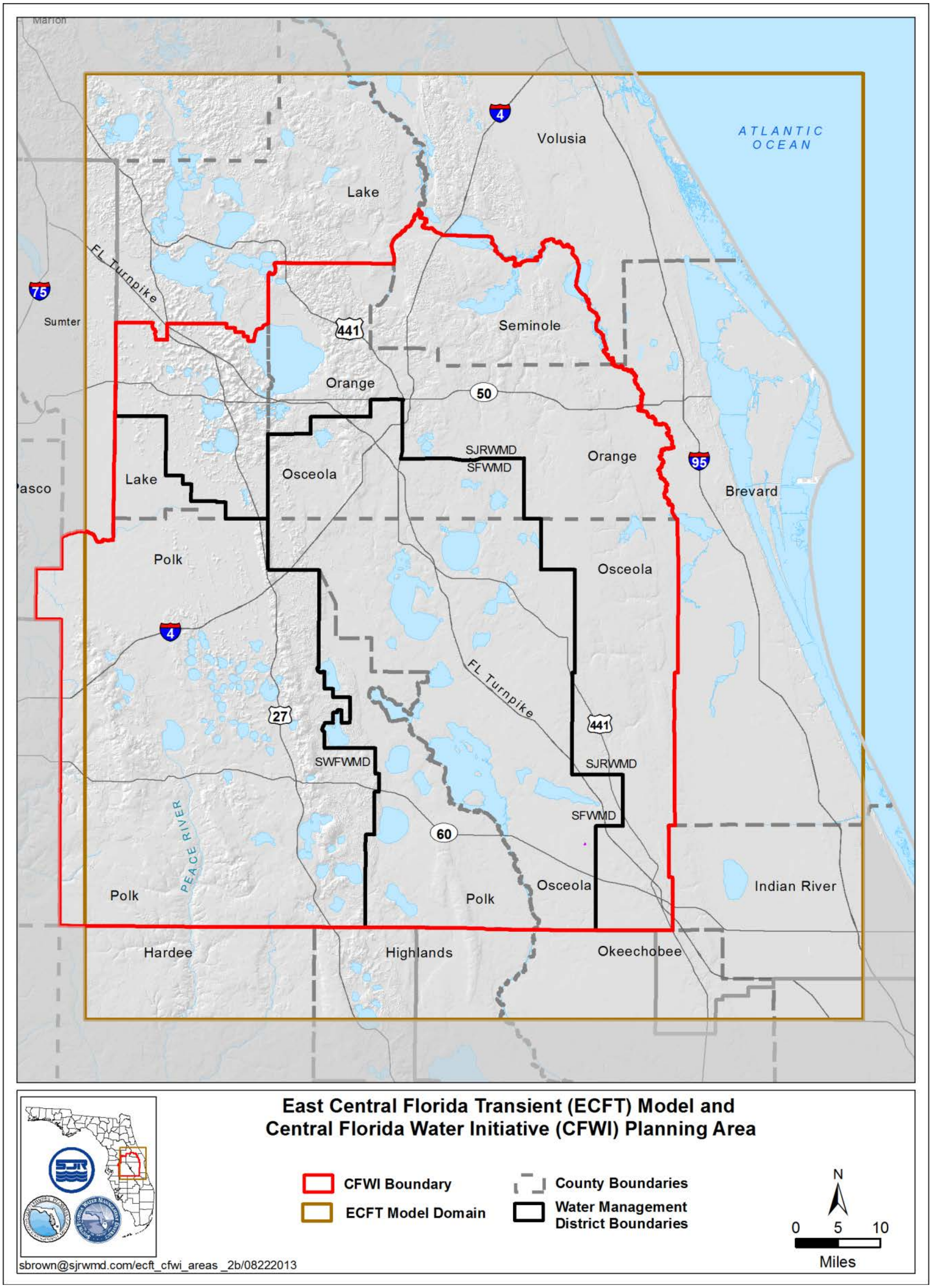


Figure C-1. Location of the CFWI Planning Area and ECFT groundwater model domain.

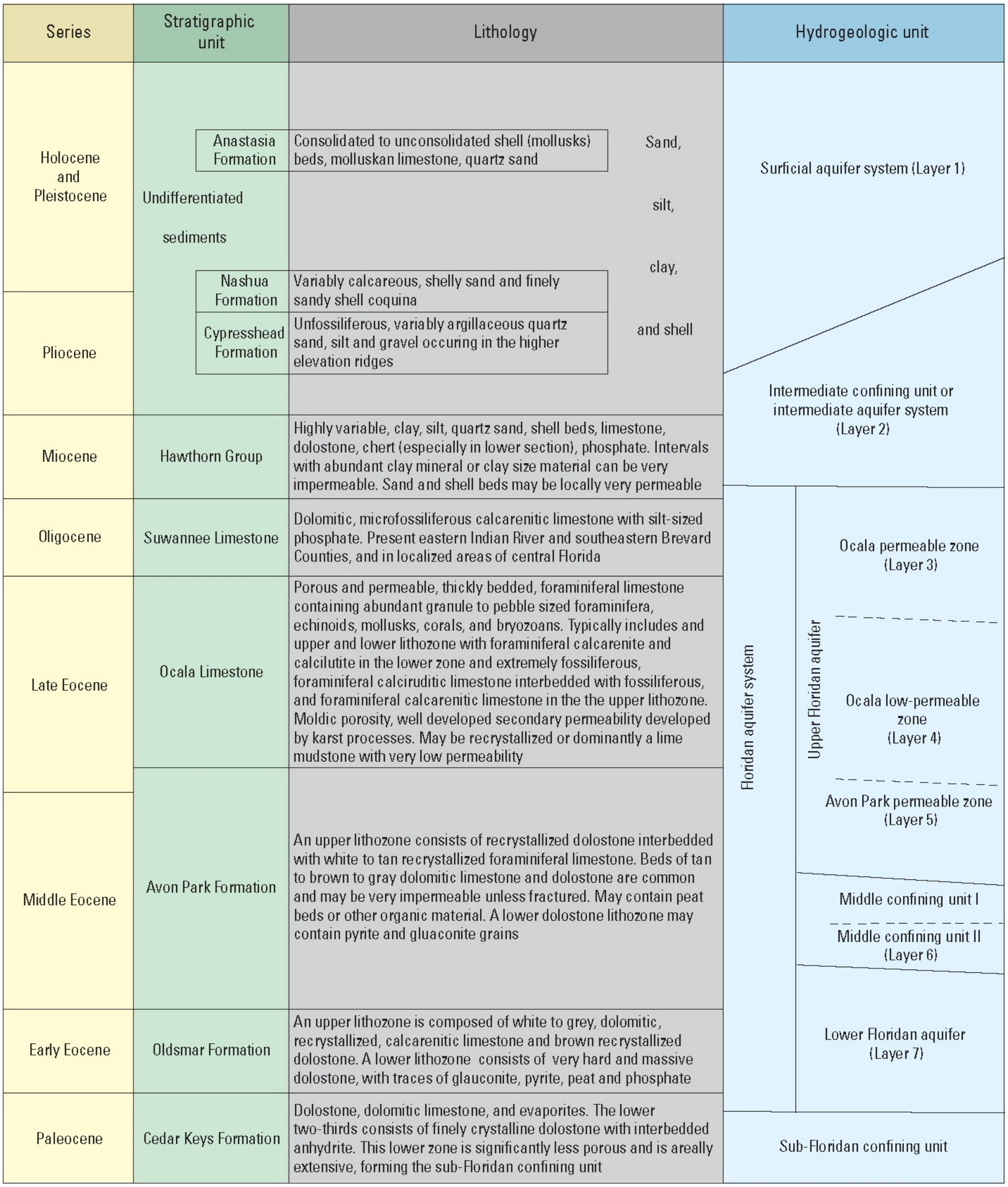


Figure C-2. Relation between stratigraphic, hydrogeologic units and model layers for the CFWI Planning Area (from Sepúlveda et al., 2012).

RECALIBRATION OF THE ECFT-USGS GROUNDWATER MODEL

The HAT review of the USGS ECFT groundwater model developed for the CFWI Planning Area groundwater availability analysis determined that a recalibration would provide a better tool for the assessment. Several model input data were identified for improvement including (1) the General Head Boundary water level values used for the Upper and Lower Floridan aquifer systems (Layers 3, 5, and 7), spring pool elevations - a factor to calculate spring discharge, (2) vertical hydraulic conductivity values for the semi-confining units (Layers 2, 4, and 6), and (3) the water use amounts for various categories of use types. The HAT identified that additional data were available to improve these inputs and thus improve the performance of the model.

The recalibration effort was conducted using the original process and methods developed during the collaborative effort between the water management districts involved in the CFWI and the USGS. The HAT set a goal of meeting or exceeding the USGS-ECFT groundwater model calibration goals at the groundwater level observation locations and improved transient response of the model through the 12-year simulation period. **Figure C-3** (Figure 54 from Sepúlveda et al. 2012) shows an example of target locations where observation data for Layer 3 and Layer 4 are compared with simulated results to test model performance. **Table C-1** shows the performance statistics for the USGS-ECFT groundwater model and the HAT's recalibrated version of the model. A more detailed description of the recalibration process and its results is presented in the HAT ECFT Model Documentation Final Report (CFWI 2014). In general, the recalibration effort improved the statistics at the observation locations in the groundwater system. The main benefit of the recalibration effort was an improvement in the transient response of many of the simulated water levels. For example, **Figure C-4** illustrates the improvement of the transient response achieved through model recalibration at observation well ROMP 60. The location of ROMP 60 is shown in **Figure C-3**. The results of the recalibration improved the desired performance characteristics of the ECFT groundwater model.

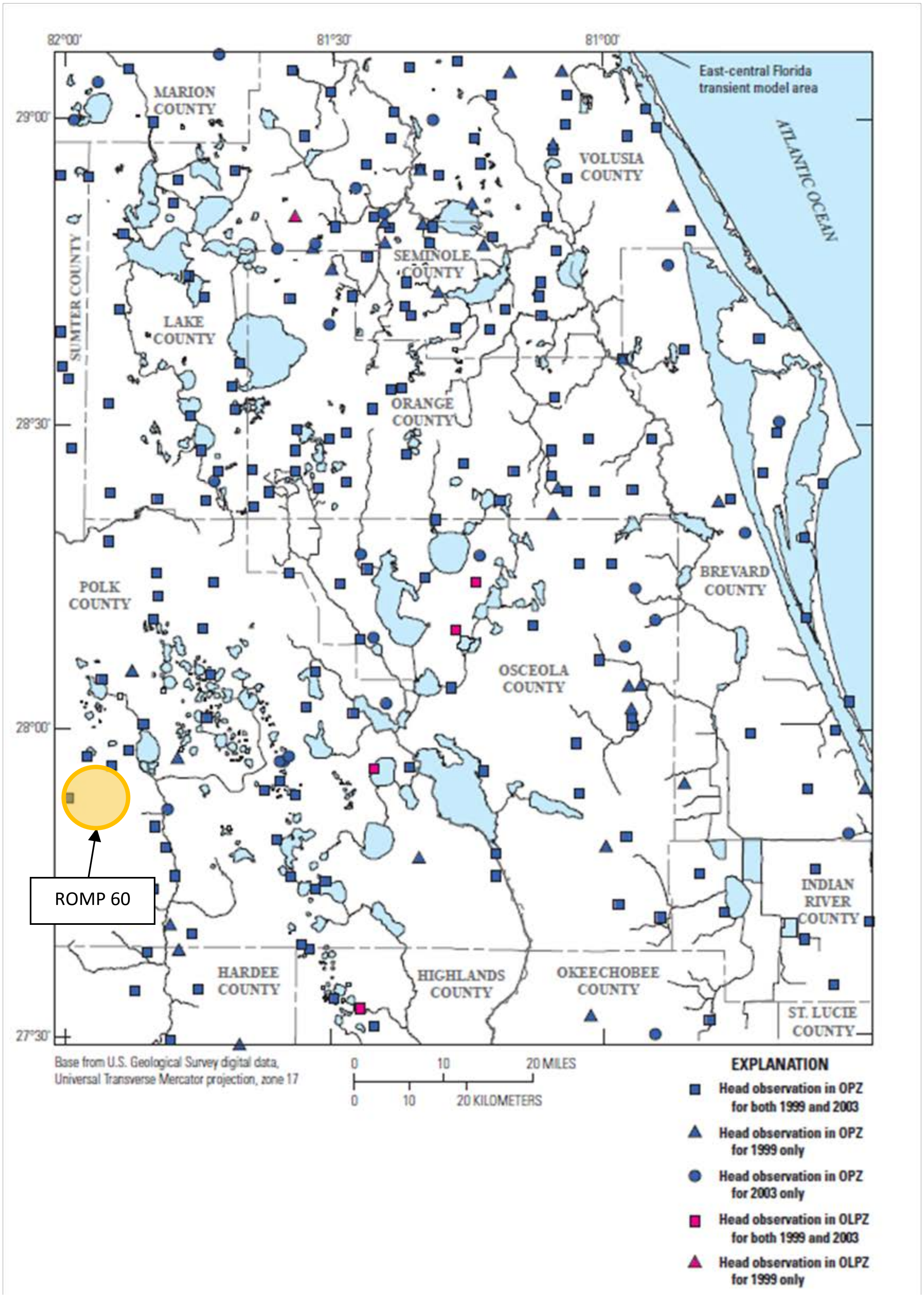


Figure C-3. ECFT groundwater model calibration target locations for Layer 3 and Layer 4 where observed water levels are compared with simulated results to test model performance (from Sepúlveda et al., 2012).

Table C-1.ECFT groundwater model and the HAT's recalibrated ECFT version of the model.

Portion of Model	USGS-ECFT Calibration Results							
	Count	OAME	MSE	RMSE	Wells <2.5 feet		Wells <5 feet	
Full Domain	700	2.15	11.67	2.77	481	69%	642	92%
Layer 1	289	2.19	12.19	2.66	201	70%	269	93%
Layer 2	63	2.98	16.95	3.47	34	55%	51	82%
Layer 3	260	1.83	9.26	2.59	190	73%	243	93%
Layer 4	6	2.18	15.24	3.61	3	50%	5	83%
Layer 5	54	2.34	12.63	3.15	33	61%	49	91%
Layer 6	6	2.52	17.31	3.21	5	83%	5	83%
Layer 7	22	2.31	12.76	2.93	15	68%	20	91%
	HAT Recalibration Results							
Full Domain	700	2.10	11.02	2.62	500	71%	643	92%
Layer 1	289	2.13	12.64	2.62	206	71%	268	93%
Layer 2	62	2.95	15.85	3.44	31	50%	49	79%
Layer 3	261	1.85	8.18	2.42	202	77%	246	94%
Layer 4	6	2.42	12.52	3.02	3	50%	6	100%
Layer 5	54	2.11	10.94	2.73	38	70%	50	93%
Layer 6	6	2.22	15.30	2.69	5	83%	5	83%
Layer 7	22	2.10	8.40	2.45	15	68%	19	86%

Note: MSE = mean square error
OAME = overall average mean error
RMSE = root mean square error

Columns labeled "Wells < 2.5 feet" and "Wells < 5 feet" identify number and percentage of wells with simulated water levels that are within 2.5 and 5 feet of observed water levels, respectively.

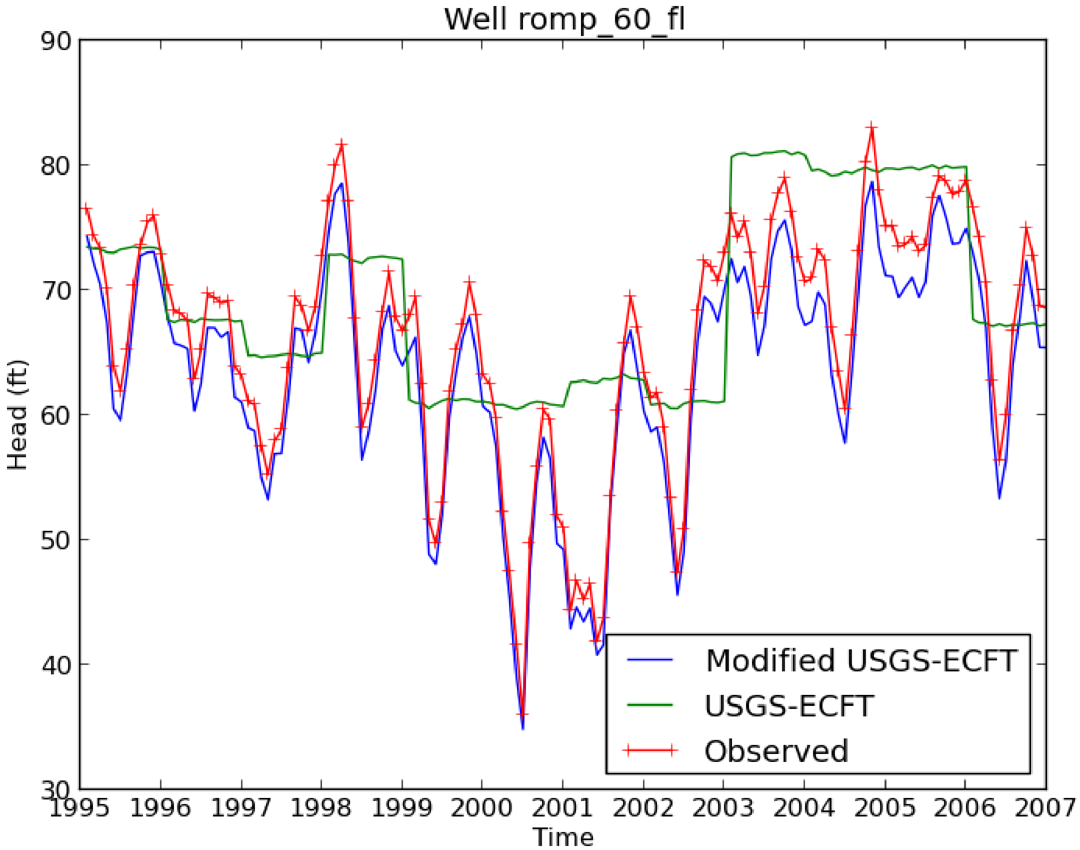


Figure C-4. Hydrograph of observed and simulated water levels at the ROMP 60 Well in the Upper Floridan aquifer in Polk County for the USGS and HAT versions of the ECFT groundwater model.

MODEL SCENARIOS

Multiple groundwater flow modeling scenarios were conceived, constructed and implemented to assess groundwater availability for the CFWI Planning Area. In this section, the rationale, conceptualization and construction of the scenarios is described at a summary level. The results from implementing the scenarios in the ECFT groundwater model are described in subsequent sections. Scenarios were developed for the Reference Condition representing 2005 withdrawal conditions, and simulations of future conditions to represent withdrawals to satisfy projected water demands for 2035. Additional scenarios were developed to represent 2015, 2025 withdrawal conditions as well as an end of permit (EOP) condition that addressed the potential withdrawal of all groundwater quantities currently permitted for the CFWI Planning Area. In some instances, the model inputs were unchanged from the USGS-provided model; in these instances, the reader is directed to Sepúlveda, et al. (2012) for more detailed descriptions of those variables. In other instances, HAT made adjustments that are described at a summary level in this section and in detail in the HAT ECFT Model Documentation Final Report (CFWI 2014).

Scenario Rationale

The evaluated scenarios were developed for assessment of the modeled effects related to changes of groundwater withdrawals while keeping other input variables constant or consistent between scenarios. The results of the modeling efforts were used by the CFWI technical teams for assessment of potential impacts to MFL sites, and non-MFL water bodies, and the potential for water quality degradation.

The scenarios were constructed by adjusting dependent, input variables based on observed and calculated relationships with independent variables. Rainfall is a primary independent variable that is used to spatially and temporally adjust the dependent variables. The dependent, input variables that were modified between scenarios based on rainfall included withdrawals, irrigation, runoff and infiltration, evapotranspiration (ET), and recharge. Land use is an independent variable that is unaffected by rainfall; however it affects runoff, infiltration, and ET and was used to modify these dependent variables for the model scenarios.

Rainfall

The spatial and temporal distribution of rainfall between 1995 and 2006 is a hydrologic parameter that influences other variables in the model. It was held constant for the calibration run and the future withdrawal condition scenarios using the observed and calculated monthly distributions at multiple rain gauge stations throughout the central-Florida area. This period contains extreme wet (hurricanes of 2004 and 2005) and dry (droughts of 2000 and 2001) conditions, and as a result, the approach provides insight to the potential changes of hydrologic conditions to meet projected needs during extreme conditions. Rainfall was unchanged from the USGS-provided model.

Land Use

Land use presents a distribution of pervious and impervious surfaces that are used in separating runoff and infiltration from the total of rainfall and irrigation as explained below. The distributions of land use for 1995, 2000, and 2004 were available to use for the model. Distributions of land use were unchanged from the USGS-provided model.

Irrigation

Two types of irrigation were used in the model: agricultural and landscape. Agricultural irrigation was based on observed or calculated water need in excess of rainfall considering soil type and crop type. Agricultural irrigation was changed from the USGS-provided model as will be described later in this chapter.

Withdrawals

The distribution of monthly rainfall for 1995 through 2006 was used to adjust projected demands to monthly withdrawals for a model scenario using a peaking factor approach. The approach is described in detail in the HAT ECFT Model Documentation Final Report (CFWI 2014).

The overall effect of using this process is to distribute withdrawals of a representative scenario over the 12-year period. While the projected withdrawal conditions for the Reference Condition and future withdrawal scenarios are described as a single value representing a long-term average demand condition, in the model these conditions are implemented as a fluctuating time series. **Figure C-5** shows the total modeled withdrawals for the CFWI Planning Area distributed over the 12-year simulation period, and the long-term average value for the Reference Condition (2005).

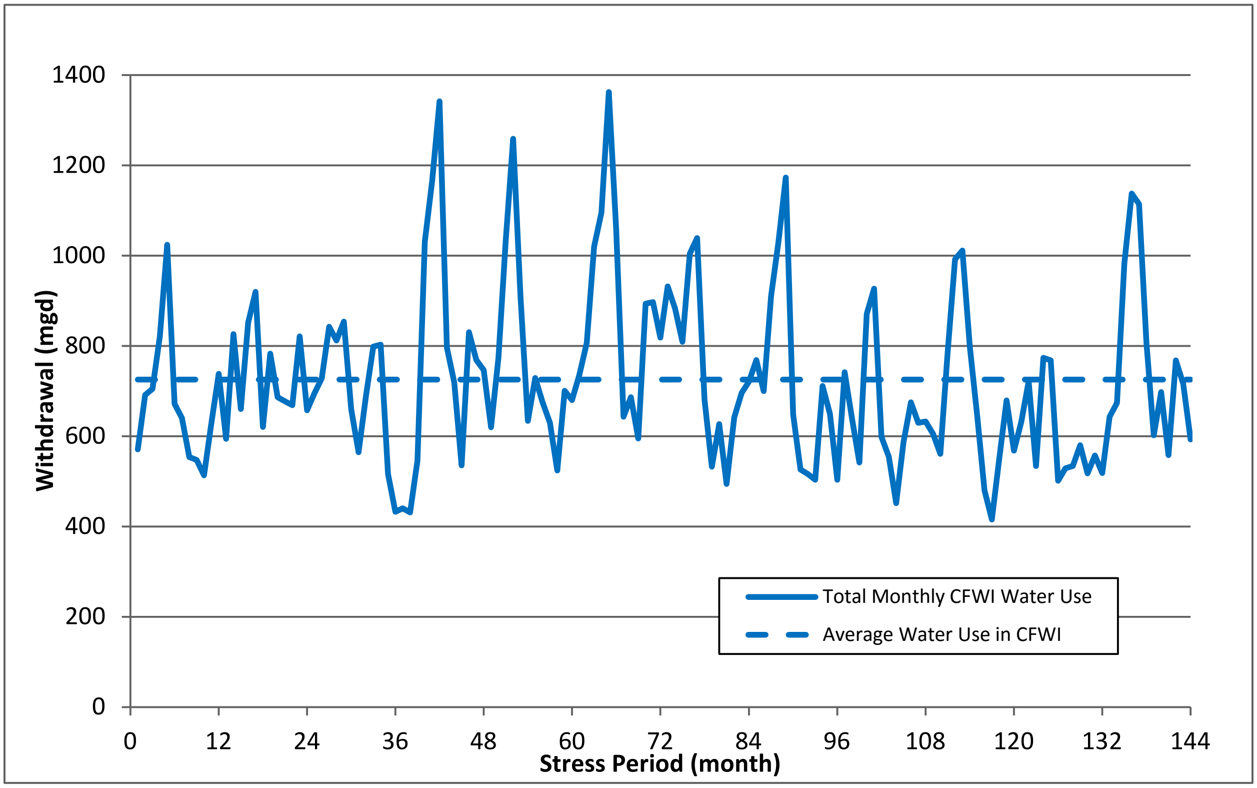


Figure C-5. Distribution of total monthly modeled withdrawals for the Reference Condition (2005).

Public Supply

The monthly distributions of public supply withdrawals for the future scenarios are based on the temporal water use patterns developed for the 2006 scenario. The 2006 scenario was used instead of the 2005 Reference Condition based, in part, on some above-average rainfall and related pumpage patterns observed during an active 2005 hurricane season.

Agricultural Demands

Agricultural withdrawals for individual scenarios represented the quantity of water necessary to irrigate the acreage grown during the actual "scenario year" as presented in **Figure C-6** for the Reference Condition scenario. For example, in the Reference Condition simulation the acreage determined to be irrigated in 2005 (the "scenario year") was held constant throughout the 12-year simulation period. The withdrawals necessary to irrigate that acreage were estimated on a monthly basis and varied throughout the simulation period according to the actual monthly rainfall that occurred. In the SWFWMD these withdrawals were developed based on the metered/estimated monthly irrigation application rates that were used for the calibration period whereas, in the SJRWMD and SFWMD, where these data are not as readily available, monthly withdrawals were estimated using a modified Agricultural Field Scale Irrigation Requirements Simulation (AFSIRS) modeling approach (see Smajstrla 1990 for information on the ASFIRS model). For future scenarios (e.g., 2035 withdrawal conditions), the Reference Condition withdrawals were first updated to include new permits issued since 2005 and exclude permitted withdrawals that were no longer active. The goal was to have an updated withdrawal dataset for the future scenarios that represented only currently (as of December 2012) permitted withdrawals. Projected withdrawal quantities for the future scenarios were as projected and reported for the RWSP effort and distributed proportionally to permitted withdrawals on a county-wide basis. The exception was in Osceola County where a few agricultural permits with significant quantities were recently issued. In that case, county quantities were first assigned to the recently issued permits and the remainder was proportionally distributed to remaining withdrawals in the County. With respect to the location of withdrawals, quantities within the SFWMD and SWFWMD were assigned to permitted withdrawal locations whereas in the SJRWMD, quantities were assigned to the centroid of agricultural land parcels.

Irrigation Return Flow

Irrigation return flow was applied using the same methodology for all model simulations. Return flow is irrigated water that gets returned to the SAS, Layer 1, resulting from inefficient irrigation practices. This occurs both in the agricultural areas and the public supply service areas where landscape irrigation utilizes either potable or reclaimed water for irrigation. The effect of this may result in some apparent mounding of water in the SAS, Layer 1, in certain areas in some future scenarios depending on aquifer characteristics and the irrigation application rate and irrigation efficiency applied.

Commercial and Industrial Demands

Permitted allocations provided the basis for development of commercial/industrial (C/I) withdrawal uses for the future scenarios. Withdrawals for a particular scenario were developed in the same manner as was done for agricultural withdrawals.

For C/I uses within the CFWI Planning Area, demands input to the model for the future scenarios (withdrawal conditions from 2015, 2025, and 2035 projected average day demands) were obtained from the CFWI Regional Water Supply Planning Team (RWSPT). For uses outside the CFWI Planning Area, future demands were obtained from the respective District's regional water supply plan or maintained at permitted allocations.

Figure C-6 provides a graph of modeled withdrawals for the major water use types. The largest variation occurs with the irrigation demands, which are predominately driven by variations of climatic conditions (rainfall and season). Public Supply and Commercial/Industrial demands generally fluctuate in a narrower band because they typically have base demand conditions that are needed to supply, such as typical indoor residential uses, regardless of climatic conditions. Fluctuations of modeled withdrawals at individual locations, regardless of use type, may significantly vary from the patterns shown in the chart. For these future scenarios, it was assumed that the domestic self-supply (DSS) was fixed at the average demand throughout the simulation and therefore shows no changes through time.

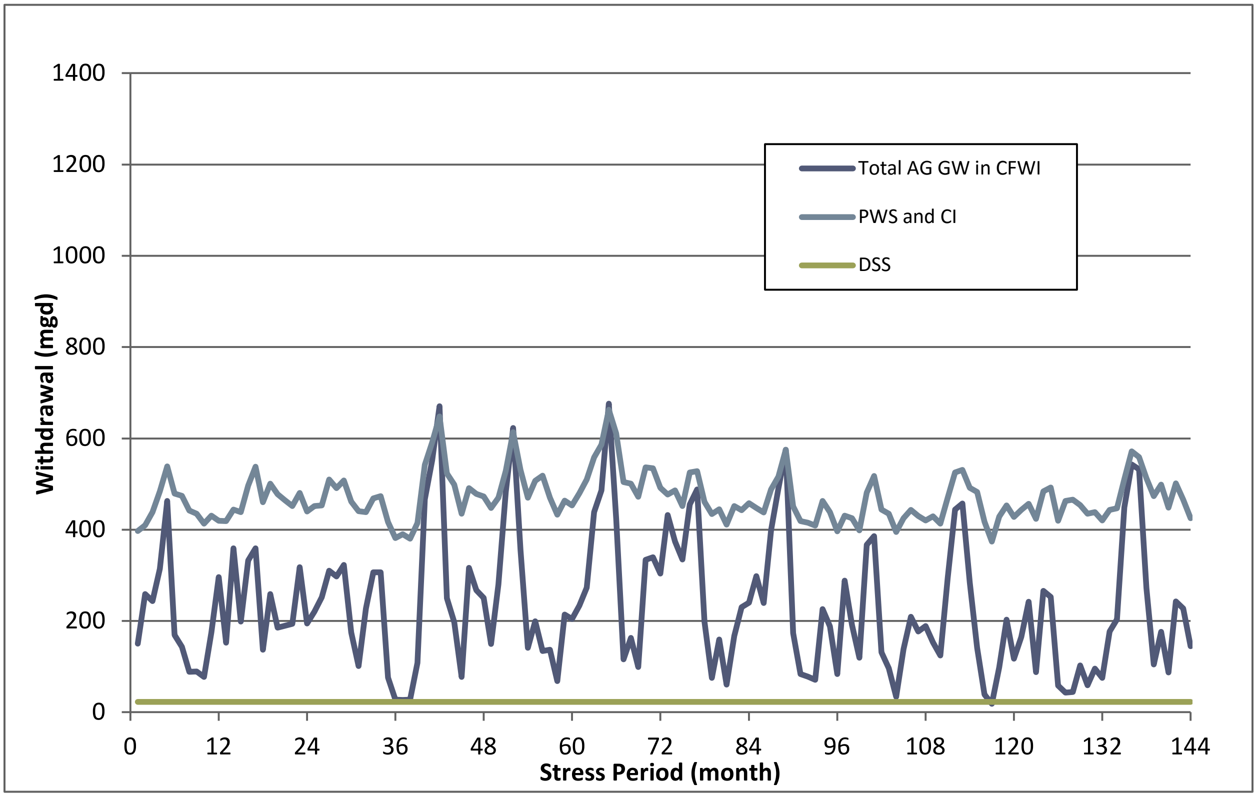


Figure C-6. Distribution of monthly modeled agricultural, public supply, commercial-industrial, and domestic self-supply withdrawals for the Reference Condition (2005).

Landscape, Recreation, and Aesthetic Irrigation

With respect to the future scenarios, irrigation withdrawals for landscape, recreation and aesthetic uses in the SWFWMD were only included for existing permits. Projected demand quantities that were not tied to specific property were not included in the future scenarios. For existing permits, withdrawal quantities for these uses in the future scenarios were treated the same as they were for the EOP simulation. Within the SFWMD area, all permitted irrigation withdrawals were included and adjusted for each simulation based upon the projected increases/decreases provided by the RWSPT. Within the SJRWMD, irrigation withdrawals were included for locations with historical water-use information.

Application of Reclaimed Water

The incorporation of reclaimed water in the ECFT groundwater model was handled in two ways: either through landscape irrigation or direct recharge to the SAS using rapid infiltration basins (RIBs). The irrigation component represents the portion of public supply, agricultural, and other irrigation demands throughout the CFWI Planning Area that are met with public access quality reclaimed water. Recharge associated with RIBs was included in the calibration at known locations, such as the RIBs associated with Water Conserv II in western Orange County. Data used to locate and establish flow quantities for the RIBs were obtained from multiple sources including the FDEP and utilities responsible for operating these systems. For the future scenarios simulated, reclaimed water application to RIBs or used for irrigation was the same as the Reference Condition (2005). Increases in reclaimed water flows (and distribution) to address future demands will be addressed in the Solutions phase of the CFWI RWSP planning effort. An additional source of recharge to the SAS was inflow from septic tanks, which was simulated as infiltration to the unsaturated zone. It was assumed that inflow from septic tanks was 50 percent of domestic self-supply withdrawals.

Runoff and Infiltration

The combination of rainfall and irrigation was subjected to a process to separate water that fell onto impervious or pervious surfaces into runoff and infiltration; runoff was routed to nearby surface water features, while infiltration water percolated through the soil for plant uptake. Infiltrated water that was not consumed by plant uptake through ET percolated deeper as available for aquifer recharge. The process to separate rainfall and irrigation to runoff and infiltration was unchanged from the USGS-provided model.

Scenario Representation

The model scenarios implemented using the ECFT groundwater model for the CFWI RWSP fall into one of three categories: calibration, Reference Condition (2005), and forward projecting scenarios. **Table C-2** summarizes differences in model input for the model calibration period and three of the five scenarios that were evaluated.

Table C-2. Model input parameters for ECFT groundwater model calibration and selected withdrawal condition scenarios.

Parameter		Scenario/Withdrawal Condition: Calibration	Reference Condition	End-of-Permit (EOP)	2035
Duration		144 Months	144 Months	144 Months	144 Months
Time step		Monthly	Monthly	Monthly	Monthly
Withdrawal Period or Condition		1995 to 2006	2005	EOP - Varies by Permit	2035 Projected
Land Use		1995 for 1995 - 1999 2000 for 2000 - 2003 2004 for 2004 - 2006	2004	2004	2004
Rainfall & ET		Measured 1995-2006	Measured 1995-2006	Measured 1995-2006	Measured 1995-2006
Runoff and Infiltration Partitioning		Calculated using Green-Ampt[1]	Calculated using Green-Ampt[1]	Calculated using Green-Ampt[1]	Calculated using Green-Ampt[1]
Withdrawal Sector		1995-2006	2005[1]	EOP Allocations[1]	2035 Projected[1]
	PWS	Measured	Estimated average 2005	Permitted allocations	Projected average 2035 demands
	Ag.	Measured or AFSIRS estimated	Estimated average 2005	Permitted allocations	Projected average 2035 demands
	C/I	Measured	Estimated average 2005	Permitted allocations	Projected average 2035 demands
	DSS	Estimated based on land use	Estimate average 2005	Projected average 2030 demands	Projected average 2035 demands
	REC	Measured or not included	Same as Calibration	Same as Calibration	Same as Calibration
Irrigation and RIB Recharge	**IRR**	Estimated based on land use (indexed to measured pumping)	Estimated (indexed to 2005 pumping)	Estimated (indexed to EOP pumping)	Estimated (indexed to 2035 pumping)
	RIBs	Measured	Estimated average 2005 RIB loading	Estimated average 2005 RIB loading	Estimated average 2005 RIB loading

(shaded) Unchanged values or processes between scenarios

[1] Adjusted through the simulation period using rainfall amounts and patterns

Calibration

Calibration represents the culmination of model parameter and input adjustments for the simulation results to match measured and calculated field conditions such as aquifer water levels, spring flows, aquifer flows, and water budget. The calibration is intended to represent the hydrologic conditions of 1995 through 2006. The calibration process is preceded by identifying calibration goals describing reasonable tolerance limits for the goodness of fit of the simulation results to the measured and calculated field conditions. In the case of a transient groundwater flow model, the comparisons are made spatially and temporally. Multiple adjustments to aquifer hydraulic property types and values and to water recharge-related and discharge-related inputs are made during calibration in a focused, trial-and-error process until the simulation results reasonably match the calibration goals. The resulting calibrated model is then used to simulate historic and future aquifer conditions within the limits of calibration and model construction.

Reference Condition

The Reference Condition was developed as the basis to consistently compare the results of other scenario simulations to one another. For the CFWI Planning Area, conditions of 2005 were selected as the Reference Condition. The scenario was developed to represent aquifer conditions that would be expected if 2005 water demands were repeatedly realized over the 12-year simulation period. Dependent water input variables were adjusted based on monthly changes of rainfall using observed and calculated relationships between rainfall and specific variables. The 2005 condition or period was chosen for the Reference Condition because it corresponded with the time-frames used for CFWI Planning Area hydro-ecological assessments of water body conditions, MFLs assessments, and the availability of water use records. More information on the assessments of water body conditions can be found in *CFWI EMT Final Report* (CFWI 2013a) and on the assessment of MFL water bodies can be found in **Appendix B**. The use of the 2005 water use as the Reference Condition does not imply that 2005 is considered a base year for acceptable environmental conditions. It is, rather, simply a period for which modeled environmental conditions were characterized for a common period with relatively well known hydrologic conditions.

2035 Withdrawal Conditions

The 2035 withdrawal condition scenario was developed to assess modeled hydrologic conditions at the end of the 20-year planning period required for the CFWI Planning Area RWSP. The scenario was constructed in a manner parallel to that of the Reference Condition using the projected withdrawals for 2035 instead of withdrawal conditions for 2005. The results of the 2035 withdrawal condition scenario represent the modeled hydrologic system for the projected water needs of 2035 subjected to the rainfall conditions of 1995 through 2006.

Figure C-7 illustrates the changes in withdrawals for all the use types comparing the Reference Condition against the 2035 future scenario. **Table C-3** provides water use demands by use type for the Reference Condition (2005), the 2035 withdrawal condition, and other modeled scenarios.

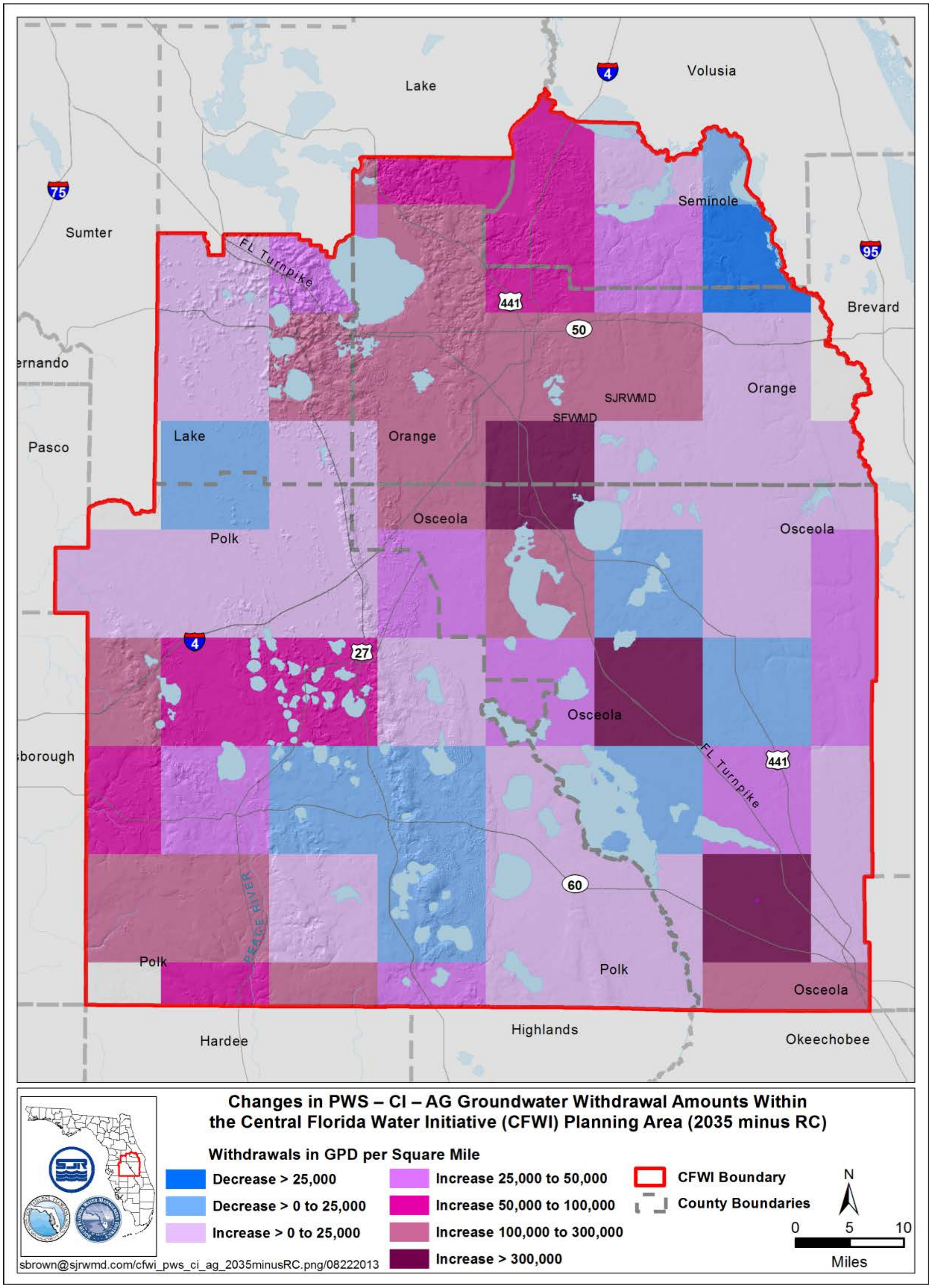


Figure C-7. Changes in withdrawals within the CFWI Planning Area between the Reference Condition and the 2035 withdrawal scenario. Changes in gallons per day (gpd) include those associated with public supply (PS), commercial-industrial (CI) and agricultural (AG) water use types.

Table C-3. Summary of demands in million gallons per day (mgd) within the CFWI Planning Area by use type for the Reference Condition (2005) and the withdrawal scenarios.

Scenario	Public Supply and Commercial and Industrial (mgd)	Agriculture (mgd)	Domestic Self-Supply (mgd)	Total of all Withdrawals (mgd)
Reference Condition (2005)	457	181	20	658
2015 Withdrawal Scenario	553	212	39	804
2025 Withdrawal Scenario	658	216	23	897
2035 Withdrawal Scenario	768	227	23	1018
EOP Withdrawal Scenario	711	256	23	990

2015, 2025, and EOP Withdrawal Conditions

The 2015 and 2025 withdrawal condition scenarios were constructed as intermediate points between the Reference Condition (2005) and 2035 withdrawal conditions. These intermediate scenarios were needed because water use needs differ throughout the CFWI Planning Area, as compared to uniform changes to water needs through time over the area. An end of permit (EOP) condition was also constructed to evaluate effects of the potential withdrawal of all groundwater quantities currently permitted for the CFWI Planning Area. Each of these scenarios were constructed and evaluated using processes parallel to the 2035 withdrawal condition.

Groundwater Withdrawal Quantities used for ECFT Groundwater Model Scenarios Compared to Regional Water Supply Planning Levels

The ECFT groundwater model was the principal tool used to assess effects of changes in groundwater withdrawals on water levels in aquifers and natural system water bodies. This was accomplished by comparing results of specific scenarios to the Reference Condition. The model was calibrated to estimates of actual water withdrawals for the period 1995 to 2006 (i.e., 657 mgd) while the actual water use from 1995 to 2010 average for the CFWI Planning Area was approximately 800 mgd. This section attempts to clarify the differences between these two values. The calibration step enabled the development of reasonable model parameters so that the model can be used to simulate water level changes in response to changes in pumping. Because the methods used to calculate actual withdrawals for the model and projected withdrawals for the RWSP are different, a direct comparison of these quantities cannot easily be made, especially when comparing historical uses. For this effort, differences in the estimated and projected quantities may be attributed to the following factors:

- Not all of Polk County is within the CFWI Planning Area and therefore the entire county is not included in summaries of modeled historic water use. However, for projected withdrawal scenarios, projected quantities for the entire county were included.
- Modeled, "historic" agricultural water use is based on best available information including metered, estimated, and calculated (e.g., AFSIRS and AGMOD) quantities. These quantities are intended to reflect actual used amounts based on actual demands and rainfall received. "Projected" agricultural water use is generally calculated using programs such as AFSIRS or AGMOD and is intended to reflect annual average quantities needed under long-term (e.g., 30 or more years) average rainfall conditions.
- In some cases future landscape, recreation, and aesthetic (LRA) uses were excluded from modeled quantities if the use was not associated with an existing consumptive use permit. Additionally, some LRA uses were not included in the historical modeled quantities.
- Withdrawals for the Reference Condition represent an average over a 12-year period. Public supply and agricultural use quantities were based on known information regarding their demands for the 2005 reference year (e.g., metered public supply quantities and crop acreages). Withdrawals for industrial/commercial/mining uses were similarly based on pumped quantities for the year 2005. However, because mining uses are dependent on economic conditions and affected by rainfall, and since 2005 was a high rainfall and low water use year, it is possible that selection of the reference year could have resulted in lower than anticipated quantities for this category.
- Surface water users, including City of Cocoa, City of Melbourne, and Polk County were simulated in the model through the Lakes package and not as groundwater withdrawals, but the planning-level estimates combine water demands provided by both groundwater and surface water.

Non-MFLs Lakes / Wetlands

As noted in **Volume I**, **Chapter 4**, the results of the predicted CFWI Planning Area scale changes in wetland stress conditions for isolated Plains systems that do not have significant hydrological alterations are shown in **Table C-4.** Stress conditions for isolated Ridge wetland systems located in the CFWI Planning Area are shown in **Table C-5**. The isolated plains and ridge wetlands are a small subset of the total wetlands and make up approximately 8 and 9 percent, respectively of the total acreage of wetlands within the CFWI Planning Area.

Table C-4. Summary of results for regional assessment of stress status change for isolated Plains wetlands without significant hydrologic alterations in the CFWI Planning Area.

Wetland Class	Total Area (acres)	Percentage of Stressed Wetland Area for Each Withdrawal Scenario				
		2005	2015	2025	2035	EOP
Total for Classes 1, 2 and 3	82,000	19%	20%	21%	23%	22%

ECFT = East Central Florida Transient groundwater model
EOP = End of Permit

Table C-5. Summary of results for regional assessment of stress status change for isolated Ridge wetlands in the CFWI Planning Area.

Aquifer Layer Used in ECFT Groundwater Model	Wetland Class	Total Area (acres)	Percentage of Stressed Wetlands Area for Each Withdrawal Scenario				
			2005	2015	2025	2035	EOP
Surficial aquifer system	Total for all Classes	92,000	45%	47%	51%	55%	52%
Upper Floridan aquifer	Total for all Classes	92,000	45%	53%	63%	75%	72%

ECFT = East Central Florida Transient groundwater model
EOP = End of Permit

Groundwater Availability

It was determined that groundwater availability for the CFWI Planning Area could potentially be expressed as a range of withdrawal quantities. The upper end of the range, which will be examined by the Solutions Planning Team, represents an availability estimate with lower confidence of being developed using more regional-scale management measures to avoid impacts at higher costs. Examples of regional scale management measures include transferring some pumping to lower aquifer zones, implementing recharge projects, moving groundwater development to locations away from sensitive areas, and environmental mitigation.

As discussed in **Volume I**, **Chapter 4**, the groundwater availability estimate involves limitations in the ECFT groundwater model and the analyses used for MFL water bodies and non-MFL lakes and wetlands. Details and limitations for each process are included in the HAT ECFT Model Documentation Final Report (CFWI 2014) and in **Appendix B** and the EMT Development of Environmental Measures Final Report (CFWI 2013). Although it was estimated that total quantity, from all sources, of 850 mgd can be managed, it is likely that additional measures will need to be implemented to address existing levels of observed harm and to prevent exacerbating change to the current levels of lakes, springs, and wetlands in the susceptible areas. The upper limit of the availability range (925 mgd) was estimated by reviewing four supplemental model runs to assess the potential for management activities to potentially reduce impacts. The upper limit of 925 mgd is less than the 980 mgd modeled for the 2025 withdrawal condition. Pending the Solutions Team's findings, this provides that the amount of additional groundwater available in the CFWI Planning Area could be within the range of 50 mgd to 125 mgd, depending on the viability of local and regional management measures to mitigate withdrawal effects on natural systems.

REFERENCES

Central Florida Water Initiative (CFWI). 2013. Development of Environmental Measures for Assessing Effects of Water Level Change on Lakes and Wetlands in the Central Florida Water Initiative Planning Area: Final Report. http://cfwiwater.com/pdfs/CFWI_Environmental_Measures_finalreport.pdf

CFWI. 2014. East-Central Florida Transient (ECFT) Model Documentation in Support of the 2014 Draft CFWI RWSP. http://cfwiwater.com/pdfs/East-Central_Florida_Transient_Model_Documentation.pdf.

Sepúlveda, N., C.R. Tiedeman, A.M. O'Reilly, J.B. Davis, and P. Burger. 2012. Groundwater Flow and Water Budget in the Surficial and Floridan Aquifer Systems in East-central Florida. U.S. Geological Survey Open-File Report 2012-1132. USGS, Reston, VA.

Smajstrla, A.G. 1990. Technical Manual - Agricultural Field Scale Irrigation Requirements Simulation (AFSIRS) Model, Version 5.5. SJRWMD Special Publication SJ2008-SP17, 197 pp.

C-I

Evaluation of Water Quality Degradation Potential in the CFWI Planning Area

Portions of the Upper Floridan aquifer (UFA) within the CFWI Planning Area are known to have poor quality water that is believed to be the result from dissolution of limestone and dolomite. Wells and wellfields operating near these regions are subject to the possible migration of this water as a result of their closeness to underlying poorer quality water or due to local geologic conditions, like fractures or solution channels that provide preferential conduits for the water to travel to the wells when they are pumped. This condition is a local, vertical migration issue of underlying poorer quality groundwater and not a regional one of lateral migration of sea water.

The locations where these conditions are observed within the CFWI Planning Area include the City of Winter Springs, City of Cocoa, City of Oviedo, Town of Chuluota operated by Florida Governmental Utility Authority, and two facilities operated by the City of Sanford. These locations currently produce potable quality water for their customers, but all show a history of at least one or more wells producing water with trends of water quality degradation. This condition is known by the utilities and the SJRWMD and the consumptive use permits for these utilities contain the requirement to monitor, analyze the data for trends, and report groundwater quality that may change because of wellfield operations. These permits also include the requirement for the utilities to develop and implement wellfield management plans to avoid unnecessary water quality degradation locally occurring in these wellfields.

Given that the ECFT model simulates groundwater flow only (i.e., does not consider density-dependent flow or fracture flow) and that it is a regional-scale model, vertical conduits that can lead to potential upward movement of poorer quality water cannot be explicitly simulated. However, the results of the ECFT modeling can provide insight on the potential of water level differences that would drive additional vertical groundwater movement. An aquifer drawdown map between the Reference Condition and the 2035 withdrawal scenario for the UFA (Layer 3) was prepared showing the locations of the wellfields with this condition as shown in **Figure C-I-1**. The map reveals that these wellfields lie in an area that is projected to experience between 1 and 3 feet of additional drawdown. It is considered that this relatively small amount of additional drawdown would not lead to unacceptable additional water quality degradation when considering the monitoring and management plans that are implemented through the permits.

An aquifer drawdown map between the Reference Condition and the 2035 withdrawal scenario for the UFA (Layer 3) was prepared showing the locations of the wellfields with this condition as shown in **Figure C-I-1**. The map reveals that these wellfields lie in an area that is projected to experience between 1 and 3 feet of additional drawdown. It is considered that this relatively small amount of additional drawdown would not lead to unacceptable additional water quality degradation when considering the monitoring and management plans that are implemented through the permits.

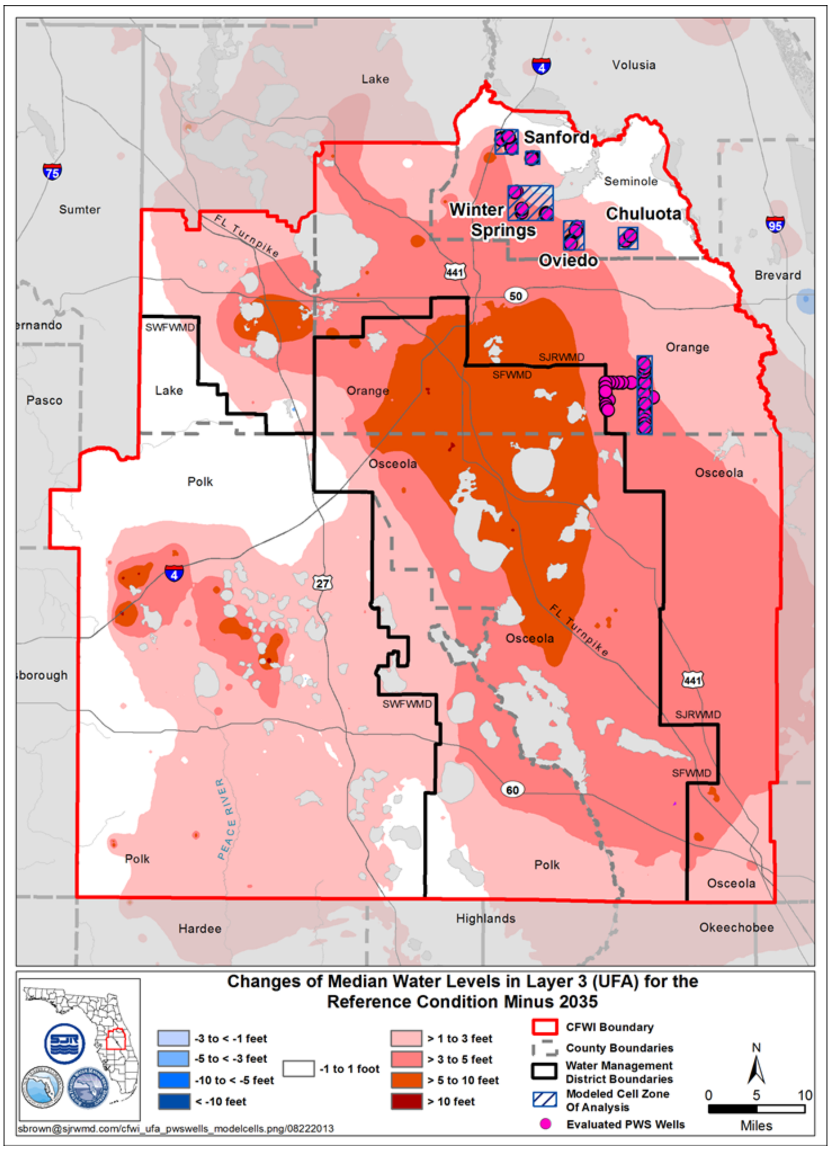


Figure C-I-1. Projected drawdown in the UFA between the Reference Condition (2005) and the 2035 withdrawal scenario within the CFWI Planning Area.

D

Agricultural Best Management Practices (BMPs)

Estimates of water conservation potential for agriculture assume implementation of the best management practices (BMPs) listed below or comparable practices for other specific crops. The following example BMPs are excerpted from *Water Quality/Quantity Best Management Practices for Florida Citrus*, 2012 Edition, Florida Department of Agriculture and Consumer Service Publication No. 01756, pages 24-26.

IRRIGATION DECISION-MAKING AND MANAGEMENT PRACTICES

Soil moisture is being maintained within the recommended range for the crop and soil type using the practices listed below. Irrigation amounts and timing are based on crop water demands, soil moisture availability, and weather conditions. Specific information (i.e., water-holding capacity, depth to water table) about the soils, and the determination of water demand by crop(s) can be obtained via a UF-IFAS Extension or NRCS office. This is usually expressed as inches-per-acre or gallons-per-plant.

1. Available tools and data are being used to assist in making irrigation decisions. Tools may include water table observation wells, on-site soil moisture sensors, crop water use information, weather data, and the feel and appearance method. Real-time weather data is available by visiting FAWN, United States Geological Survey (USGS), and Water Management District websites; or by installing your own on-site weather station.

2. Minimize application losses due to evaporation and wind drift by appropriate irrigation scheduling (e.g., irrigating early in the morning, late in the afternoon, at night, and/or when cloud cover is abundant and wind speed is minimal).

3. Do not irrigate beyond field capacity, except as necessary to manage salinity.

General Irrigation System Maintenance

1. Test irrigation source water quality at least annually to detect issues with water chemistry that may result in irrigation system plugging. The analysis could include pH, total dissolved solids, alkalinity, dissolved iron, hydrogen sulfide, and calcium carbonate. Run the pump long enough to purge the water in the well to ensure a representative sample. Adjust your maintenance actions as needed.

2. Use water meters (flow or volume) or other measuring devices/calculations to determine how much water is applied to the irrigated area. Use this information to help you determine how well your irrigation system and irrigation schedule are working. Make any needed schedule adjustments or system repairs.

3. Monitor water meters or other measuring devices for unusually high or low readings to detect possible leaks or other problems in the system. Make any needed repairs.

4. If one is available, get a Mobile Irrigation Lab to check the distribution or emission uniformity and the conveyance efficiency of the irrigation system(s). This should be done every three to five years.

5. Maintain pump stations and wells, and related components, in good working order. Check them on an annual basis. Replace parts as needed.

6. Maintain a record-keeping system for inspection and maintenance of key irrigation system components. Records should be compared over time for any changes that would indicate problems with the system.

Pressurized Irrigation Systems

1. Examine irrigation emitters for wear and malfunction, and replace them as necessary.

2. Clean and maintain filtration equipment.

3. Flush irrigation lines regularly to minimize emitter clogging. To reduce sediment build up, make flushing part of a regular maintenance schedule. If fertilizing, prevent microbial growth by flushing all fertilizer from the lateral lines before shutting down the irrigation system.

Non-Pressurized Irrigation Systems

1. Clean debris and control weeds in irrigation ditches and canals, to maintain water flow and direction.

2. Keep water-level-control structures (such as culverts and risers) in irrigation ditches in good working order.

Reclaimed Water

If you are using reclaimed water:

1. As needed, design or retrofit irrigation systems to handle reclaimed water, taking into account source water quality and delivery pressures.

2. Separate reclaimed water supplies from existing ground or surface water sources to prevent cross-contamination.

Special-Case Irrigation Measures

1. When using irrigation for frost/freeze protection, monitor wet-bulb temperatures, and shut off the irrigation system as soon as the risk of evaporative cooling has ended. This information is available at http://fawn.ifas.ufl.edu/tools/irrigation_cutoff/. If the FAWN weather station is not near the grove, you can use other alternative measures such as a psychrometer to get more accurate wet and dry bulb temperatures.

2. During a drought, closely monitor soil moisture levels. Whenever practicable, irrigate at times when the least amount of evaporative loss will occur.

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E

Reclaimed Water Use Inventory

INTRODUCTION

Central Florida has long been a leader in the application of highly treated reclaimed water as a source of irrigation, for industrial uses, and as a means of recharging the local aquifer system. While this practice was begun as a tool for wastewater management and for reducing environmental impacts of other disposal options, more recently reclaimed water use has been recognized for its critical role in offsetting increasing groundwater withdrawals. Moving into the future, the use of reclaimed water will continue to be a key component of water supply in the Central Florida Water Supply Initiative (CFWI) Planning Area. Encouragement and promotion of reclaimed water are state and water management district objectives. The Water Resource Implementation Rule, Chapter 62-40 of the Florida Administrative Code (F.A.C.), requires the Florida Department of Environmental Protection (FDEP) and water management districts to advocate and direct the reuse of reclaimed water as part of the cooperative funding programs and planning goals. Reclaimed water is wastewater that has received at least secondary treatment and basic disinfection and is reused after flowing out of a domestic wastewater treatment facility. Reuse is the deliberate application of reclaimed water, in compliance with FDEP and District rules, for beneficial purposes. Potential uses of reclaimed water include landscape irrigation, agricultural irrigation, groundwater recharge, industrial and utility uses, environmental or wetland enhancement and fire protection. In addition to these more common uses of reclaimed water, Chapter 62-610, F.A.C. also addresses the use of high-quality reclaimed water for groundwater recharge using injection wells and indirect potable use.

As part of the CFWI, an evaluation was conducted by the South Florida, St. Johns River, and Southwest Florida water management districts (Districts) with the assistance of the local wastewater service providers and the FDEP. An inventory of the existing and projected wastewater and reuse flows was compiled for the CFWI Planning Area including all of Orange, Osceola, Polk, and Seminole counties, and the southern portion of Lake County. This inventory collects information only on those wastewater reclamation facilities with a permitted capacity equal to or greater than 0.1 million gallons per day (mgd) based on the FDEP's 2010 Reuse Inventory (FDEP 2011). A total of 80 existing facilities, including distribution facilities, were identified for this summary.

APPROACH

Three types of information were compiled:

- Wastewater and reuse flows for the year 2010;
- Utility-provided or estimated 2035 wastewater and reuse flows, and;
- Current wastewater treatment facility locations.

The 2010 wastewater and reuse flows were gathered from FDEP's 2010 Reuse Inventory (FDEP 2011); which represents a compilation of utility-submitted data. A data request was sent to the CFWI wastewater utilities to provide 2035 wastewater and reuse flow estimates for their current and proposed wastewater service areas.

Estimation of 2035 Reclaimed Water Generation

In December 2012, a reclaimed water data request was sent to each of the CFWI wastewater utilities with permitted capacities equal to or greater than 0.1 mgd. The request included an attached spreadsheet where utility-specific information could be recorded; a map of the utility's current wastewater service area was also requested. **Exhibits 1a and 1b,** located at the end of the appendix, are examples of the data request and spreadsheet. The requested information included the 2035 projections for the following:

- Wastewater flow
- Supplemental water flow
- Imported or exported flow
- Disposal flow
- Flows for each of the reuse types (e.g., irrigation, recharge)

For utilities that did not submit information, the 2035 projections of wastewater flows were estimated by District staff and were reviewed by the utility where possible. District staff used projected 2035 permanent population projections (found in the **Appendix A**) that were developed using Bureau of Economic and Business Research data (Smith and Rayer 2011) for the CFWI process for the respective cities/counties. The estimate utilized the projected change in CFWI population from 2010 to 2035 and assumed 95 percent of the population increase would receive sewer service and thereby return wastewater for treatment. It is recognized for regional planning purposes that a 95 percentage of sewered connections is reasonable and it is acknowledged this percentage and resulting wastewater flows will vary for individual service providers due to a number of factors. The growth and rate of sewer flow used is consistent with the most recent Southwest Florida Water Management District Regional Water Supply Plan (SWFWMD 2011c: Appendix 4.1) covering Polk County.

To complete the estimate, it was assumed that the increased sewered population would generate approximately 84 gallons per day per person (gpdpp) of wastewater to the local wastewater treatment facility. The 84 gpdpp represents an average of 69 gpdpp generated by residential customers (indoor use) and 15 gpdpp generated by industrial/commercial customers (indoor use), based upon the same permanent population projections (as noted above). The 84 gpdpp is based upon empirical sources for residential flows referenced from Vickers (2001) and AWWA Research Foundation (1999). Additionally, the Florida Administrative Code, Chapter 64E-6, “Standards for Onsite Sewage Treatment and Disposal Systems”, Rule 64E-6.008 System Size Determinations, Section (1)(B) Table I - System Design supports designs for wastewater return flows averaging 15 gpdpp for employees at a commercial/industrial facility.

It is acknowledged that wastewater flows generated by population growth vary by a number of factors unique to the individual utility. As a regional approximation, this value was found to be reasonable for service providers in Polk County and was likely similar for utilities throughout central Florida (Andrade and Scott 2002). The value however is dependent on the density of commercial and industrial activity within an individual service area. Areas with lower percentages of commercial activity and higher residential customers will have lower gpdpp compared to utilities serving customers with a higher commercial/industrial base.

Potable-Quality Water Offsets and Use

Potable-quality water offset is defined as the replacement of existing or proposed potable-quality ground or surface-water withdrawals with reclaimed or another alternative water source. While components of groundwater recharge and wetland augmentation are considered reuse by statutory definition, these applications do not replace future potable system demands such as irrigation and industrial applications. There are, however, circumstances where they can directly (if required by consumptive use permit) or indirectly support the withdrawal of additional surface or groundwater by offsetting impacts. In addition, when discussing reclaimed water as a source to replace potable water, the replacement of potable water irrigation is often at a ratio of less than one to one due to a number of factors including disposal requirements/facility constraints, customer contractual requirements, system storage limitations, and excessive irrigation associated with customer demographics among other factors. A detailed explanation of this concept and the means to estimate potable offset by use type can be found in a document on the SWFWMD’s website:

www.swfwmd.state.fl.us/files/database/site_file_sets/118/reclaimed-offset-docs.pdf

Previous irrigation reuse utilization estimates made by SWFWMD, and based upon historic data, have typically ranged between 65% and 75% (SWFWMD 2011a; FDEP 2003). Industrial applications can achieve higher utilization rates and are also often seen to be closer to one to one potable water replacement or 100% offset efficiency. Individual utilities, when planning out their alternative water resources, need to recognize the inherent limitations of reclaimed water use in meeting future demands and should not expect to achieve 100% utilization unless efforts are made in system management and supplemental supplies or storage are developed to overcome peak flows.

Current Wastewater Treatment Plant Locations

The locations of the wastewater treatment facilities, including distribution facilities, within the CFWI Planning Area were identified using the FDEP permit database and the District's GIS databases and are shown in **Figure E-1.** A total of 80 wastewater treatment plants, including distribution facilities, were identified within the CFWI Planning Area in 2010.

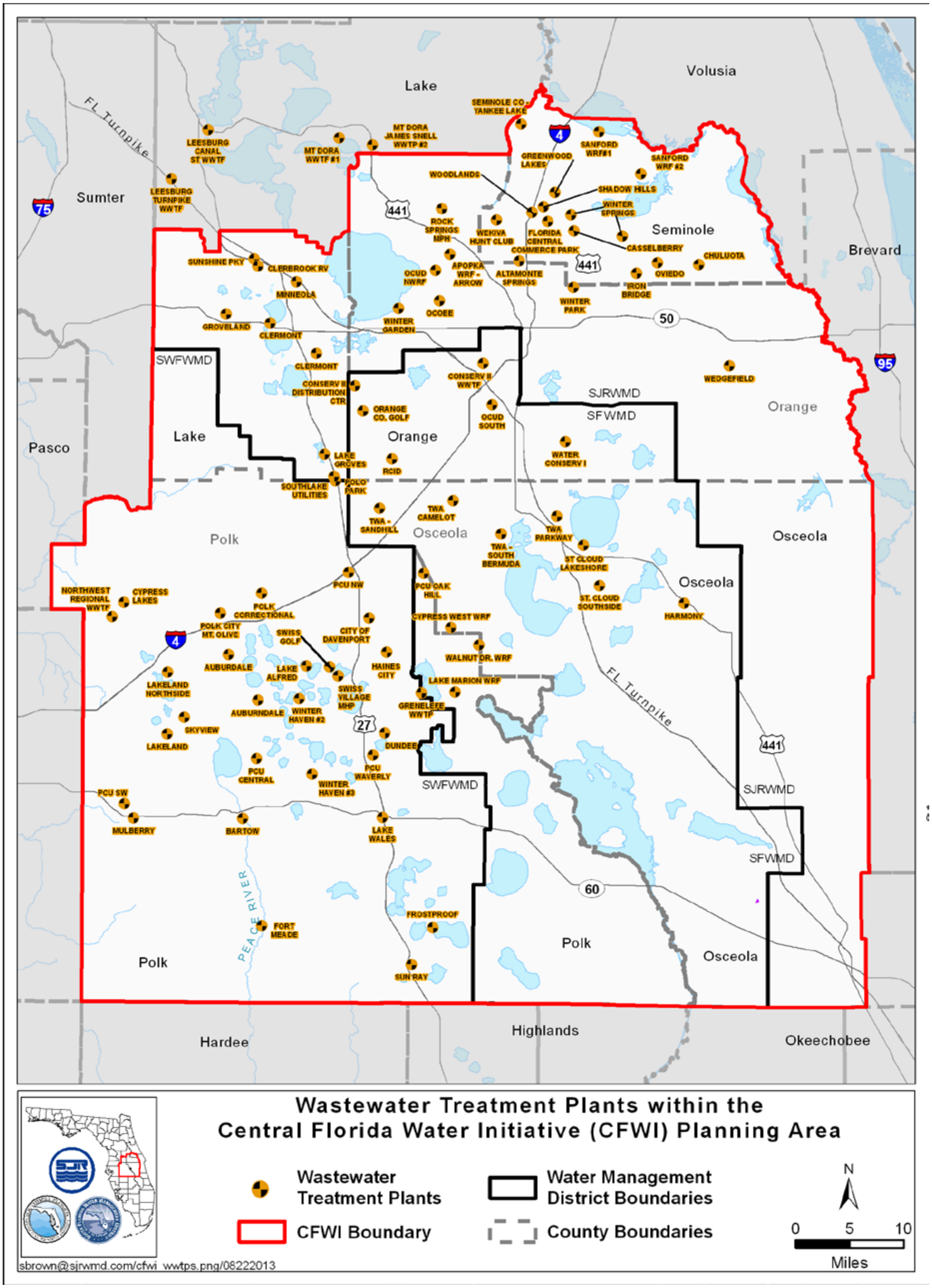

Figure E-1. Location of wastewater treatment plants in the CFWI Planning Area.

RESULTS

The 2010 baseline and 2035 projected wastewater and reuse amounts are summarized in **Table E-1**. The table includes the wastewater service providers within the CFWI Planning Area, listed alphabetically by county. The left side of the table shows the baseline 2010 flows as reported by utilities in the FDEP's 2010 Reuse Inventory (FDEP 2011). On the right side of the table are the projected 2035 flows identified by the utility or estimated by the Districts. **Table E-2** summarizes information at the county level on reuse application type and estimates of potable-quality offsets from reuse flows for the years 2010 and 2035.

2010 Summary

In 2010, there were 58 wastewater utility providers operating a total of 80 wastewater treatment facilities in the CFWI Planning Area, including distribution facilities, with permitted capacities of 0.1 mgd or greater. Wastewater flow to these facilities was reported at just over 193 mgd (**Table E-1**). Of this amount, 174 mgd (over 90%) was treated and reused in a beneficial manner (FDEP 2011). An additional amount of 4 mgd (ground/surface/public supply water) was augmented to the system, for a total of 178 mgd (FDEP 2011). The remaining 15 mgd of treated wastewater was either discharged to surface water features or sent to percolation ponds in poor recharge areas and provided minimal or no benefit for recharge or to offset other uses (FDEP 2011). Reclaimed water was used for residential, landscape, and other green space irrigation, industrial uses, power plant cooling water, and groundwater recharge. A majority of the reclaimed water (105 mgd or 59 percent) was used in a manner related to industrial application or irrigation replacement (**Table E-2**). A reported 73 mgd, or 41 percent, was directed to environmental enhancement and aquifer recharge (**Table E-2**).

2035 Summary

Wastewater flows are projected to exceed 314 mgd by 2035, an increase of 121 mgd from 2010 (**Table E-2**). Reuse flows are anticipated to exceed 343 mgd by 2035. Supplemental sources in the amount of 44 mgd are identified by the wastewater utility providers to assist in improved system management during peak demand periods. Between 2010 and 2035 reuse is anticipated to increase by 165 mgd (**Table E-2**) if supplemental sources are included. As seen in **Table E-2**, while an additional 165 mgd of reuse water is projected to be utilized, this amount may not directly offset groundwater for public demand at an equal ratio due to inefficiencies in use. It is estimated that 165 mgd of new reuse could result in approximately 106 mgd of potable-quality water being offset, however the exact application and location of the reuse will determine what offsets could be achieved. In order to achieve a greater benefit in reuse utilization it will be important for local governments and utilities to improve its use through conservation and management, supplemental sources of water, and improvement of water storage. It is important to note that not all reclaimed water offsets are or will be associated with public supply utilities.

Table E-1. 2010 and 2035 WWTP and reuse flows by county by wastewater utility in the CFWI Planning Area.

Wastewater Utility	2010		2035	
	Actual WWTP Flow (mgd)	Actual Reuse Flow (mgd)	Projected WWTP Flow (mgd)	Projected Reuse Flow (mgd)
City of Clermont [c]	2.50	2.50	3.65	3.65
City of Groveland [c]	0.42	0.60	1.78	1.78
City of Leesburg [c]	2.60	2.60	3.83	3.83
City of Minneola [c]	0.11	0.11	0.62	0.49
City of Mt Dora [a]	1.31	1.22	3.13	3.13
Clerbrook RV [a]	0.03	0.03	0.12	0.12
Lake Groves WWTF [a]	0.37	0.37	0.57	0.57
Southlake Utilities [c]	0.69	0.69	1.38	1.38
Lake County Total	**8.03**	**8.12**	**15.08**	**14.95**
Apopka [a]	2.67	5.45	8.82	21.24
City of Orlando [a]	17.28	17.29	24.63	25.51
Ocoee [a]	1.56	1.56	2.22	4.79
Orange County Utilities Department [a]	50.94	50.94	80.42	80.81
Reedy Creek [a]	11.99	12.07	19.00	19.00
Rock Springs MHP [c]	0.10	0.10	0.11	0.11
Wedgefield [c]	0.23	0.23	0.26	0.25
Winter Garden [a]	2.20	0.63	3.91	5.42
Winter Park [b]	0.37	0.37	0.39	0.39
Orange County Total	**87.34**	**88.64**	**139.76**	**157.52**
St. Cloud [a]	2.95	2.96	6.81	11.53
Tohopekaliga Water Authority [a]	21.16	23.14	44.91	49.35
Osceola County Total	**24.11**	**26.10**	**51.72**	**60.88**
Avon Park Correctional [a]	0.28	0.00	0.50	0.00
City of Auburndale [c]	2.36	1.61	3.11	3.12
City of Bartow [c]	1.51	1.51	2.64	2.64
City of Davenport [c]	0.02	0.02	0.33	0.33
City of Frostproof [c]	0.01	0.01	0.04	0.04
City of Ft. Meade [c]	0.36	0.36	0.49	0.49
City of Haines City [c]	1.33	1.34	2.68	2.68
City of Lake Wales [c]	0.92	0.92	1.76	1.76
City of Lakeland [b]	11.51	4.79	15.08	15.09
City of Mulberry [c]	0.32	0.00	0.32	0.32
City of Winter Haven [c]	4.64	1.31	6.84	6.84
Cypress Lakes [c]	0.13	0.13	0.14	0.14
Dundee [b]	0.01	0.01	0.19	0.19
Gold Coast Utility [c]	0.12	0.12	0.12	0.12
Grenelefe Resort [c]	0.13	0.13	0.13	0.13
Lake Alfred [c]	0.44	0.44	0.69	0.69
Outdoor Resorts at Orlando [c]	0.08	0.08	0.08	0.08
Polk City/Mt Olive [c]	0.08	0.08	0.35	0.35
Polk Correctional [c]	0.18	0.18	0.18	0.18
Polk County Utilities Department [b]	5.25	4.51	12.59	12.59
Swiss Golf Club [c]	0.11	0.11	0.11	0.11
Swiss Village [c]	0.04	0.04	0.04	0.04
Polk County Total	**29.83**	**17.70**	**48.42**	**47.93**

Table E-1. 2010 and 2035 WWTP and reuse flows by county by wastewater utility in the CFWI Planning Area (Continued).

Wastewater Utility	2010		2035	
	Actual WWTP Flow (mgd)	Actual Reuse Flow (mgd)	Projected WWTP Flow (mgd)	Projected Reuse Flow (mgd)
Alafaya WWTF (Oviedo) [a]	0.96	0.96	1.40	2.40
Altamonte Springs [a]	5.20	5.28	5.78	6.78
Aqua UtilitiesFlorida Governmental Utility Authority [c]	0.19	0.19	0.23	0.21
Casselberry [b]	0.78	0.90	1.21	1.16
City of Orlando - Iron Bridge [a]	21.42	15.88	26.40	26.40
Palm Valley MHC WWTP [a]	0.08	0.08	0.08	0.08
Sanford [a]	6.34	6.14	12.30	12.30
Seminole County [a]	4.07	4.07	6.05	6.05
Shadow Hills (Longwood) [c]	0.38	0.38	0.45	0.45
Wekiva Hunt Club WWTP [a]	2.09	1.07	1.98	1.98
Winter Springs [a]	2.10	2.05	3.05	3.65
Woodlands (Des Pinar) WWTP [c]	0.25	0.25	0.54	0.54
Seminole County Total	**43.86**	**37.25**	**59.47**	**62.00**
CFWI Planning Area Total	**193.17**	**177.81**	**314.46**	**343.28**

Notes:

mgd = million gallons per day

WWTP = wastewater treatment plant or facility

[a] The 2035 flow projections were supplied by the utility.

[b] The 2035 flows were estimated based on population projections and confirmed by the utility

[c] The 2035 flows were estimated based on population projections. The utility did not provide a direct confirmation.

Table E-2. 2010 and 2035 Reuse flows and estimated potable quality water offset by county and reuse type in the CFWI Planning Area.

2010			2035		
Reuse Types	**Reuse Type Flows (mgd)**	**Estimated Potable Quality Water Offset[a] (mgd)**	**Reuse Types**	**Reuse Type Flows (mgd)**	**Estimated Potable Quality Water Offset[a] (mgd)**
Lake County					
Public Access Irrigation [b]	3.00	1.80	Public Access Irrigation [b]	7.66	4.60
Agricultural Irrigation [c]	2.60	1.95	Agricultural Irrigation [c]	3.75	2.82
Groundwater Recharge [d]	2.31	0.00	Groundwater Recharge [d]	3.25	0.00
Industrial [e]	0.04	0.04	Industrial [e]	0.04	0.04
Wetlands [f]	0.00	0.00	Wetlands [f]	0.00	0.00
Other [g]	0.17	0.00	Other [g]	0.25	0.00
2010 Lake Total	**8.12**	**3.79**	**2035 Lake Total**	**14.95**	**7.45**
Supplemental [h]	0.18	—	Supplemental	0.38	—
Orange County					
Public Access Irrigation [b]	34.55	20.73	Public Access Irrigation [b]	101.69	61.01
Agricultural Irrigation [c]	4.19	3.14	Agricultural Irrigation [c]	0.84	0.63
Groundwater Recharge [d]	25.55	0.00	Groundwater Recharge [d]	28.23	0.00
Industrial [e]	12.11	12.11	Industrial [e]	21.06	21.06
Wetlands [f]	11.13	0.00	Wetlands [f]	4.20	0.00
Other [g]	1.11	0.00	Other [g]	1.50	0.00
2010 Orange Total	**88.64**	**35.98**	**2035 Orange Total**	**157.52**	**82.70**
Supplemental	3.31	—	Supplemental	17.83	—
Osceola County					
Public Access Irrigation [b]	13.39	8.03	Public Access Irrigation [b]	37.23	22.34
Agricultural Irrigation [c]	0.61	0.46	Agricultural Irrigation [c]	0.61	0.46
Groundwater Recharge [d]	11.09	0.00	Groundwater Recharge [d]	21.44	0.00
Industrial [e]	0.95	0.95	Industrial [e]	1.50	1.50
Wetlands [f]	0.00	0.00	Wetlands [f]	0.00	0.00
Other [g]	0.06	0.00	Other [g]	0.10	0.00
2010 Osceola Total	**26.10**	**9.44**	**2035 Osceola Total**	**60.88**	**24.30**
Supplemental	0.21	—	Supplemental	13.14	—
Polk County					
Public Access Irrigation [b]	3.03	1.82	Public Access Irrigation [b]	20.32	12.19
Agricultural Irrigation [c]	2.02	1.52	Agricultural Irrigation [c]	1.49	1.12
Groundwater Recharge [d]	4.51	0.00	Groundwater Recharge [d]	5.65	0.00
Industrial [e]	7.96	7.96	Industrial [e]	20.10	20.10
Wetlands [f]	0.00	0.00	Wetlands [f]	0.37	0.00
Other [g]	0.18	0.00	Other [g]	0.00	0.00
2010 Polk Total	**17.70**	**11.29**	**2035 Polk Total**	**47.93**	**33.41**
Supplemental	0.00	—	Supplemental	0.00	—

Table E-2. 2010 and 2035 Reuse flows and estimated potable quality water offset by county and reuse type in the CFWI Planning Area (Continued).

2010			2035		
Reuse Types	**Reuse Type Flows (mgd)**	**Estimated Potable Quality Water Offset[a] (mgd)**	**Reuse Types**	**Reuse Type Flows (mgd)**	**Estimated Potable Quality Water Offset[a] (mgd)**
Seminole County					
Public Access Irrigation [b]	15.08	9.05	Public Access Irrigation [b]	40.99	24.59
Agricultural Irrigation [c]	2.94	2.21	Agricultural Irrigation [c]	5.37	4.03
Groundwater Recharge [d]	2.91	0.00	Groundwater Recharge [d]	2.22	0.00
Industrial [e]	0.71	0.71	Industrial [e]	1.15	1.15
Wetlands [f]	15.39	0.00	Wetlands [f]	10.60	0.00
Other [g]	0.22	0.00	Other [g]	1.67	0.00
2010 Seminole Total	**37.25**	**11.96**	**2035 Seminole Total**	**62.00**	**29.77**
Supplemental	0.24	—	Supplemental	1.65	—
CFWI Planning Area Total					
Public Access Irrigation [b]	69.05	41.43	Public Access Irrigation [b]	207.89	124.73
Agricultural Irrigation [c]	12.36	9.27	Agricultural Irrigation [c]	12.06	9.05
Groundwater Recharge [d]	46.37	0.00	Groundwater Recharge [d]	60.79	0.00
Industrial [e]	21.77	21.77	Industrial [e]	43.85	43.85
Wetlands [f]	26.52	0.00	Wetlands [f]	15.17	0.00
Other [g]	1.74	0.00	Other [g]	3.52	0.00
2010 CFWI Planning Area Total	**177.81**	**72.47**	**2035 CFWI Planning Area Total**	**343.28**	**177.63**
Supplemental	3.94	—	Supplemental	33.00	—

Notes: – = No data available.

mgd = million gallons per day

SWFWMD = Southwest Florida Water Management District

[a] Estimated Potable Water Quality Offset and Recharge is based on percentages for each reuse type used by the SWFWMD.

[b] Public Access Irrigation includes single family residential customers, recreational, aesthetic irrigation and commercial irrigation including multi-family property irrigation and golf course irrigation customers.

[c] Agricultural Irrigation uses include sprayfields.

[d] Groundwater Recharge includes rapid infiltration basins and absorption fields.

[e] Industrial includes offset and at treatment plant uses including, but not limited to cooling towers and process water.

[f] Wetlands include natural system restoration uses including, but not limited to, downstream augmentation, wetlands creation or augmentation and upland restoration.

[g] Other includes uses such as decorative fountains and vehicle washing.

[h] Supplemental is groundwater and surface water supplies used to augment reuse system.

Exhibit E-1a. Generic Data Request Cover Letter

To Whom It May Concern,

The St. Johns River, Southwest Florida, and South Florida Water Management Districts are cooperatively working to evaluate the availability of water resources in central Florida as part of a joint water supply planning process. This effort, known as the Central Florida Water Initiative (CFWI), includes a re-evaluation of groundwater resources as well as other available water resources to central Florida. The CFWI effort is led by the water management districts, but includes involvement by the Florida Department of Environmental Protection (FDEP), local governments, utilities, agricultural interests, and stakeholders. With the understanding of the importance of the role that reclaimed water has in meeting future water supply demands, the Districts are updating previous capacity evaluations and projections of wastewater and water reuse. To aid this effort, and in conjunction with several local utilities, the attached reclaimed water inventory data request was developed. We respectfully request input from the Utility due to your location within the CFWI planning region.

As the Water Reuse Coordinator at the South Florida Water Management District – I am helping prepare estimates of wastewater generation and water reuse for the Water Supply Plan for the CFWI region. Specifically, I am looking to **gather your input on estimated (2035) wastewater/reuse flows and a copy of the Utility's current wastewater service area**.

<u>Attached is a brief data request form </u>for the Utility's wastewater facility. To facilitate your input, we have entered the data from the 2010 FDEP Annual Reuse Reports. I have highlighted (in yellow) where to enter the 2035 supply estimates. Please describe how you arrived at the wastewater and reuse estimates (i.e., master plan, ratio methods, etc.). Please note that in the absence of a response, the Districts intend to apply a methodology that incorporates population projections for your service area and an anticipated percent of new growth to be sewered consistent with the historic use. If you'd like to discuss methodology, please contact me.

You have the option to make changes electronically on the attached file and return it via email, or whatever works best for you. The District is hoping to compile a completed inventory for all wastewater utilities located within the CFWI by mid-January, if achievable. <u>Please respond to the data request by</u> ____________. If you have any questions, or would like to discuss it in more detail, please call me at __________, or email to _______________.

Thank you in advance for your assistance.

Exhibit E-1b. Generic Data Request Form - Reclaimed Water

Central Florida Water Initiative (CFWI) Regional Water Supply Plan

Please note that if flow projections for 2035 are not available, it would be helpful to provide whatever projections (e.g., 2020, 2030, etc.) might be available. Please be aware that if the Utility is unable to provide projected flows, estimates generated by the water management district will be used in the water supply plan. These planning-level estimates are available upon your request.

Utility Name

Utility is asked to provide information highlighted in yellow

Utility Name	2010	2035	
Flows	(mgd)	(mgd)	
Treated Wastewater	11.99		
Supplemental Water	0.07		Specify source(s):
Water Reuse*	12.06		
Reclaimed water IMPORTED from another utility/facility			Specify utility/facility:
Reclaimed water EXPORTED to another utility/facility			Specify utility/facility:
Wastewater Disposal	0.00		
Reuse Types			
Public Access Areas & Landscape Irrigation	4.42		
Agricultural Irrigation & Sprayfields	0.00		
Ground Water Recharge & Indirect Potable Reuse	6.41		
Industrial	0.50		
Wetlands	0.00		
Other (specify)	0.74		Other types:
Total Utility Service Area Reuse (mgd)	**12.07**	**0.00**	

Map of Wastewater Service Area

Please submit map outlining the utility's current wastewater service area and the location of wastewater/reuse facility.

Electronic file sent by email, ftp site, or on CD is preferred; GIS shapefile is best

Note: All flows in this form should be expressed as Annual Average Daily Flow, in million gallons per day (mgd)

*Reuse as defined in Chapter 62-610.200, Florida Administrative Code

F

Water Supply Project Options

OVERVIEW

The Water Supply Project Options (WSPOs) were updated during the Solutions Planning Phase. Refer to CFWI RWSP, Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated list of WSPOs.

A list of water supply project options for the Central Florida Water Initiative (CFWI) Planning Area was developed in coordination with water suppliers. In preparation of this Regional Water Supply Plan (RWSP), the three Districts circulated a questionnaire to solicit information from public water utilities, agricultural, and other water suppliers regarding the traditional and alternative water supply projects planned to meet water needs through 2035. This process allowed water users to provide input on the proposed water supply project options included in the CFWI RWSP (**Exhibits F-1a** and **F-1b**).

A project identified for inclusion in this RWSP may not necessarily be selected for development by the water supplier. In accordance with Section 373.0361(6), Florida Statutes (F.S.), nothing contained in the water supply component of a regional water supply plan (RWSP) should be construed as a requirement for local governments, public or privately owned utilities, special districts, self-suppliers, multijurisdictional entities and other water suppliers to select that identified project. If the projects identified in this Plan are not selected by a water supplier, the utility may need to identify another method to meet its needs, advise the District of the alternate project(s), and a local government will need to include such information in its Water Supply Facilities Work Plan.

The feasibility and permittability of these project options were evaluated at a planning level in light of the water resource constraints identified in the water supply plan and these options could be funded from one or more sources described in the plan (**Volume I**, **Chapter 9**) However, consistency of these project options' impacts with water resource constraints should not be interpreted as the determination or application of the District's consumptive use permitting criteria. Before such a determination can be made, all details of the project's design and operation must be prepared and submitted to the Districts in a permit application. The Districts must then review the application for consistency with all of the permitting criteria applicable to the project, including established MFLs and other environmental protection criteria. Further, the timing for implementing any of these options will depend upon whether the projected demands are realized and will be addressed both in the permitting process and in the development of prevention and recovery strategies.

The alternative water supply project options listed in **Table F-1** include reclaimed water, brackish water, and surface water. However, refer to Solutions Plan Appendix D, Table D-1 for the updated list of WSPOs. Management strategy projects are also listed in **Table F-1**. These projects would supply water in addition to those projects already included in their existing water use permits.

EXHIBIT F-1A: WATER SUPPLY PROJECT OPTION SOLICITATION COVER LETTER

(To)_______________,

Subject: Assistance in identifying water supply projects for the Central Florida Water Initiative

The St Johns River, Southwest Florida and South Florida Water Management Districts are cooperatively working to evaluate the availability of water resources in central Florida as part of a joint water supply planning process. This effort, known as the Central Florida Water Initiative (CFWI), includes a re-evaluation of groundwater resources as well as other available water resources to central Florida. The CFWI effort is led by the water management districts, but includes involvement by the Florida Department of Environmental Protection (FDEP), Florida Department of Agriculture and Consumer Affairs (FDACS), local governments, water utilities, agricultural interests, and other stakeholders.

As part of the water supply planning process the water management districts are required to include a list of traditional and alternative water supply project options in their regional water supply plans to meet future water demands. Water suppliers are asked to assist in identifying preferred options to address any shortfalls they might have in meeting demands prior to the planning horizon of 2035. The Districts have compiled a list of projects from the approved SJRWMD 2005, the SWFWMD 2010, and the SFWMD 2006 Kissimmee Basin Water Supply Plans. We have combined these previous Water Supply Project Options (WSPOs) lists and updated table in accordance with the annual progress reports submitted by the water supplier by each November 15, 2013. The most current WSO project list is attached for your review and input.

In development of the CFWI Regional Water Supply Plan the water management districts also need your assistance in identifying any new WSO that utilities might wish to include to assure they have identified sufficient supply sources to meet there anticipated 2035 water demands. For each of the projects identified we ask that you provide the following information:

- an estimate of the amount of water made available by the project,
- the timeframe for project implementation,
- a planning level estimate of costs for capital investment and operating and maintaining the project,

- an analysis of funding needs and potential sources,
- identification of the likely entity responsible for implementing each project

In order to facilitate your response, the Districts have included a project solicitation form. This form describes the type of information we are requesting. For those type WSO projects where the project costs are available we suggest using the previously developed costs and identifying the date of the estimate. For those projects where there has been no previous cost estimation, we have provided a number of references at the end of the form to assist in the preparation of the cost estimate.

You have the option to make changes electronically on the attached file and return it via email, or regular mail if more convenient. The District is hoping to compile a completed listing of projects by mid-April. Please submit a response outlining your entity's future water supply projects by April 12, 2013 or within three weeks of receipt of this request. If you have any questions, or would like to discuss it in more detail, please call me at ___________, or email to __________.

Thank you in advance for your assistance.

EXHIBIT F-1B: 2013 CENTRAL FLORIDA WATER INITIATIVE – RESPONSE FORM FOR SUBMITTING WATER SUPPLY PROJECT OPTIONS

Your water supply entity is receiving this form because it is within the region identified as the Central Florida Water Initiative (CFWI) or has received prior notification of the potential requirement to implement an Alternative Water Supply (AWS) project option identified in the current Water Management District (SJRWMD, SFWMD, or SWFWMD) Water Supply Plan applicable to your location. Alternatively, this form may be used to submit a new AWS project, or a new traditional (fresh ground water) water supply project, for consideration in meeting the water needs to be identified in the CFWI Water Supply Plan. Links to existing Water Supply Plans may be obtained by contacting WMD staff listed below. Please note inclusion of project in the CFWI RWSP does not guarantee funding assistance for a project but could support requests for assistance.

Please utilize the following Response Form to update or submit project(s) **by April 15** of this year 2013, including an estimate of costs. Your submittal will be incorporated into the CFWI Regional Water Supply Plan (RWSP).

As a side note, for future reference: Water supply entities are required to submit a status report **every year** as to which AWS project(s) are being implemented or planned. This annual progress reporting is ***required*** per section 373.709(8) (b), *Florida Statutes*. Status reports submitted before the end of calendar year 2012 may be referred to, in filling out this Response Form.

Please refer to the current Water Management District (SJRWMD, SFWMD, or SWFWMD) Water Supply Plan for a list of AWS projects that may be relevant to your water supply entity, to provide a reference to that project and the corresponding WMD project number(s) if applicable. Please indicate if you have completed or wish to withdraw any project listed in the current Water Supply Plan.

Please return completed form(s) to:

<name,

organization, and

address>

Or e-mail: <email address>

If you have any questions, please contact _________ by e-mail or phone: <xxx-xxx-xxxx>

Complete information of your AWS or new traditional (fresh ground water) water supply project is required to update or add a new project to the CFWI RWSP. Complete information must include all costing information, including Unit Production Cost – please see item 6. Please complete a separate form for each project.

Date: ________________

Name of water supply entity: ____

Name of project: ____

Status and Type of Project (check all appropriate boxes):

☐ Update on project in WMD WSP ☐ New proposed project

☐ Alternative Water Supply (AWS) project ☐ New traditional (ground water) project

1. Contact person for this response:

Name: ____

Title: ____

Address: ____

Telephone Number: ____

Email address:____

2. Description of project: ____

____

____

3. Status of project: Indicate if the listed step has been completed or, if not complete, provide projected completion date:

Financial planning: ____

Facilities master planning: ______________________________________

Design: ____

Permitting: ____

Construction: ____

Operational Date: ____

On hold or not being implemented (state reason): _______________________

____

4. Describe the type of alternative or traditional water supply project (check box):

- □ Brackish groundwater for potable use
- □ Surface water for potable use
- □ Seawater for potable use
- □ Reclaimed water distribution system expansion
- □ Augmentation for reuse system
- □ Stormwater for irrigation
- □ Storage -specify type of storage __________________________________
- □ Traditional Ground Water -please describe _________________________
- □ Other-please describe ____

5. Provide the source (aquifer or surface water body) and description of location of withdrawal, as applicable:____

6. Project information, estimated (please fill in all fields):*

    i. Average Annual Daily Flow (mgd) _______________
    ii. Estimate of Construction Cost ($) _______________
    Approx Date of Cost Estimate (mo./yr.) _______________
    Estimated Service Life of Completed Project (years) _______________
    iii. Total Capital Cost (if non-construction costs are unknown, add 20% to Estimate of Construction Cost) ($) _______________
    iv. Average Annual O&M Cost** ($/yr) _______________
    v. Unit Production Cost** ($/1000 gal) _______________
    vi. Discount rate used if unit production costs are annualized _______________

7. Please characterize and provide flow of reject/concentrate generated from process, if any: ____

8. Please describe project's major components and capacities (check box) and provide additional description below as appropriate:

□ Wells ____________________ mgd

- □ Surface water withdrawal facilities ____________________ mgd
- □ Treatment facilities ____________________ mgd
- □ Tank or other storage facilities ____________________ mg
- □ Surface reservoir storage ____________________ mg
- □ Aquifer Storage & Recovery (or recharge) ____________________ mg
- □ Pump Station(s) ____________________ mgd
- □ Pipeline (Circle one: Distribution or Transmission) ____________________ mgd
- □ Other (describe) ____________________ mgd

Additional Description of Project Components, e.g. for Wells, or Treatment Facilities, etc., as appropriate: ____

____

____

____

____

____

9. Please list any proposed funding sources (please specify amount from each source):

   a. Water Supply Entity $ _______________
   b. WMD (Circle one: SJRWMD, SFWMD, SWFWMD) $ _______________
   c. Additional water management district besides circled above $ _______________
      Name of other water management district ____________
   d. State of Florida $ _______________
   e. Federal $ _______________
   f. Other $ _______________
   g. TOTAL $ _______________

Please provide any additional pages or comments as needed: ______________________________

____

*A complete set of data is needed in order to add or revise your project. For assistance in developing project costs please refer to the following reports and Technical Memorandums. If project cost estimates previously existed, please provide any available information you may have regarding basis of estimate.

Hazen and Sawyer, Guidelines for Preparing Cost Estimates of Water Supply and Conservation Projects, Prepared for the Southwest Florida Water Management District, March 14, 2011.

http://www.swfwmd.state.fl.us/business/cost/Cost_Guidelines_Manual.pdf

Camp, Dresser, & McKee. Water Supply Cost Estimation Study, prepared for South Florida Water Management District. February 2007.

http://www.sfwmd.gov/portal/page/portal/xrepository/sfwmd_repository_pdf/water%20supply%20cost%20estimation%20study%202-2007_cdm.pdf

Camp, Dresser, & McKee. Water Supply Cost Estimation Study, prepared for South Florida Water Management District. Addendum November 2007.

http://www.sfwmd.gov/portal/page/portal/xrepository/sfwmd_repository_pdf/wtrsupply_costeststudy_phaseii_add_21-2007.pdf

Wycoff, R., Water Supply Solutions Inc. 2010. *Cost Estimating and Economic Criteria for 2005 District Water Supply Plan*. Special publication SJ2010-SP4. Palatka, Fla.: St. Johns River Water Management District. http://www.floridaswater.com/technicalreports/pdfs/SP/SJ2010-SP4.pdf

Black & Veatch. *Engineering Assistance in Updating Information on Water Supply and Reuse Component System Costs*. Special Publication SJ2008-SP10. Palatka, Fla.: St. Johns River Water Management District. http://www.floridaswater.com/technicalreports/pdfs/SP/SJ2008-SP10.pdf

Wycoff, R., Water Supply Solutions Inc. 2008. *Water Supply Facilities Cost Equations for Application to Alternative Water Supply Projects Investigations and Regional Water Supply Planning.* Special publication SJ2008-SP13. Palatka, Fla.: St. Johns River Water Management District. http://www.floridaswater.com/technicalreports/pdfs/SP/SJ2008-SP13.pdf

** *Operations and maintenance* (O&M) *costs* (with the facility operating at average day capacity) consists of items such as energy use, labor, outsourced costs, chemicals, etc.

***Unit production cost* is expressed in terms of $ dollars per 1,000 gallons of finished water, supplied to the customer(s) by the project. See SJRWMD Special Publication SJ2010-SP4 or Hazen and Sawyer reference above for further detail. *Unit production cost* is the *equivalent annual cost* divided by *total annual water production*.

Equivalent annual cost is the *total annual life cycle cost* of the water supply alternative based on service life and time value of money criteria established herein. Time value (interest/discount rate) shall be National Resource Conservation Service (NRCS) discount rate for federal water resource projects (per Water Resource Development Act), which is 3.75% for FY2013.

Equivalent annual cost includes: *Total capital cost, Operations and maintenance* (O&M) *costs* (with the facility operating at average day capacity), time value of money (annual interest rate), and facilities service life.

Common Year Dollars – Please specify approx date of cost estimate (mo./yr.) or use Engineering News Record Construction Cost Index (ENR CCI) for adjusting past dollars to current year (Current Year = mid-year 2012 ENR CCI value of 9291).

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Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Summary of CFWI Planning Area Water Supply Development Projects.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd) [b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Brackish / Nontraditional											
1	Lake	SJRWMD	Lower Floridan Aquifer Wellfield	South Lake Regional Water Initiative (SLRWI)	This project is for the construction of a lower Floridan Aquifer wellfield to serve the SLRWI partners. Project may also involve lowering existing wells from upper to lower Floridan Aquifer or expanding existing lower Floridan wells.	PS	TBD	TBD	TBD	TBD	TBD
2	Lake	SJRWMD	Transmission Main	South Lake Regional Water Initiative (SLRWI)	This project is in association with the SLRWI lower Floridan Aquifer wellfield. Project consists of transmission main and pumping facilities to convey water from wellfield site to central treatment and distribution facility.	PS	TBD	TBD	TBD	TBD	TBD
3	Osceola	SFWMD	Cypress Lake AWS WTP Water Main Extension to Poinciana	TWA	Construct distribution and transmission water mains to distribute the water from the Cypress Lake AWS WTP into central Poinciana to meet future demands. Construction is in 6 segments for a total of 27,000 LF of 30-inch water main and 5,500 LF of 24-inch water main.	PS	N/A	N/A	$9.88	TBD	2017

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd)[b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Brackish / Nontraditional											
4	Osceola	SFWMD	Cypress Lake AWS WTP & Associated Pipelines	Water Cooperative of Central Florida (TWA, St Cloud, OCU, Polk County) and RCID	This project is in association with the Cypress Lake Wellfield. The project is to construct an AWS WTP plant, raw water mains, finished water mains, and a deep injection well for concentrate disposal.	PS	N/A	N/A	$53.11	TBD	2018
5	Osceola	SFWMD	Cypress Lake Wellfield - Well Construction	Water Cooperative of Central Florida (TWA, St Cloud, OCU, Polk County) and RCID	Cypress Lake Wellfield was issued a permit on October 3, 2011. The project is for construction of the remaining production wells and water distribution system only. 7.5 mgd is estimated for treatment losses.	PS	37.5	30.0	$10.20	TBD	2017
6	Polk	SWFWMD	Auburndale: Atlantic WTP Groundwater Blending	Auburndale	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.6	0.6	$2.10	$0.66	TBD
7	Polk	SWFWMD	Bartow: 7 Mgd WTP – Groundwater Blending	Bartow	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.6	0.6	$2.10	$0.65	TBD

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd) [b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Brackish / Nontraditional											
8	Polk	SWFWMD	Davenport: Davenport WTP Groundwater Blending	Davenport	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.2	0.2	$1.80	$2.02	TBD
9	Polk	SWFWMD	Dundee: Lake Riner WTP #1 Groundwater Blending	Dundee	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.1	0.1	$1.74	$5.38	TBD
10	Polk	SWFWMD	Dundee: Lake Ruth WTP #1 Groundwater Blending	Dundee	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.1	0.1	$1.73	$6.53	TBD
11	Polk	SWFWMD	Fort Meade: Fort Meade WTP Groundwater Blending	Fort Meade	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.2	0.2	$1.82	$2.14	TBD
12	Polk	SWFWMD	Frostproof: Frostproof WTP #3 Groundwater Blending	Frostproof	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.1	0.1	$1.75	$4.71	TBD

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd) [b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Brackish / Nontraditional											
13	Polk	SWFWMD	Frostproof: Frostproof WTP #2 Groundwater Blending	Frostproof	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.1	0.1	$1.73	$6.53	TBD
14	Polk	SWFWMD	Frostproof: Frostproof WTP #1 Groundwater Blending	Frostproof	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.1	0.1	$1.72	$8.10	TBD
15	Polk	SWFWMD	Haines City: WTP #2 Groundwater Blending	Haines City	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.4	0.4	$2.12	$1.15	TBD
16	Polk	SWFWMD	Haines City: WTP No 1 Groundwater Blending	Haines City	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.3	0.3	$2.02	$1.22	TBD
17	Polk	SWFWMD	Lake Alfred: Lake Alfred WTP Groundwater Blending	Lake Alfred	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.2	0.2	$1.83	$1.92	TBD

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd)[b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Brackish / Nontraditional											
18	Polk	SWFWMD	Lake Hamilton: Lake Hamilton WTP Groundwater Blending	Lake Hamilton	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.1	0.1	$1.74	$5.47	TBD
19	Polk	SWFWMD	Lake Wales: High School WTP Groundwater Blending	Lake Wales	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.3	0.3	$1.93	$1.14	TBD
20	Polk	SWFWMD	Lake Wales: Grove Ave. WTP Groundwater Blending	Lake Wales	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.3	0.3	$1.80	$1.17	TBD
21	Polk	SWFWMD	Lake Wales: Market Street WTP Groundwater Blending	Lake Wales	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.1	0.1	$1.75	$6.58	TBD
22	Polk	SWFWMD	Lakeland: C.W. Combee WTP Groundwater Blending	Lakeland	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	1.2	1.2	$4.30	$0.67	TBD

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd)[a]	Est. Water Generated (mgd)[b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Brackish / Nontraditional											
23	Polk	SWFWMD	Lakeland: T. B. Williams WTP Groundwater Blending	Lakeland	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	3.0	3.0	$6.90	$0.42	TBD
24	Polk	SWFWMD	Mulberry: Mulberry Plant #1 Goundwater Blending	Mulberry	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.1	0.1	$1.77	$3.69	TBD
25	Polk	SWFWMD	NE Polk Co. LFAS Well	PCU	New LFA well(s) situated below MCU II and advanced membrane treatment facility to meet regional needs in NE Polk County.	PS	4.0	4.0	$28.40	$1.76	TBD
26	Polk	SWFWMD	Polk City: Bougainvilla WTP Groundwater Blending	Polk City	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.1	0.1	$1.75	$6.58	TBD
27	Polk	SWFWMD	Polk City: Commonwealth Plant Groundwater Blending	Polk City	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.0	0.0	$1.74	$3.25	TBD

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd) [b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Brackish / Nontraditional											
28	Polk	SFWMD	SE Polk Co Wellfield(c) and (d)	Polk Regional Entity	Project consists of several Lower Floridan wells in the SE area of Polk County and treatment as a potable source to meet regional demands. Cost estimate includes 25 miles of transmission piping and membrane treatment. Permit pending.	PS	37.0	0.0 - 30.0	$320.0	$1.52	Phase I:2023 Phase II: 2033 Comp: 2049
29	Polk	SWFWMD	Winter Haven Wtr Dept: Winterset Gardens WTP Groundwater Blending	Winter Haven	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.2	0.2	$1.96	$1.76	TBD
30	Polk	SWFWMD	Winter Haven Wtr Dept: 3rd Street WTP Groundwater Blending	Winter Haven	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.3	0.3	$2.04	$1.13	TBD
31	Polk	SWFWMD	Winter Haven Wtr Dept: Winterset WTP Groundwater Blending	Winter Haven	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.2	0.2	$1.82	$2.02	TBD
32	Polk	SWFWMD	Winter Haven Wtr Dept: Inwood WTP Groundwater Blending	Winter Haven	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.2	0.2	$1.81	$2.27	TBD

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd) [b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Brackish / Nontraditional											
33	Polk	SWFWMD	Winter Haven Wtr Dept: Garden Groundwater Blending	Winter Haven	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.1	0.1	$1.80	$2.43	TBD
34	Polk	SWFWMD	Winter Haven Water Dept: Callen WTP Groundwater Blending	Winter Haven	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.1	0.1	$1.78	$3.05	TBD
35	Polk	SWFWMD	Winter Haven Wtr Dept: Eloise Wood WTP Groundwater Blending	Winter Haven	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.1	0.1	$1.76	$4.72	TBD
36	Polk	SWFWMD	Winter Haven Wtr Dept: Cypresswd WTP Goundwater Blending	Winter Haven	New LFA well for blending with existing UFA sources at the WTP. Cost excludes membrane treatment.	PS	0.1	0.1	$1.75	$6.58	TBD
37	Polk	SWFWMD	Winter Haven Wtr Dept: Fairfax WTP - LFA below Middle Confining Unit II	Winter Haven, Auburndale	Lower Floridan Supply Well below MCU II. Cost does not include additional treatment if needed.	PS	2.0	2.0	TBD	TBD	2017
Total for Brackish / Nontraditional Water Projects							**89.6**	**45.1 to 75.1**	**$482.45**		

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd) [b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
38	Lake	SJRWMD	Clermont Regional Reclaimed Water Storage Reservoir Project	Clermont, and potentially Groveland and Minneola	Project consists of site improvements to existing sand mine, to construct 80 MG, expandable to 120 MG, for reclaimed water storage reservoir to provide wet weather storage for City's RW system. Could potentially serve regional partners as part of South Lake Water Initiative (SLWI).	Reuse	3.0	0.0	TBD	TBD	Planning 2013
39	Lake	SJRWMD	Thrill Hill Reservoir	City of Mount Dora and others	Stormwater/reclaimed water reservoir and pump station. Multi-phased project through Dec 2017. Phase 1: transmission line extension to reservoir site.	Reuse	0.8	0.0	$11.88	$1.71	Construction 1st Phase 2014-15
40	Lake	SJRWMD	Eagle Ridge Reclaimed Water Distribution Facility	Groveland	Reclaimed water to southern service area, potential routing to new RIBs, close to Apshawa south. First steps towards a regional project with Clermont, Mascotte and Minneola as part of the South Lake Water Initiative (SLWI). Project includes approximately 12,000 LF of pipeline and new Eagle Ridge Reclaimed Water Distribution Facility.	Reuse	1.0	0.0	$1.98	$0.23	Construction 2014-15

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd) [b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
41	Lake	SJRWMD	Utility System Interconnections	South Lake Regional Water Initiative	This project is in association with the SLRWI lower Floridan Aquifer wellfield and transmission main projects. Project consists of various interconnections between the SLRWI members' water, wastewater and reclaimed water systems to allow for distribution of water resources between the partners.	Reuse	TBD	TBD	TBD	TBD	TBD
42	Orange	SJRWMD	City of Ocoee Northwest Reuse Re-Pump Station and Interconnection Mains	Ocoee	Increase availability of reclaimed water for landscape irrigation in Ocoee and vicinity. Includes construction of reclaimed water transmission pipelines and pump stations.	Reuse	1.2	0.0	$2.87	$0.23	TBD
43	Orange	SJRWMD	NWRF to Apopka Reclaimed Main Extension	Orange County	Project includes construction of pipeline to connect NWRF to the City of Apopka. Specifically, 3,500 LF of 24-inch diameter pipe and two pumps will be constructed. Total reclaimed water flow will be up to 3.3 mgd.	Reuse	3.3	0.0	$1.40	N/A	2014
44	Orange	SJRWMD	Project RENEW	Orlando Utilities Commission (7 WPS)	Project RENEW is a regional reuse project. The project will be re-evaluated in 2015 in order to determine the best location for reclaimed water in the region that is environmentally, technologically and economically feasible. Project RENEW may also be used to meet an adopted MFL prevention and recovery strategy.	Reuse	9.2	9.2	$52.70	N/A	2020

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd) [b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
45	Orange	SJRWMD	University of Central Florida (UCF) Reclaimed Water and Stormwater Integration	Seminole County, UCF	Reclaimed water service will be extended from Seminole County to locations on the UCF campus to provide reclaimed water to replace potable water for irrigation.	Reuse	2.0	0.0	$0.65	$0.50	TBD
46	Orange	SJRWMD	Reclaimed Water System Expansion - Morga to Keene	Apopka	Construct reclaimed water main from Morga Dr. to Keene Road - 4,900 ft of 20-inch diameter RWM.	Reuse	3.0	0.0	$0.59	$0.02	Construction 2014-15
47	Orange	SJRWMD	Reclaimed Water System Expansion - Alston Bay to Harmon	Apopka	Construct 2,500 feet of 36-inch diameter RWM along Ocoee Apopka Road (Alston Bay Blvd. to Harmon Rd).	Reuse	3.0	0.0	$0.54	$0.02	Construction 2014-15
48	Orange	SJRWMD	Reclaimed Water Project System Expansion - WRF to Marden	Apopka	Construct 12,165 ft of 48-inch diameter RWM from Water Reclamation Treatment Facility to Marden Rd/Keene Road intersection.	Reuse	1.0	0.0	$4.20	$0.48	Construction 2014-15
49	Orange	SJRWMD	City of Apopka concrete storage tank	Apopka	No. 4: Concrete Storage tank for reclaimed water from the Sanlando Utilities, Inc., schedule January 2013 to June 2013.	Reuse	1.0	0.0	$1.16	$0.14	Construction 2014-15

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd) [b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
50	Orange	SJRWMD	North Service Area Reclaimed Interconnect Project	City of Ocoee	Phase 1: North Service Area interconnect Reclaimed water for 1,070 homes & 35 commercial connections.	Reuse	0.5	0.0	$2.69	$0.62	Construction 2013
51	Orange	SJRWMD	Prairie Lake Reclaimed Retrofit Project	City of Ocoee	Provide reclaimed water to 189 homes in Prairie Creek. E&D complete, ready to build.	Reuse	0.1	0.0	$0.69	$0.93	Construction 2014-15
52	Orange, Seminole	SJRWMD	Apopka and Winter Garden Reuse Partnership Project	Apopka and Winter Garden	To transport reclaimed water between the city of Apopka and the city of Winter Garden to increase reuse. This project consists of construction of a transmission pipeline and pump station. Winter Garden is currently interconnected with Ocoee and Conserv II.	Reuse	3.0	0.0	$5.21	$0.38	Planning 2010
53	Osceola	SFWMD	12" Reuse Main Extension for Downtown Kissimmee	TWA	Installation of approximately 4,200 feet of 12" reuse main along Martin Street, Clyde Street and Lakeshore Boulevard for the purpose of conveying reuse water to the Lakeshore Park and Downtown Kissimmee areas.	Reuse	0.1	0.0	$0.39	TBD	2016

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd)[b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
54	Osceola	SFWMD	Goodman Road Reuse Main Extension	TWA	This project will extend a 24" reuse water main approximately 7,000LF along the Goodman Road right-of-way from Tri-County Road to Happy Trails. This project, in conjunction with the Western Reuse Pump Station project will enable reuse from the SB WRF to be used in the Sandhill service area. The project will also reduce and possibly eliminate the need for the Indian Ridge Reuse Augmentation Facility.	Reuse	4.0	0.0	$3.40	TBD	2018
55	Osceola	SFWMD	Sinclair Road Reuse Main Extension	TWA	The project will construct approximately 9,500 LF of 16" reuse main along Sinclair Rd from Tri-county Rd to interconnect S. Bermuda WRF service area to Sand Hill WRF service area. The project may eliminate the need for the Indian Ridge reuse supplemental.	Reuse	0.4	0.0	$4.96	TBD	2019
56	Osceola	SFWMD	Sandhill Road WRF Expansion Phase 1	TWA	Construct a 4.5 mgd reuse ground storage tank and required appurtenances at the Sandhill Road WRF.	Reuse	4.5	0.0	$1.38	TBD	2020

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd)[b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
57	Osceola	SFWMD	Western Reuse Pumping Facility and Reuse Mains	TWA	Construct a 4 mgd reuse storage tank, pumps, a pump building, and components. Construct 3,800 LF of 36" and 24" low pressure reuse main to be routed from the existing Imperial Pump Station to the proposed Western Reuse Pumping Facility.	Reuse	4.0	0.0	$10.10	TBD	2019
58	Osceola	SFWMD	Harmony WWTP Expansion	TWA	Construct a reuse/wet weather storage facility in conjunction with the activated sludge plant phase expansion to 0.5 mgd.	Reuse	0.5	0.0	$0.86	TBD	2018
59	Osceola	SFWMD	City of Kissimmee West Ditch Stormwater Capture for Reuse Augmentation	TWA	This project will collect water from the West Ditch City canal and route it through a series of interconnected ponds to provide stormwater as an alternate water supply for reuse supplementation to the S. Bermuda WRF. A feasibility study-level analyses has determined that on average, approximately 1.5 mgd of stormwater runoff.	Reuse	1.5	1.5	$10.00	TBD	2020

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd)[b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
60	Osceola	SFWMD	160-Acre Site AWS Project - Indirect Potable Reuse	TWA	Construction of five (5) 1 mgd wells and appurtenances along the 160-acre site RIBs which will be used to withdraw water as indirect groundwater reuse. Model simulations indicate that Tohopekaliga can take advantage of the recharge to the aquifer created by the RIBs without adversely affecting the Upper Floridan Aquifer levels. The project includes construction approximately 30,000 LF of 24-in raw water main to the SW WTP.	Indirect Potable Reuse	5.0	5.0	$14.29	$2.86	2019
61	Osceola	SFWMD	Lake Marion WRF Expansion Phase 1	TWA	Construct a 2.5 MG reuse ground storage tank and reclaimed water pumping system at the Lake Marion WRF.	Reuse	2.5	0.0	$4.31	TBD	2019
62	Osceola	SFWMD	Cypress West WRF Phase 1B	TWA	Construct a 2.0 MG reuse ground storage tank and reclaimed water pumping system at the Cypress West WRF with the plant expansion to increase capacity from 3.0 MGD to 6.0 MGD.	Reuse	6.0	0.0	$3.45	TBD	2019
63	Osceola	SFWMD	Walnut Drive WRF Reuse Storage Facility	TWA	Construct two (2) 7.5 MG pre-stressed concrete reuse storage tanks and necessary appurtenances at the Walnut Dr. WRF.	Reuse	5.0	0.0	$6.40	TBD	2019

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd)[a]	Est. Water Generated (mgd)[b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
64	Polk	SWFWMD	Allred WWTP to Polytechnic Reclaimed Water Storage and Transmission Project (N536)	Auburndale	System Expansion	Reuse	0.7	0.0	$2.70	$1.33	2016
65	Polk	SWFWMD	Reuse Expan. in Auburndale Allred (South WWTP) 2011-2035, City of Auburndale	Auburndale	Post 2010 RIB Recharge (amount of excess reuse available for recharge)	Reuse	0.3	0.0	$1.96	$1.44	TBD
66	Polk	SWFWMD	Reuse Expan. in Auburndale Regional (North WWTP) 2011-2035, City of Auburndale	Auburndale	System Expansion	Reuse	0.7	0.0	$5.39	$1.82	TBD
67	Polk	SWFWMD	Reuse Expan. in Auburndale Regional (North WWTP) 2011-2035, City of Auburndale	Auburndale	Post 2010 RIB Recharge (amount of excess reuse available for recharge)	Reuse	0.4	0.0	$2.13	$1.44	TBD
68	Polk	SWFWMD	Reuse Expan. in Auburndale Regional & Allred Interconnect 2011-2035, City of Auburndale	Auburndale	Duplicate Option Offsets (this option is one of multiple possible, however only enough flow to construct one)	Reuse	TBD	0.0	TBD	TBD	TBD

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd)[a]	Est. Water Generated (mgd)[b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
69	Polk	SWFWMD	Reuse TENOROC Expan. in Auburndale Regional (North WWTP) 2011-2035, City of Auburndale	Auburndale	Duplicate Option Offsets (this option is one of multiple possible, however only enough flow to construct one)	Reuse	0.9	0.0	$2.70	$0.87	TBD
70	Polk	SWFWMD	Reuse Expan. in Auburndale Regional (North WWTP) USF Campus, City of Auburndale	Auburndale	Duplicate Option Offsets (this option is one of multiple possible, however only enough flow to construct one)	Reuse	0.7	0.0	$11.10	$3.43	TBD
71	Polk	SWFWMD	Reuse Expan. in Bartow WWTP 2011-2035, City of Bartow (to existing customers)	Bartow	Flow Expansion	Reuse	1.1	0.0	$0.00	$0.30	TBD
72	Polk	SWFWMD	Reuse Expan. in Cypress Lakes WWTP 2011-2035, Cypress Lakes Utilities (to existing customers)	Cypress Lakes	Flow Expansion	Reuse	0.1	0.0	$0.00	$0.30	TBD
73	Polk	SWFWMD	Reuse Expan. in Davenport WWTP 2011-2035, City of Davenport	Davenport	System Expansion	Reuse	0.2	0.0	$1.38	$1.82	TBD

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Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd)[b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
74	Polk	SWFWMD	Davenport Recharge, City of Davenport	Davenport	Duplicate Option Offsets (this option is one of two possible, however only enough flow to construct one)	Reuse	0.3	0.0	$1.44	$1.44	TBD
75	Polk	SWFWMD	Reuse Expan. in Davenport WWTP 2011-2035, Davenport	Davenport	Post 2010 RIB Recharge (amount of excess reuse available for recharge)	Reuse	0.1	0.0	$0.35	$1.44	TBD
76	Polk	SWFWMD	Reuse Expan. in Avon Park Correctional WWTP 2011-2035, FL Dept. of Corrections	Dept of Corrections	Industrial Reuse	Reuse	0.2	0.0	$0.92	$1.44	TBD
77	Polk	SWFWMD	Reuse Expan. in Avon Park Correctional WWTP 2011-2035, FL Dept. of Corrections	Dept of Corrections	Post 2010 RIB Recharge (amount of excess reuse available for recharge)	Reuse	0.1	0.0	$0.40	$1.44	TBD
78	Polk	SWFWMD	Reuse Expan. Polk Co. Correctional WWTP 2011-2035, FL. Dept. of Corrections	Dept of Corrections	Industrial Reuse	Reuse	0.1	0.0	$0.90	$2.07	TBD

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Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd) [b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
79	Polk	SWFWMD	Reuse Expan. in Frostproof WWTP 2011-2035, City of Frostproof	Frostproof	System Expansion	Reuse	0.1	0.0	$0.15	$1.82	TBD
80	Polk	SWFWMD	Reuse Expan. in Fort Meade WWTP 2011-2035, City of Ft. Meade (to existing customers)	Ft. Meade	WWTP Expansion	Reuse	0.1	0.0	TBD	$0.30	TBD
81	Polk	SWFWMD	Reuse Expan. in Greenelefe Golf WWTP 2011-2035, Greenelefe Utilities	Greenelefe	System Expansion	Reuse	0.1	0.0	$0.62	$1.82	TBD
82	Polk	SWFWMD	Reuse Expan. in Haines City WWTP 2011-2035, Haines City	Haines City	System Expansion	Reuse	0.4	0.0	$3.08	$1.82	TBD
83	Polk	SWFWMD	Haines City Southern Area Reuse N065, Haines City	Haines City	Southern System Expansion (N065)	Reuse	0.6	0.0	$4.30	$1.71	2011

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Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd) [b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
84	Polk	SWFWMD	Reuse Expan. in Haines City WWTP 2011-2035, Haines City	Haines City	Post 2010 RIB Recharge	Reuse	0.4	0.0	$2.48	$1.44	TBD
85	Polk	SWFWMD	Reuse Expan. (IND, Power, Other) in Lake Alfred System 2011-2035, Lake Alfred	Lake Alfred	System Expansion	Reuse	0.3	0.0	$2.00	$1.82	TBD
86	Polk	SWFWMD	Reuse Expan. in Lake Wales WWTP 2011-2035, City of Lake Wales	Lake Wales	System Expansion	Reuse	0.9	0.0	$6.92	$1.82	TBD
87	Polk	SWFWMD	Reuse Expan. Lake Wales to Golf Course (N335)	Lake Wales	Lake Wales Country Club Reuse, District # N335	Reuse	0.4	0.0	$0.85	$0.78	2012
88	Polk	SWFWMD	Reuse Expan. in Polk City Mt. Olive WWTP 2011-2035, Polk City	Polk City	System Expansion	Reuse	0.2	0.0	$1.54	$1.82	TBD

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Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd) [b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
89	Polk	SWFWMD	Reuse Expan. in Polk City Mt. Olive WWTP 2011-2035, Polk City	Polk City	Post 2010 RIB Recharge	Reuse	0.1	0.0	$0.29	$1.44	TBD
90	Polk	SWFWMD	Reuse Expan. in Polk Co. NE Reg. K300 , Polk Co.	Polk Co.	System Expansion (District #K300)	Reuse	2.0	0.0	$4.81	$0.77	2010
91	Polk	SWFWMD	Reuse Expan. in Polk Co. NE Reg. WWTP 2011-2035, Polk Co.	Polk Co.	Duplicate Option Offsets (dependant upon new development)	Reuse	1.5	0.0	$11.77	$1.82	TBD
92	Polk	SWFWMD	Reuse Expan. in Polk Co. NW Reg. H029, Polk Co.	Polk Co.	System Expansion (District #H029)	Reuse	TBD	0.0	$2.70	TBD	2008
93	Polk	SWFWMD	Reuse Expan. in Polk Co. NW Reg. WWTP 2011-2035, Polk Co.	Polk Co.	System Expansion	Reuse	1.2	0.0	$8.92	$1.82	TBD

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Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd) [b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
94	Polk	SWFWMD	Reuse Expan. in Polk NW WWTP 2011-2035, Polk Co.	Polk Co.	Post 2010 RIB Recharge	Reuse	0.7	0.0	$3.98	$1.44	TBD
95	Polk	SWFWMD	Reuse Expan. in Polk Co. SE Reg. WWTP 2011-2035, Polk Co.	Polk Co.	System Expansion	Reuse	0.2	0.0	$1.69	$1.82	TBD
96	Polk	SWFWMD	Reuse Carter Rd SW, Polk Co. (N156)	Polk Co.	Polk Carter Rd Reuse, District # N156	Reuse	0.2	0.0	$0.78	$1.00	2011
97	Polk	SWFWMD	Reuse Expan. in Swiss Golf WWTP 2011-2035, Swiss Utilities	Swiss Golf	System Expansion to Golf Course	Reuse	0.1	0.0	$0.46	$1.82	TBD
98	Polk	SWFWMD	Reuse Expan. in Swiss Vill. WWTP 2011-2035, Swiss Vill. Utilities	Swiss Village	System Expansion for landscape irrigation in village.	Reuse	0..1	0.0	$0.15	$1.82	TBD

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Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd)[b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
99	Polk	SWFWMD	Lakeland WWTP (Northside & Glendale) Reuse Expan. to TECO 2020 - 2030, City of Lakeland	TECO, Lakeland	FUTURE Industrial Reuse Flow Expansion to TECO	Reuse	8.0	0.0	TBD	TBD	2025
100	Polk	SWFWMD	Lakeland WWTP (Northside & Glendale) Reuse Expansion, City of Lakeland (IND, Power)	TECO, Lakeland, PCU	Industrial Reuse to TECO Polk Power Station, (District #H076)	Reuse	7.0	0.0	$79.52	$2.54	2015
101	Polk	SWFWMD	W. Haven Plant #2 WWTP System Expan/Inter 2011-2030, City of Winter Haven	Winter Haven	System Expansion	Reuse	0.6	0.0	$4.62	$1.82	TBD
102	Polk	SWFWMD	W. Haven Plt #2 to #3 WWTP Interconnect, City of Winter Haven	Winter Haven	Post 2010 RIB Recharge (amount of excess reuse available for recharge)	Reuse	0.5	0.0	$3.00	$1.44	TBD
103	Polk	SWFWMD	Winter Haven Plant #3 WWTP 2015 Expan./Inter., City of Winter Haven System.	Winter Haven	Interconnect, (District #N339)	Reuse	0.3	0.0	$5.50	$3.91	2015

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Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd) [b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
104	Polk	SWFWMD	W. Haven Plant #3 IND Reuse, City of Winter Haven	Winter Haven	Duplicate Option Offsets (this option is one of two possible, however only enough flow to construct one)	Reuse	2.7	0.0	$20.62	$1.82	TBD
105	Polk	SWFWMD	W. Haven Plant #3 Indirect Portable Reuse Recharge, City of Winter Haven	Winter Haven	Duplicate Option Offsets (this option is one of two possible, however only enough flow to construct one)	Reuse	2.7	0.0	$15.46	$1.44	TBD
106	Seminole	SJRWMD	Altamonte Springs / FDOT Integrated Reuse & Stormwater Treatment (AFIRST)	Altamonte Springs	Project consists of 1) modification to Cranes Roost stormwater pump station and force main, 2) additional stormwater treatment and associated facilities to produce public access reuse quality water, and 3) a new reclaimed water pipeline from Altamonte Springs to Apopka approximately 6 miles long.	Reuse	4.5	4.5	$12.50	$0.84	2015
107	Seminole	SJRWMD	Seminole County/Sanlando Utilities Interconnect with Altamonte Springs Project	Altamonte Springs/Sanlando	The purpose of this project is to make more reclaimed water available by interconnecting systems and thereby meeting peak flow conditions.	Reuse	3.8	0.0	$6.40	$0.29	TBD

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Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) a	Est. Water Generated (mgd)b	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
108	Seminole	SJRWMD	East Lake Mary Blvd Reclaimed Water Main Extension	City of Sanford	Extend the reclaimed water line from SSWRC, following East Lake Mary Blvd, and tie into the existing reclaimed water main on SR46.	Reuse	0.0	0.0	$1.20	$1.11	TBD
109	Seminole	SJRWMD	Reclaimed Water Interconnection with Oviedo	Sanford and Oviedo	Install reclaimed water pipe from Site 10 on the east side of Lake Jesup to Oviedo.	Reuse	3.0	0.0	$8.50	$1.11	TBD
110	Seminole	SJRWMD	Site 10 Pond Expansion	Sanford	Site 10 storage expansion is needed to address TMDLs issues as this site is located within Lake Jesup basin. This project is proposed to be part of the SR46 Alternative Water Supply Plan to assist with blending and as an alternative water source for Oviedo, Winter Springs, and Casselberry. This project will help support and facilitate the Sanford /Volusia County Reclaimed Water Interconnection too.	Reuse	10.0	0.0	$8.73	$1.11	TBD
111	Seminole	SJRWMD	Reclaimed Water Orlando-sanford Internation Airport Interconnection	City of Sanford	Expansion of the existing SSWRC reclaimed water line to connect to the existing 16" reclaimed water line for Airport irrigation. The interconnection will also allow to use reclaimed water from Site 10.	Reuse	1.5	1.5	$7.70	$1.11	TBD

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Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) a	Est. Water Generated (mgd)b	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
112	Seminole	SJRWMD	Lake Mary Reclaimed Water System Retrofit	Sanford and Lake Mary	Retrofit the existing reclaimed water system in subdivisions of Hills of Lake Mary, Tuscany, Manderley, Reserve, Timacuan, and Woodbridge and expand the reclaimed water distribution system of Lake Mary.	Reuse	0.6	0.6	$5.03	$1.11	TBD
113	Seminole	SJRWMD	Reclaimed Water Interconnection with Winter Springs	Sanford and Winter Springs	Construct reclaimed water pipe from SCC on US 17-92 to SR 419 and connect to a 2.0 MG GST in Winter Springs.	Reuse	1.7	1.7	$5.17	$1.11	TBD
114	Seminole	SJRWMD	Reclaimed Water Interconnection with Altamonte Springs	Sanford, Altamonte Springs, and Sanlando Utilities	Construct a 16" pipe along Lake Emma Road, running southward to EE Williams Blvd, then west to the Florida Power easement, and discharging to a proposed GST in Sanlando Utilities Service area. Reclaimed water is supplied to Altamonte Springs through the Sanlando system.	Reuse	2.0	2.0	$4.70	$1.11	TBD
115	Seminole	SJRWMD	Mill Creek Pond Expansion	City of Sanford	Increase the Mill Creek pond storage volume by building up the berm.	Storage	24.0	0.0	$0.35	$1.11	TBD

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Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd)[a]	Est. Water Generated (mgd)[b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
116	Seminole	SJRWMD	Oviedo Reclaimed Water Project	Oviedo	Provide reclaimed water in place of groundwater for commercial and residential irrigation in Kingsbridge West subdivision, Lake Rogers, Big Oak, Twin Rivers, Alafaya Woods, Division Street, Lake Charm Country Estates, and the Meadows.	Reuse	1.5	0.0	$6.50	$0.76	2014
117	Seminole	SJRWMD	Timacuan Reclaimed Water Main Upgrade Project	Sanford and Lake Mary	The purpose includes reclaimed water main along Timacuan Blvd. from Rinehart Rd. to Mohegan I. Upgrade from 8" to 16".	Reuse	2.9	0.0	$1.00	$0.05	TBD
118	Seminole	SJRWMD	Markham Woods Road Reclaimed Water Transmission Main Project	Seminole County	Transmission main that will provide reclaimed water for commercial and residential landscape irrigation along Markham Woods Road.	Reuse	0.3	0.0	$3.10	$0.29	2018
119	Seminole	SJRWMD	Seminole County Residential Reclaimed Water Retrofit Project - Phase IV	Seminole County	Distribute reclaim water for landscape irrigation in several Heathrow communities, to directly offset potable water used for irrigation.	Reuse	0.3	0.0	$2.00	$0.76	2020
120	Seminole	SJRWMD	Seminole County Residential Reclaimed Water Retrofit Project - Phase IV	Seminole County	Distribute reclaim water for landscape irrigation in several Heathrow communities, to directly offset potable water used for irrigation.	Reuse	0.3	0.0	$2.00	$0.76	2020

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Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd)[b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Reclaimed Water											
121	Seminole	SJRWMD	Seminole County Residential Reclaimed Water Retrofit Project - Phase V	Seminole County	Distribute reclaim water for landscape irrigation in several Heathrow communities, to directly offset potable water used for irrigation.	Reuse	0.7	0.0	$4.20	$0.76	2020
122	Seminole	SJRWMD	Apopka-Sanlando Reclaimed Transmission line Upsize	Altamonte Springs	Upsize Sanlando transmission line from 16-inches to 24-inches, increase capacity from 3.0 to 8.3 mgd (construction cost to upsize pipe is estimated to be $1.3 million).	Reuse	5.4	0.0	$1.56	$0.03	Construction 2014-15
123	Seminole	SJRWMD	On-site storage pond (8.0 m gallons)	Altamonte Springs	Construct 8.0 MG pond at WWTP for reclaimed water system expansion outside of Altamonte Springs, which will reduce groundwater use by other utilities. Project will provide 8.4 MG storage and reduce discharges the Little Wekiva River.	Reuse	8.0	0.0	$3.00	$0.05	Construction 2014-15
124	Seminole, Volusia	SJRWMD	City of Sanford's Reclaimed Water Interconnect with Volusia County Utilities	Sanford and Volusia County	Transfer reclaimed water from Sanford WRF to Volusia County's southwest reuse system. Work includes approx 1600 Lf of 20" DIP, 1000 LF of 24" HDPE HDD under SJR, and 13,000 LF of 18" pipe; to be constructed in two phases - Phase 1 City/County project south of Fort Florida Road, and Phase 2 County project north of Fort Florida Rd.	Reuse	1.5	0.0	$3.96	$0.10	2014
Total for Reclaimed Water Projects							**174.6**	**26.0**	**$451.56**		

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Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd) [b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Surface Water											
125	Lake	SJRWMD	Securing Minneola's Alternative Resources for Tomorrow (SMART) Project	Minneola	The project includes an intake for surface water from Lake Apopka, surface water treatment, storage, and a reclaimed water transmission system. It is anticipated that water will be available only when water releases are being made from Lake Apopka.	Reuse Augmentation	5.0	5.0	$26.70	$5.00	TBD
126	Orange	SJRWMD/ SFWMD	St Johns River/TCR	Orange County, OUC, Cocoa, TWA, ECFS	Regional AWS project withdrawing surface water from the Taylor Creek Reservoir and the St. Johns River. Major components include intake structure, reservoir, treatment, storage and transmission facilities.	PS	50.0	42.0	$628.70	N/A	2018
127	Orange, Seminole	SJRWMD	Lake Apopka Reuse Augmentation Project	Apopka	The source of water for this project will be surplus surface water from the North Shore Restoration Area (NSRA) of the Lake Apopka Basin. This settlement agreement was approved by SJRWMD's Governing Board in December 2008. The project includes a surface water intake and associated treatment and transmission facilities to produce augmentation water for the city of Apopka's reclaimed water system.	Reuse Augmentation	5.0	5.0	$27.59	$1.22	Design 2013, Construction 2014
128	Osceola	SFWMD	Judge Farms Reservoir and Impoundment	TWA	Impound stormwater and surface water from Mill Slough and the East City Drainage Ditch for subsequent treatment and distribution for irrigation and/or potable use.	Reservoir	2.0	2.0	$16.91	TBD	2020

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Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd)[b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Surface Water											
129	Osceola	SFWMD	Kissimmee River Basin AWS Project	Water Cooperative of Central Florida	Implement a fresh surface water conjunctive use project in the Kissimmee River Basin. This project is still under review by WMD's	PS	Up to 25.0	0.0 -25.0	TBD	TBD	TBD
130	Osceola	SFWMD	Shingle Creek Reuse Augmentation	TWA	The Shingle Creek Reuse Augmentation Project consists of increased use of an existing surface water intake structure and pump station along Shingle Creek. Project has a current SFWMD permit #49-0140 for 4.0 mgd. No additional construction necessary.	Reuse Augme ntation	6.0	2.0	$0.00	$0.00	2015
131	Polk	SWFWMD	Peace Creek Reservoir	PCU, Bartow	WTF, reservoir, located near Bartow	PS	1.1	1.1	$45.00	$9.02	TBD
132	Polk	SWFWMD	Peace River at Fort Meade Reservoir	PCU, Ft Meade, Bartow, PRMRWSA	WTF, reservoir, and 15 mi of piping from Ft. Meade to Bartow. Conjunctive use with mining operations.	PS	4.2	4.2	$205.10	$7.37	TBD
133	Polk	SWFWMD	Peace River/Conjunctive Use Joint PRMRWSA Supply	PCU, PRMRWSA	Interconnect from PRMRWSA facility in DeSoto to regional system on Polk.	PS	5.1	0.0	TBD	TBD	TBD

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Table F-1. Continued**.**

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd)[a]	Est. Water Generated (mgd)[b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Surface Water											
134	Polk	SWFWMD	Joint Tampa Bay Water/Polk County Supply	PCU, TBW	Partnership to expand TBW Desal facility or a 2nd Alafia River Reservoir and WTP. Includes 35 mi piping to Lakeland.	PS	10.0	10.0	$293.10	$6.49	TBD
135	Seminole	SJRWMD	St. Johns River Near SR 46 Project	Orange County, Casselberry, Deltona, Maitland, Oviedo, and Sanford	Project includes an intake for brackish surface water from the St. Johns River, water treatment and concentrate management facilities, point-of-connection ground storage, and a potable water transmission system. Some water might be produced for reuse augmentation.	PS and reuse augmentation	55.0	55.0	$548.26	$4.07	TBD
136	Seminole	SJRWMD	Sanford SWTP on Lake Monroe Project	Sanford	This project will develop a brackish surface water source.	PS	4.0	4.0	$13.80	$0.62	TBD
137	Seminole	SJRWMD	Sanford ASR Well for Surface Potable Water Storage Project	Sanford	Store water withdrawn from a nontraditional source, most likely brackish surface water from the St. Johns River.	PS	1.0	1.0	$4.17	N/A	TBD

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Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd) [b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Surface Water											
138	Seminole	SJRWMD	St. Johns River Near Yankee Lake Project PHASE II	Seminole County, SJRWMD	Expansion of existing Phase I footprint of Yankee Lake Regional Surface Water Treatment Plant for additional treatment, ground storage and concentrate management. Some potential for additional reuse augmentation.	PS	50.0	50.0	$53.2 to $217.9	$4.09 (31.7 mgd potable-$6.62 (4.5 mgd potable)	TBD
139	Seminole	SJRWMD	Winter Springs - Lake Jesup Reclaimed Water Augmentation Project	Winter Springs	The project includes surface water from Lake Jesup, surface water treatment, tank storage, and transmission lines. The water produced will be for reclaimed water augmentation.	Reuse Augmentation	2.2	2.2	$8.50	$2.07	Construction 2013
Total for Surface Water Projects							**225.6**	**183.5 to 208.5**	**$1,871.03 to $2,035.73**		

Refer to Solutions Strategies, Volume IIA, Appendix D, Table D-1 for the updated WSPOs.

Table F-1. Continued.

Project	County	CFWI Sub-Regions	Project Name	Implementing Agency or Entity	Project Description	Project Type	Project Capacity (mgd) [a]	Est. Water Generated (mgd)[b]	Total Capital ($M)	Production ($/1,000 gallons)	Estimated Completion Date
Management Strategies											
140	Polk	SWFWMD	Wellfield Sharing	Polk Regional Entity	The sharing of Upper Floridan wells throughout the county to optimize permit vs. actual use and minimize impacts. Cost includes additional Upper Floridan wells and transfer pumping system	PS & Interconnect	6.0	6.0	$9.72	$0.33	TBD
141	Polk	SWFWMD	Regional Water Grid System	Polk Regional Entity	Cost includes 90 miles of transmission main piping, valves and booster pump station, initial planning, permitting and design fees, and infrastructure construction costs including land costs, legal fees and contingencies.	Interconnect	6.0	0.0	$226.30	$7.21	TBD
142	Polk	SWFWMD	Joint Tohopekaliga Water Authority/Polk County Supply	STOPR, PCU	Regional transfer of existing water capacity	Interconnect	5.0	0.0	$60.00	$2.20	TBD
Total for Management Strategy Projects							**17.0**	**6.0**	**$296.02**		
Total for All Projects							**506.8**	**260.6 to 315.6**	**$3,101.06 to $3,265.76**		

Note: This table is organized by water source, provides a project title and description, implementing agency, capitol and production costs, and an estimated implementation date of the project. Project capacity and estimates of water generated by project category are also included.

[a] The project capacity is the project's design capacity to deliver water.

[b] The estimated water generated amount evaluates the project's ability to deliver "new" water from project construction. This includes projects constructed to develop a previously unused "new" water source that would add new supplies to the water user. For reclaimed water projects, the water generated column total only includes supplemental "new" water supply. For example, a pipeline constructed to deliver water to a new area would not generate water by itself. Many of the reclaimed water projects fall into this category.

[c] The S.E. Polk Wellfield is a proposed project currently under review by SFWMD.

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