

TECHNICAL MEMORANDUM

September 8, 2009

TO: Interested Parties

THRU: Kathy F. Scott, Manager, Conservation Projects Section
Resource Projects Department

FROM: Scott D. McGookey, Staff Water Conservation Analyst
Conservation Projects Section
Resource Projects Department

SUBJECT: 2010 Regional Water Supply Plan: Recreational/Aesthetic Water Demands

Introduction

Chapter 373, Florida Statutes (F.S.) sets forth the requirement for regional water supply planning. Under the provisions of this chapter, a Regional Water Supply Plan (RWSP) must be developed for those areas where available water supplies are not expected to meet projected demands over a 20-year planning horizon. Guidance for developing projections is contained in the publication Final Report: Development and Reporting of Water Demand Projections in Florida's Water Supply Planning Process (2001). This guidance document was produced by the Water Demand Projection Subcommittee of the Water Planning Coordination Group. This group includes representatives from the Florida Department of Environmental Protection and each of the five water management districts. Following a district-wide water supply assessment that identified water demands and existing sources, the Governing Board of the Southwest Florida Water Management District (District) determined the need for a RWSP in the southern ten counties of the District, and the District produced its first RWSP in 2001. The statute requires that the determination of the need for a RWSP be made every five years. Accordingly, in 2003, the Governing Board determined the need for a RWSP existed in the same ten-county area. For the 2010 edition of the Regional Water Supply Plan, the Governing Board directed District staff to include demand projections for all sixteen (16) counties within the District.

Purpose

The District's water use has been categorized as Agricultural, Recreation/Aesthetic, Public Supply, Industrial/Commercial, and Mining/Dewatering water uses. This memo details those actions taken and methodologies utilized to develop the projections for the Recreational/Aesthetic demand component of the RWSP. The Recreational/Aesthetic category includes the self-supplied freshwater used for the irrigation of golf courses, cemeteries, parks, and other large-scale landscapes. Golf courses are the major users within this category. The Water Demand Projection Subcommittee (2001) identified 0.5 million gallons per day (mgd) as the reporting threshold for all golf courses and others in the category. The threshold for the Recreational/Aesthetic category in this RWSP includes all permitted, reported, or otherwise identified uses because most golf courses and others in this category are below the identified 0.5 mgd threshold.

Background

Prior editions of the RWSP addressed two planning regions, the Southern Water Use Caution Area (SWUCA) and Northern Tampa Bay (NTB). Although data is still available for these two areas, the 2010 RWSP will address four planning regions encompassing all 16 counties. The Southern Planning Region includes Manasota, Sarasota, DeSoto, and Charlotte Counties; the Heartland Planning Region includes Polk, Hardee, and Highlands Counties; and the Tampa Bay Planning Region includes Pasco, Pinellas, and Hillsborough Counties. The Northern Planning Region consists of those counties being included in the RWSP for the first time, specifically Hernando, Citrus, Levy, Sumter, Lake, and Marion counties. For the 2010 RWSP, 2005 is the starting point, or baseline year, for the purpose of developing and reporting water demand projections. This is consistent with the methodology agreed upon by the Water Planning Coordination Group. The data for the baseline year consist of reported and estimated usage for 2005, whereas data for the years 2010 through 2030 are projected demands (estimated needs).

Data Sources

District rules require a water use permit (WUP) for uses where the withdrawal during any single day is one million (1,000,000) gallons, if the average annual daily withdrawal is equal to or greater than one hundred thousand (100,000) gallons per day (gpd), or if the withdrawal is from a well having an inside diameter of six inches (6") or more. WUPs are required for many of the golf courses. Information on these permitted golf courses comes from the Districts WUPs file of record. Annual golf course pumpage data is acquired from the WUPs database. Many golf courses do not meet the reporting criteria, so additional efforts were required to obtain data from other sources. These other sources include the National Golf Foundation (2007), the internet, and contacting the golf courses directly.

Sources for aesthetic use include water use data from the District's Estimated Water Use Reports (EWUR) for the years 2003 through 2007. Population data was obtained from the 2010 RWSP Public Supply Water Demand Projections Technical Memorandum (2009) and is based on the University of Florida's Bureau of Economic and Business Research (BEER) medium population projections and any population projection data and analysis submitted by a local government.

Methodology

Golf Courses

Golf course demands are based on the average water use per golf course hole by county and a projection of golf course growth. The attached Table 1 uses the average golf course pumpage from 2003 through 2007, for permitted golf courses in the District, to calculate the average gallons per day per golf course hole. The pumpage was derived from the District's Regulatory database. The average annual pumpage per golf course hole is shown by golf course and by county. The county average was used to estimate future demand. Some pumpage data was not used due to inconsistencies in the data. A minimum of three years of good pumpage data was required to include the data from each golf course. The use of reclaimed water had an impact on the average use per golf course hole and was not used to calculate the average use. Permits using reclaimed water are highlighted in purple. Only the surface water and ground water pumpage was used to determine the average use per golf course hole for those golf courses that utilized reclaimed water. The historical number of golf course holes was derived from the National Golf Foundation database (2007), the internet and data in the District's permit

file of record (WMIS, 2006). Some golf courses' were contacted to verify information such as the year opened and number of current golf course holes. From this data, the historical growth of the number of existing golf course holes was used to forecast future growth. In order to forecast the average growth of golf course holes, a linear regression was performed using the historical golf course data in each county and that trend was used to project their growth to the year 2030. Although there are variations from year to year and from county to county, there is a general upward trend in the growth of golf course holes. The average annual use per hole by county was multiplied times the future growth in golf course holes to project future demands. The golf course water use growth projections by county, using the average gallons used per hole from Table 1, are shown in Table 2. This translates to a needed increase in supply of 27.8 mgd to meet the golf course irrigation needs out to 2030. This is the same method used in the 2005 Regional Water Supply Plan (published 2006). Changes made to improve the 2010 Demand estimates include an intensive effort to identify and gather data on the golf courses within the District. A master list has been created that has all the permitted and non-permitted golf courses found in the District. We feel that more comprehensive golf course data, using a five year average pumpage, an intensive review of the pumpage data, has improved the demand projections.

Aesthetic

Landscape water use includes irrigation for parks, medians, attractions, cemeteries and other large self-supply green areas. For each county, per capita water use (expressed in gallons per day per person) is obtained from a five year average (2003 to 2007) of the published estimated landscape water use from the District's EWUR. Estimates of population growth from 2005 to 2030 were obtained from the 2010 RWSP Public Supply Water Demand Projections Technical Memorandum (2009) and based on BEBR. These population projections were then multiplied times the per capita landscape water use to estimate aesthetic demand by county. The District's average per capita water use for green space irrigation is 6.7 gpd per person. Projections were made in five-year increments to the year 2030. The projected water use was estimated to be 50 million gallons day (mgd) for 2030 (Table 3). This translates to a needed increase in supply of 17.7 mgd to meet the landscape irrigation needs from 2005 to 2030.

1-in-10 Drought

The 1-in-10 drought event is an event that results in an increase in water demand of a magnitude that would have a 10 percent probability of occurring during any given year. The 1-in-10 year Drought Subcommittee of the Water Planning Coordination Group, as stated in their final report to the Florida Department of Environment Protection (2001), determined that, methodologies for estimating the 1-in-10 year demand high for recreational self supply are similar to methodologies used to estimate agricultural demand. The optimum irrigation requirements for the 1-in-10 year event, as opposed to the average year event, were 30 percent for golf courses and 26 percent for landscape irrigation (Table 4). The projected water use for an average year was multiplied by this percentage value to produce a projected water use for a 1-in-10 year rainfall as shown in the Summary Tables.

The 2009 demand estimates for recreational and aesthetic water have increased approximately 9 mgd from the published 2005 RWSP Report. The reasons for this increase include the following: (1) We now use more accurate information on the number of golf courses within the District. This increase in identified golf courses has resulted in more golf course holes and therefore more estimated use. (2) We have improved the quality of the pumpage information in the District's Regulatory Database. The gallons used per golf course hole are from a five year average rather than one year of data that may have been a wet or dry year. This increased the District use per golf course hole from 7,850 to 10,152 gpd. (3) The accuracy of the population

estimates continues to improved and show almost a million more people than were identified in the 2005 RWSP Report. (4) The gallons used per-capita for aesthetic use is calculated from a five year average rather than one year that may have been a wet or dry year. This increased the District per capita aesthetic use from 5.5 to 6.7 gpd. These changes have improved the quality of our estimates and portray a more accurate prediction of future demands.

Review

The District has provided this technical memorandum and demand projection tables to water use permit staff and recreational/aesthetic use sector stakeholders for review and comment, as each permitting staff and stakeholder may have a much more intimate understanding of the permits for which they are responsible. Upon receiving stakeholder comments, the District reviewed suggested changes and if appropriate included updates. It is important to note that as this is a long term planning effort, methodology changes based on short term trends were not taken into account. Comments and suggested changes were only taken into consideration if they were justifiable, defensible, based on historical regression data and long term trends, and supported by complete documentation.

The District understands and shares stakeholder's concerns of how critically important accurate demand projections are, however must comply with Chapter 373.0361, Florida Statutes (F.S.) which sets forth requirements for regional water supply planning.

Summary

The numbers of golf course holes seem to follow a moderately predictable growth rate, and when used with the average water use per golf course hole, provide a reasonable estimate of future water use. We can see that current economic conditions are having an effect on golf course growth and it is reflected by a reduced future growth rate when compared to the 2005 RWSP. The irrigation need for golf courses is considerable and it will continue to compete with other users of potable and non-potable supplies. Reclaimed water has made a definite impact on golf course water use and should continue into the future. The additional 2030 golf course demand is estimated to be 27.8 mgd. Estimated aesthetic water use, which is based on the average per capita population water use from the District's 2003 to 2007 EWURs, are projected based on population increases out to the year 2030. Aesthetic water use should continue to track changes in population. The additional 2030 aesthetic demand is estimated to be 17.7 mgd. Most Recreational/Aesthetic water use demands are close to major population centers which are good sources of reclaimed water to offset demands for potable water sources. This alternative source, which includes both wastewater and storm water reclaimed water, should be maximized to reduce demand on our potable supply. The additional 2030 Recreational/Aesthetic water use demands total 45.5 mgd.

References

Estimated Water Use reports 2003 - 2007, Southwest Florida Water Management District, December 2006, June 2007, June 2008, and February 2009,

2010 Regional Water Supply Plan: Public Supply Water Demand Projections Technical Memorandum, 2009,

National Golf Foundation, 2007 Golf Facilities Database, Jupiter, FL., and

Final Report: Development and Reporting of Water Demand Projections in Florida's Water Supply Planning Process for the 2005 Water Supply Plan. Prepared by Water Demand Projection Subcommittee and the 1-in-10 year Drought Subcommittee of the Water Planning Coordination Group; Florida Department of Environmental Protection; Northwest Florida Water Management District; South Florida Water Management District; Southwest Florida Water Management District; St. Johns River Water Management District; Suwannee River Water Management District, September 2001.

Appendix 3-4
Rec/Aesth Data Tables

4/27/2009

TABLE (1) FROM REGULATORY DATABASE FOR 2003-7
GOLF COURSE WATER USE SUMMARY TABLE

GDPH CALCULATIONS USING AVERAGE 2003-7 AS A BASE YEAR

				2003	2004	2005	2006	2007	TTL	AVERAGE	#Holes	2005
				WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	Permitted	GDPH		GDPH
				(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	(MGD)			
CHARLOTTE COUNTY												
3523	4	TWIN ISLES COUNTRY CLUB	SW	0.215	0.202	0.216	0.200		0.302	11567	18	11996
3656	5	MAPLE LEAF GOLF & COUNTRY CLUB	SW	0.165	0.175	0.114	0.138	0.184	0.369	8633	18	6354
3656	5	MAPLE LEAF GOLF & COUNTRY CLUB	RW	0.005	0.026	0.013	0.003	0.003	0.369			
6426	3	LEMON BAY GOLF CLUB	SW	0.232	0.136	0.249	0.050	0.066	0.202	8132	18	13818
6426	3	LEMON BAY GOLF CLUB	RW		0.160	0.076	0.196	0.189	0.202			
7602	7	ST ANDREWS SOUTH GOLF CLUB	SW	0.101	0.134	0.096	0.131	0.158	0.144	6888	18	5320
7815	3	DEEP CREEK GOLF CLUB	SW	0.110	0.114	0.120	0.132	0.149	0.185	6946	18	6664
9066	4	KING ISLAND GOLF CLUB	SW	0.082	0.057	0.081	0.161		0.200	5283	18	4493
9223	6	KING GATE GOLF CLUB	SW	0.040		0.027	0.142		0.145	3865	18	1496
9335	3	CHARLOTTE GOLF PARTNERS LTD	SW	0.031	0.036	0.002	0.000	0.000	0.325	776	18	132
9335	3	CHARLOTTE GOLF PARTNERS LTD	RW	0.310	0.209	0.382	0.251	0.224	0.325			
9798	3	ROTUNDA GOLF & CC - CAPE HAZE LINKS	RW	0.277	0.101	0.304	0.322	0.311	0.151	0	18	0
10169	3	RIVERWOOD GOLF CLUB	SW	0.095	0.238	0.266	0.343	0.347	0.352	14319	18	14799
10932	3	ROTONDA GOLF & CC - OAKLAND HILLS	SW	0.318	0.343	0.205	0.230	0.257	0.332	15037	18	11387
11687	1	ROTONDA GOLF & CC - LONG MEADOWS EXE	SW	0.064	0.071	0.073	0.097	0.136	0.134	4902	18	4037
11688	1	LONG MARSH GOLF CLUB	SW	0.091	0.097	0.118	0.165	0.177	0.139	7195	18	6559
11997	2	CORAL CREEK CLUB	SW	0.400	0.314	0.361	0.202	0.168	0.206	16053	18	20077
11997	2	CORAL CREEK CLUB	RW	0.044	0.073	0.158	0.232	0.223	0.206			
12335	2	PINEMOOR GOLF CLUB WEST	SW				0.150	0.124	0.234		18	
12337	1	PINEMOOR GOLF CLUB EAST	SW			0.151	0.091	0.107	0.129	12935	9	16772
GW=Ground Water				Average	0.152	0.146	0.159	0.162	0.166	8169		8260
SW=Surface Water												
RW=Reclaimed Water												

				2003	2004	2005	2006	2007	TTL	AVERAGE	#Holes	2005
				WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	Permitted	GDPH		GDPH
				(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	(MGD)			
CITRUS COUNTY												
2851	2	SEVEN RIVERS GOLF & COUNTRY CLUB	GW	0.152	0.094	0.215	0.140	0.002	0.224	6714	18	11968
3228	6	CITRUS HILLS GOLF CLUB	GW	0.502		0.517	0.573	0.514	0.666	14624	36	14360
3673	4	SUGARMILL WOODS COUNTRY CLUB	GW	0.427	0.409	0.450	0.403	0.455	0.479	15881	27	16684
8785	5	BLACK DIAMOND	GW	0.080	0.099		0.074	0.060	0.916	24083	45	
8785	5	BLACK DIAMOND	SW	0.762	1.140		1.160	0.961	0.916			
8970	1	PLANTATION GOLF RESORT	GW	0.101	0.134	0.279	0.166	0.142	0.400	12919	27	17808
8970	1	PLANTATION GOLF RESORT	SW	0.187	0.214	0.202	0.101	0.219	0.400			
8997	8	INVERNESS GOLF & COUNTRY CLUB	GW	0.206	0.255		0.232	0.186	0.254	12216	18	
9574	0	BEVERLY HILLS GOLF CLUB	GW	0.002	0.005	0.000	0.008	0.000	0.500			
9574	0	BEVERLY HILLS GOLF CLUB	SW	0.417	0.433	0.359	0.399	0.410	0.500	22598	18	19954
9964	1	PINE RIDGE COUNTRY CLUB	GW	0.277	0.255		0.242	0.237	0.288	14028	18	
10260	0	CITRUS SPRINGS GOLF COURSE	GW	0.104	0.242	0.218	0.322	0.144	0.222	11453	18	12118
10404	2	SOUTHERN WOODS GOLF CLUB	GW	0.180	0.137	0.198	0.285	0.231	0.274			
10404	2	SOUTHERN WOODS GOLF CLUB	SW	0.196	0.321	0.350	0.306	0.237	0.274	15668	18	19430
Average				0.257	0.288	0.279	0.315	0.271		15018		16046

				2003	2004	2005	2006	2007	TTL	AVERAGE	#Holes	2005
				WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	Permitted			
				(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	GDPH		GDPH
DESOTO COUNTY												
2746	5	SUNNYBREEZE PALMS GOLF COURSE	GW	0.131	0.216		0.273	0.254	0.331	8084	27	
6697	4	KINGSWAY COUNTRY CLUB	SW	0.000	0.091	0.116	0.149	0.116	0.180	5248	18	6446
6697	4	KINGSWAY COUNTRY CLUB	RW	0.114	0.105	0.092	0.110	0.154	0.180			
9105	1	CITY OF ARCADIA GOLF COURSE	GW	0.006	0.025	0.099	0.018	0.004	0.087	1689	18	5499
Average				0.062	0.109	0.102	0.138	0.132		5007		5973

				2003	2004	2005	2006	2007	TTL	AVERAGE	#Holes	2005
				WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	Permitted			
				(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	GDPH		GDPH
HERNANDO COUNTY												
368	7	HEATHER GOLF & COUNTRY CLUB	GW	0.051	0.063	0.038	0.068	0.047	0.061	5937	9	4213
2982	4	BROOKRIDGE COUNTRY CLUB	GW	0.300	0.307	0.343	0.311	0.261	0.350	16904	18	19050
3726	3	HIGH POINT GOLF CLUB	GW	0.126	0.145	0.145	0.149	0.148	0.149	7917	18	8051
6592	2	SPRING HILL COUNTRY CLUB	GW	0.287	0.289	0.337	0.391	0.378	0.409	18677	18	18702
6873	2	BROOKSVILLE GOLF & COUNTRY CLUB	GW	0.112	0.123	0.142	0.178		0.167	7706	18	7905
8124	2	OAK HILLS GOLF COURSE	GW	0.272	0.232	0.204	0.264	0.286	0.444	13983	18	11359
8833	4	DUNES GOLF CLUB	GW	0.259	0.283	0.315		0.275	0.482			
8833	4	DUNES GOLF CLUB	SW	0.221	0.174	0.419		0.422	0.482	17169	18	23263
9344	5	GLEN LAKES COUNTRY CLUB	GW	0.375	0.305	0.287	0.348	0.339	0.393	18376	18	15921
10199	3	SHERMAN HILLS GOLF CLUB	GW	0.342	0.301	0.297	0.403	0.316	0.333			
10199	3	SHERMAN HILLS GOLF CLUB	SW	0.338	0.355	0.457	0.403	0.317	0.333	20798	18	25416
10760	1	RIVARD GOLF CLUB	GW	0.030	0.045		0.083	0.063	0.127	3066	18	
12233	0	HERNANDO OAKS GOLF & CC	GW	0.116	0.114	0.159	0.199	0.163	0.307			
12233	0	HERNANDO OAKS GOLF & CC	SW	0.117	0.124	0.155	0.186	0.150	0.307	8127	18	8590
12517	0	SILVERTHORN COUNTRY CLUB	GW			0.247	0.286		0.584			
12517	0	SILVERTHORN COUNTRY CLUB	SW			0.339	0.536	0.519	0.584	25805	18	18824
Average				0.210	0.204	0.259	0.272	0.263		13706		14663

				2003	2004	2005	2006	2007	TTL	AVERAGE	#Holes	2005
				WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	Permitted			
				(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	GDPH		GDPH
HIGHLANDS COUNTY												
4637	8	HARDER HALL COUNTRY CLUB	GW	0.156	0.431		0.036	0.209	0.253	11556	18	
5107	5	CITY OF SEBRING GOLF COURSE	GW	0.086	0.125	0.076	0.138	0.076	0.130	5561	18	4222
5646	9	PINECREST GOLF CLUB	GW	0.120	0.129	0.143	0.142	0.146	0.198	7568	18	7952
6498	3	RIVER GREENS SOUTH GOLF COURSE	GW	0.178	0.193	0.183	0.212	0.196	0.238	10695	18	10183
7811	7	CRYSTAL LAKES GOLF CLUB	GW			0.165			0.241		18	9173
8327	5	GOLF HAMMOCK COUNTRY CLUB	GW	0.191	0.213	0.202	0.214	0.198	0.240	11302	18	11227
9626	4	HIGHLANDS RIDGE GOLF CLUB NORTH & SOUTH	GW	0.039	0.211	0.016	0.173	0.274	0.417			
9626	4	HIGHLANDS RIDGE GOLF CLUB NORTH & SOUTH	SW	0.559	0.651	0.775	0.950	0.811	0.417	20811	36	21527
12265	3	COUNTRY CLUB OF SEBRING	SW	0.112	0.116		0.069	0.050	0.205			
12265	3	COUNTRY CLUB OF SEBRING	GW	0.139	0.164		0.201	0.208	0.205	14716	18	
Average				0.176	0.248	0.223	0.237	0.241		11744		10714

				2003	2004	2005	2006	2007	TTL	AVERAGE	#Holes	2005
HILLSBOROUGH COUNTY				WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	Permitted	GDPH		GDPH
				(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	(MGD)			
620	4	EAGLES GOLF CLUB	SW	0.272	0.522	0.305	0.370		0.295	8157	36	8459
620	4	EAGLES GOLF CLUB	RW			0.003			0.295			
707	5	COLOOSA GREENS GOLF CLUB	SW	0.065	0.113	0.077	0.135	0.116	0.119	5628	18	4280
2177	5	BUCKHORN SPRINGS GOLF & COUNTRY	GW	0.033	0.115	0.006	0.029	0.031	0.113	2377	18	351
2177	5	BUCKHORN SPRINGS GOLF & COUNTRY	RW	0.476	0.351	0.402	0.234	0.241	0.113			
2705	6	WESTCHASE GOLF CLUB	SW	0.073	0.143	0.189	0.093	0.080	0.079	12843	9	21032
2705	6	WESTCHASE GOLF CLUB	RW	0.071	0.069	0.065	0.121	0.134	0.079			
3582	2	CITY OF TEMPLE TERRACE GOLF & CC	GW	0.163	0.149	0.198	0.193		0.257	9762	18	11017
4874	6	AVILA GOLF CLUB	SW	0.157	0.300	0.310	0.112		0.499	12208	18	17225
4874	6	AVILA GOLF CLUB	RW	0.105	0.020	0.060	0.285		0.499			
6091	6	CALOOSA GOLF & COUNTRY CLUB	SW	0.242	0.281		0.300	0.284	0.336	15380	18	
6100	4	BABE ZAHARAS GOLF CLUB	GW	0.274	0.191	0.183	0.155	0.156	0.205	10653	18	10166
6101	5	ROCKY POINT GOLF CLUB	SW	0.129	0.123		0.133	0.128	0.148	7125	18	
6217	7	PALMA CEIA GOLF & COUNTRY CLUB	SW	0.181	0.225		0.254	0.245	0.186	12568	18	
7038	3	BLOOMINGDALE GOLFERS CLUB	SW	0.080	0.197	0.011	0.276	0.218	0.256	8690	18	619
7038	3	BLOOMINGDALE GOLFERS CLUB	RW	0.083	0.200	0.091	0.015	0.074	0.256			
7637	6	THE RIVERSIDE GOLF CLUB	SW		0.040	0.058	0.201		0.789	5533	18	3225
8126	4	SUMMERFIELD CROSSING GOLF CLUB	SW	0.277	0.293	0.191	0.264	0.233	0.325	13973	18	10589
8137	3	TERRACE HILL GOLF CLUB	GW	0.021	0.035	0.038	0.058	0.036	0.170	4171	9	4224
8641	3	OLD MEMORIAL GOLF CLUB	SW	0.216	0.311		0.224	0.101	0.082	11833	18	
8641	3	OLD MEMORIAL GOLF CLUB	RW					0.079	0.082			
9137	5	RIVER HILLS GOLF CLUB	GW	0.045	0.115	0.168	0.000		0.119	4554	18	9326
9137	5	RIVER HILLS GOLF CLUB	RW	0.268	0.175	0.080	0.146		0.119			
9260	2	NORTHDALE GOLF & TENNIS CLUB	SW		0.186	0.162	0.205	0.151	0.064	9782	18	9017
9260	2	NORTHDALE GOLF & TENNIS CLUB	RW			0.103		0.056	0.064			
9487	0	TAMPA PALMS GOLF & CC	SW	0.228	0.082	0.087	0.162	0.242	0.335	8897	18	4830
10724	3	THE GOLF CLUB AT CYPRESS CREEK	SW	0.174	0.195	0.179	0.185	0.229	0.240	10686	18	9932
10819	1	FREEDOM FAIRWAYS	SW	0.108	0.157	0.172	0.169	0.167	0.097	8583	18	9528
10819	1	FREEDOM FAIRWAYS	RW	0.166	0.204	0.201	0.195	0.184	0.097			
11194	2	TOURNAMENT PLAYERS CLUB	SW	0.198	0.262			0.319	0.171	14426	18	
11428	1	HUNTER GREEN GOLF CLUB	SW	0.112	0.164	0.102	0.221	0.152	0.384	8338	18	5639
11540	0	HERITAGE ISLE GOLF & CC	SW	0.134	0.171	0.168	0.232	0.161	0.311	9621	18	9339
12024	0	ROGERS PARK GOLF CLUB	GW	0.025	0.021	0.022	0.042	0.140	0.323	2780	18	1246
12274	0	TERRACE HILL GOLF CLUB	GW	0.079	0.094	0.091	0.092	0.073	0.103	9527	9	10114
Average				0.154	0.178	0.133	0.170	0.155		9124		8008

			2003	2004	2005	2006	2007	TTL	AVERAGE	#Holes	2005	
			WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	Permitted	GPDPH		GPDPH	
			(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	(MGD)				
MANATEE COUNTY												
4507	4	LINKS AT GREENFIELD PLANTATION	SW		0.258	0.285	0.259	0.274	0.294	14955	18	15860
5454	4	PALM VIEW GOLF CLUB	GW	0.020	0.020	0.020	0.026		0.033	1192	18	1111
5656	6	WATERLEFE GOLF AND RIVER CLUB	SW	0.191	0.235	0.241	0.256	0.208	0.255	12565	18	13406
6293	5	PALM-AIRE COUNTRY CLUB	SW	0.272	0.295		0.308	0.356	0.399	8544	36	
8012	3	SARA BAY COUNTRY CLUB	SW	0.104	0.119	0.131	0.106	0.146	0.162	6728	18	7278
8508	2	PERIDA GOLF & CC	GW			0.137	0.122	0.141	0.118	7416	18	7611
8965	4	RIVER CLUB GOLF COURSE	SW	0.158	0.205	0.221	0.230	0.253	0.213	11852	18	12273
9379	1	TARA GOLF & CC	GW	0.152	0.195	0.197	0.236	0.193	0.409	10802	18	10940
9808	6	UNIVERSITY PARK GOLF CLUB	SW	0.341	0.275	0.388	0.343	0.271	0.484	11989	27	14369
10445	3	IMPERIAL LAKES GOLF CLUB	RW			0.227	0.219	0.209	0.069	0	18	0
10450	4	RIVER WILDERNESS YACHT & CC	SW			0.189	0.148	0.302	0.320	11830	18	10477
11109	2	EL CONQUISTADOR COUNTRY CLUB	RW				0.428	0.479	0.273		18	
11881	5	THE PRESERVE GOLF COURSE AT TARA	SW	0.159	0.178	0.214	0.289	0.277	0.258	12407	18	11885
12630	1	THE CONCESSION GOLF CLUB	SW				0.234	0.218	0.362		18	
Average				0.175	0.198	0.205	0.229	0.256		9190		9564

			2003	2004	2005	2006	2007		AVERAGE	#Holes	2005	
			WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL		GPDPH		GPDPH	
			(MGD)	(MGD)	(MGD)	(MGD)	(MGD)					
MARION COUNTY												
5642	3	GOLDEN HILLS GOLF & TURF CLUB	GW		0.205	0.147	0.252	0.149	0.291	10454	18	8148
6674	3	GOLDEN OCALA GOLF COURSE	GW	0.201	0.243	0.176	0.323	0.225	0.277	12983	18	9802
9497	0	MARION OAKS COUNTRY CLUB	GW	0.199	0.289	0.257	0.155	0.289	0.446	13209	18	14267
10476	3	SPRUCE CREEK GOLF & CC	GW	0.287	0.402	0.336	0.413	0.330	0.470	19646	18	18675
10861	1	HUNTINGTON GOLF COURSE	GW	0.240	0.289	0.238	0.312	0.294	0.338	15251	18	13198
12527	1	RAINBOW SPRINGS	GW			0.263		0.330	0.480		18	14603
Average				0.232	0.286	0.236	0.291	0.270		14308		13115

			2003	2004	2005	2006	2007	TTL	AVERAGE	#Holes	2005	
			WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	Permitted				
			(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	GPDPH		GPDPH	
PASCO COUNTY												
3389	6	PLANTATION PALMS GOLF CLUB	GW	0.122	0.195	0.165	0.253	0.192	0.293			
3389	6	PLANTATION PALMS GOLF CLUB	SW	0.184	0.234	0.219	0.302	0.228	0.293	12970	18	12174
5054	3	TRIPLE S GOLF RANCH	GW			0.027	0.037	0.035	0.147	1837	18	1518
6113	5	SADDLEBROOK RESORTS	GW	0.146	0.248	0.226			0.651	10536	36	13048
6113	5	SADDLEBROOK RESORTS	SW	0.134	0.142	0.243			0.651			
6821	2	QUAIL RIDGE GOLF & COUNTRY CLUB	GW	0.067	0.080	0.057	0.063	0.021	0.093	3196	18	3149
7672	3	MEADOW OAKS GOLF & COUNTRY CLUB	GW	0.168	0.211		0.242	0.193	0.290	11306	18	
7733	1	THE LINKS OF LAKE BERNADETTE,	GW	0.093	0.125	0.077	0.134	0.119	0.231	6083	18	4260
8118	3	RIVER RIDGE GOLF CLUB	GW		0.052		0.111		0.126			
8118	3	RIVER RIDGE GOLF CLUB	SW		0.102		0.121		0.126		18	
8561	1	SILVER OAKS GOLF & COUNTRY CLUB,	GW	0.070		0.139	0.163		0.225			
8561	1	SILVER OAKS GOLF & COUNTRY CLUB,	SW			0.158	0.172		0.225	7399	18	8787
8892	2	SOUTHPORT SPRINGS GOLF CLUB	GW	0.091	0.067	0.093	0.116	0.082	0.111	4979	18	5165
9525	1	THE LINKS GOLF COURSE	GW	0.004	0.000	0.004	0.001	0.000	0.115	98	18	222
9525	1	THE LINKS GOLF COURSE	SW	0.263	0.205	0.278	0.315	0.209	0.115			
9525	1	THE LINKS GOLF COURSE	RW			0.279			0.115			
10039	2	FOX HOLLOW GOLF CLUB	SW	0.203	0.230		0.255	0.217	0.325	12559	18	
10366	1	SEVEN SPRINGS GOLF & COUNTRY	GW	0.163	0.093	0.089	0.138	0.137	0.402	3438	36	2475
10366	1	SEVEN SPRINGS GOLF & COUNTRY	SW	0.331	0.391	0.356	0.432	0.408	0.402			
10366	1	SEVEN SPRINGS GOLF & COUNTRY	RW			0.139			0.402			
10870	2	BETMAR GOLF CLUB	GW	0.092	0.103	0.107	0.123	0.115	0.155	4002	27	3949
11275	4	TAMPA BAY GOLF & TENNIS	GW	0.202	0.179	0.160			0.287			
11275	4	TAMPA BAY GOLF & TENNIS	SW	0.376	0.163	0.109			0.287	11994	18	6058
11589	2	LEXINGTON OAKS GOLF CLUB	GW			0.178	0.311	0.297	0.310	14559	18	9899
11589	2	LEXINGTON OAKS GOLF CLUB	SW			0.088	0.150	0.171	0.310			
11589	2	LEXINGTON OAKS GOLF CLUB	RW			0.061			0.310			
11774	2	LAKE JOVITA GOLF & CC	GW	0.343	0.498	0.512	0.690	0.626	0.753			
11774	2	LAKE JOVITA GOLF & CC	SW	0.450	0.596	0.567	0.686	0.628	0.753	16261	36	15753
11852	0	HIDDEN CREEKEXE GOLF COURSE	GW	0.078	0.119	0.106	0.139	0.148	0.205			
11852	0	HIDDEN CREEKEXE GOLF COURSE	SW	0.095	0.135	0.107	0.143	0.140	0.205	6894	18	5969
11913	0	HERITAGE SPRINGS COUNTRY CLUB	GW	0.006	0.013	0.032	0.092	0.013	0.990	1731	18	1797
11913	0	HERITAGE SPRINGS COUNTRY CLUB	SW	0.294	0.341	0.258	0.353	0.366	0.990			
11913	0	HERITAGE SPRINGS COUNTRY CLUB	RW			0.211			0.990			
12044	0	THE GROVES GOLF & CC	GW	0.084	0.229	0.132	0.251	0.168	0.359			
12044	0	THE GROVES GOLF & CC	SW	0.266	0.285	0.288	0.375	0.338	0.359	17233	18	15974
Average				0.173	0.194	0.176	0.228	0.211		8171		6887

			2003	2004	2005	2006	2007	TTL	AVERAGE	#Holes	2005	
			WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	Permitted	GPDPH		GPDPH	
			(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	(MGD)				
PINELLAS COUNTY												
288	5	COUNTRYSIDE COUNTRY CLUB	SW	0.457	0.395	0.468	0.492	0.554	0.435	17527	27	17340
708	5	BELLEVUE BILTMORE COUNTRY CLUB (BELLEAIR)	SW	0.228	0.385	0.536	0.512		0.492	11535	36	14889
2731	2	LARGO GOLF COURSE	SW	0.114	0.107	0.091	0.097	0.106	0.104	5721	18	2428
2731	2	LARGO GOLF COURSE	RW			0.048			0.104			
3707	7	BAYOU GOLF	GW		0.235	0.247	0.261		0.573	13744	18	13698
5236	5	EAST BAY GOLD CLUB	RW				0.219	0.224	0.038		18	
6701	3	CYPRESS RUN GOLF CLUB	SW	0.266	0.225	0.119	0.110	0.127	0.138	9410	18	6604
8959	2	HIGHLAND LAKES GOLF COURSE	SW		0.110	0.168		0.021	0.124	3694	27	6234
8959	2	HIGHLAND LAKES GOLF COURSE	RW					0.004	0.124			
9551	1	WENTWORTH GOLF CLUB	SW				0.100	0.355	0.357		18	
9551	1	WENTWORTH GOLF CLUB	RW				0.081	0.045	0.357			
9670	4	CRESCENT OAKS GOLF COURSE	SW	0.232	0.246	0.202	0.113		0.314	11011	18	11213
10318	0	PALM HILL GOLF CLUB	GW	0.184	0.210	0.176	0.215		0.247	21797	9	19532
10694	2	THE TIDES GOLF CLUB	SW	0.083	0.131	0.075	0.126	0.161	0.172	6395	18	4141
10732	1	LANSBROOK GOLF CLUB	SW	0.209	0.250		0.232	0.243	0.347	12972	18	
11816	0	CLEARWATER EXE. GOLD	GW	0.043	0.050		0.121	0.105	0.331	4431	18	
11995	0	SEMINOLE LAKE GOLF COURSE	SW	0.139	0.149	0.186	0.236	0.201	0.177	10122	18	10330
Average				0.195	0.208	0.210	0.208	0.179		10697		10641

			2003	2004	2005	2006	2007	TTL	AVERAGE	#Holes	2005	
			WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	Permitted	GPDPH		GPDPH	
			(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	(MGD)				
POLK COUNTY												
3233	5	BRAMBLE RIDGE GOLF COURSE	GW	0.012	0.022	0.031	0.021	0.013	0.202	732	27	1147
4403	4	HUNINGTON HILL GOLF & CC	SW	0.001		0.112	0.219	0.192	0.267	7269	18	6217
5251	6	GRENELEFE GOLF & TENNIS RESORT	GW	0.645	0.474		0.544	0.279	0.572	13485	36	
5251	6	GRENELEFE GOLF & TENNIS RESORT	RW	0.199	0.012				0.572			
5524	3	LEKARICA HILLS GOLF CLUB	GW	0.109	0.123		0.136	0.116	0.251	6721	18	
6128	5	LAKE WALE COUNTRY CLUB	GW	0.330	0.330	0.193	0.380	0.308	0.336	17115	18	10698
6155	5	SUN AIR COUNTRY CLUB	SW	0.279	0.333	0.267	0.276	0.270	0.212	15839	18	14860
8464	2	DEER CREEK GOLF & CC	SW	0.192	0.221	0.078	0.183	0.177	0.217	9456	18	4343
8467	2	CLEVELAND HEIGHT GOLF & CC	GW	0.124	0.154	0.155	0.172	0.146	0.313	5558	27	5736
8472	1	BIG CYPRESS GOLF & CC	SW	0.108	0.152	0.122	0.168	0.100	0.453	3611	36	3399
8472	1	BIG CYPRESS GOLF & CC	RW			0.112			0.453			
8553	2	CYPRESSWOOD GOLF & COUNTRY CLUB	GW	0.141	0.116		0.173	0.194	0.280	8657	18	
8565	3	IMPERIAL LAKES CONTRY CLUB	RW		0.072	0.041		0.033	0.337	0	18	0
9007	2	SCHALAMAR CREEK GOLF & CC	SW	0.073	0.068	0.081	0.092	0.084	0.158	4423	18	4521
9234	3	BARTOW GOLF COURSE	GW	0.150	0.163	0.116	0.171	0.147	0.157	8301	18	6450
9961	3	GRASSLANDS GOLF & CC	GW	0.000	0.041	0.089	0.094	0.050	0.307			
9961	3	GRASSLANDS GOLF & CC	SW	0.123	0.167	0.129	0.200	0.212	0.341	9226	18	7154
9985	4	RIDGEWOOD LAKES GOLF & COUNTRY CLUB	GW	0.039	0.079		0.231	0.270	0.176			
9985	4	RIDGEWOOD LAKES GOLF & COUNTRY CLUB	SW	0.210	0.296		0.315	0.335	0.176	16043	18	
10392	5	OAKWOOD GOLF CLUB	GW	0.315	0.361	0.230	0.317	0.419	0.259	18247	18	12788
10656	3	DIAMONDBACK GOLF CLUB	GW	0.159	0.172	0.205	0.163	0.180	0.180	9766	18	11388
10826	1	LONE PALM GOLF CLUB	SW	0.126	0.148	0.130	0.190	0.161	0.260	8381	18	7200
12172	2	LAKE ASHTON GOLF CLUB	SW	0.150	0.180	0.152	0.229	0.180	0.321	9904	18	8471
12636	0	LAKE REGION YACHT & CC	GW			0.032	0.025	0.140	0.176	3639	18	1756
12636	0	LAKE REGION YACHT & CC	RW			0.005	0.019	0.053	0.176			
Average				0.166	0.175	0.120	0.196	0.176		8819		6633

			2003	2004	2005	2006	2007	TTL	AVERAGE	#Holes	2005	
			WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	Permitted				
			(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	GDPH		GDPH	
SARASOTA COUNTY												
3897	9	SARASOTA GOLF CLUB	RW	0.117			0.116	0.119	0.199	0	18	
5385	7	ROLLING GREEN GOLF CLUB	GW	0.160	0.131	0.101	0.115	0.118	0.225	6938	18	5586
5517	3	CAPRI ISLES GOLF INC	GW	0.001	0.001	0.001	0.010	0.016	0.040	322	18	67
5517	3	CAPRI ISLES GOLF INC	RW	0.146	0.184	0.176	0.154	0.165	0.040			
5648	7	GATOR CREEK GOLF CLUB INC	GW	0.001	0.002	0.001	0.001	0.056	0.259	680	18	63
5648	7	GATOR CREEK GOLF CLUB INC	RW	0.155	0.210	0.202	0.261	0.213	0.259			
6710	3	SABAL TRACE CORPORATION	RW	0.038	0.092	0.087	0.089	0.140	0.095	0	18	0
6863	5	KEY CLUB ASSOC D/B/A LONGBOAT	GW	0.309	0.341	0.311	0.383	0.254	0.284	7102	45	6911
6954	5	THE OAKS CLUB	SW	0.652	0.617	0.632	0.588	0.498	0.530	16597	36	17568
6954	5	THE OAKS CLUB	RW	0.000	0.161	0.041	0.022	0.017	0.530			
7488	3	FOXFIRE GOLF COURSE OF SARASOTA	GW	0.018	0.016	0.018			0.228	1495	27	1634
7488	3	FOXFIRE GOLF COURSE OF SARASOTA	SW	0.022	0.021	0.026			0.228			
7873	3	MYAKKA PINES GOLF CLUB INC	RW		0.242	0.181	0.297	0.280	0.318			
7873	3	MYAKKA PINES GOLF CLUB INC	SW		0.012	0.205	0.003	0.050	0.318	2497	27	7592
7893	4	TOURNAMENT PLAYERS CLUB AT	RW	0.127	0.343	0.075	0.070	0.031	0.443			
7893	4	TOURNAMENT PLAYERS CLUB AT	SW	0.277	0.104	0.467	0.849	0.541	0.443	12432	36	12978
8109	2	MISTY CREEK COUNTRY CLUB INC	SW	0.065	0.052	0.188	0.062	0.061	0.122	4759	18	10460
8109	2	MISTY CREEK COUNTRY CLUB INC	RW	0.153	0.158	0.141	0.129	0.189	0.122			
8819	2	BOCA ROYALE GOLF & COUNTRY	SW	0.078				0.000	0.145		18	
8819	2	BOCA ROYALE GOLF & COUNTRY	RW	0.000				0.268	0.145			
8900	5	MEADOWS COUNTRY CLUB INC	SW	0.383	0.473	0.438	0.496	0.560	0.744	8705	54	8117
9114	5	CALUSA LAKES GOLF CLUB	SW	0.166	0.198	0.203	0.219	0.221	0.259	11190	18	11282
9458	3	OAK FORD GOLF CLUB	SW	0.184	0.210	0.235	0.231	0.163	0.399	7574	27	8686
9458	3	OAK FORD GOLF CLUB	RW				0.051	0.101	0.399			
9517	4	LAUREL OAK COUNTRY CLUB	SW	0.239	0.303		0.293		0.578	5391	18	
9517	4	LAUREL OAK COUNTRY CLUB	RW	0.127	0.199		0.218		0.578			
9667	5	PELICAN POINT GOLF AND COUNTRY CLUB	SW	0.386	0.557	0.465		0.232	0.264	15181	27	17205
9667	5	PELICAN POINT GOLF AND COUNTRY CLUB	RW					0.380	0.264			
9839	5	VENICE GOLF & COUNTRY CLUB	GW			0.032	0.310		0.446		18	1766
9839	5	VENICE GOLF & COUNTRY CLUB	RW				0.048		0.446			
10407	3	SERENOA GOLF CLUB LLC	GW	0.019	0.031	0.035	0.049		0.324	7267	18	10041
10407	3	SERENOA GOLF CLUB LLC	SW	0.028	0.083	0.146	0.133		0.324			
10606	7	LONGBOAT KEY CLUB	GW	0.234	0.223		0.640	0.415	0.485	8397	45	
10877	2	STONEBROOK GOLF AND COUNTRY CLUB OF SARA.	SW	0.231	0.270	0.295	0.261	0.227	0.348	14268	18	16397
10877	2	STONEBROOK GOLF AND COUNTRY CLUB OF SARA.	RW	0.063	0.062	0.057	0.052	0.127	0.348			
11414	2	BOBBY JONES GOLF CLUB	SW	0.076	0.073				0.005			
11438	2	CAPRI ISLES GOLF INC	GW	0.176	0.000	0.000	0.225	0.001	0.267	22823	18	36019
11438	2	CAPRI ISLES GOLF INC	SW	0.251	0.273	0.648	0.267	0.213	0.267			
11638	2	HERON CREEK GOLF AND COUNTRY CLUB	SW		0.305	0.635	0.070	0.165	0.531	10883	27	23530
11638	2	HERON CREEK GOLF AND COUNTRY CLUB	RW		0.318	0.332	0.653	0.784	0.531			
11699	2	BOB CAT TRAIL GOLF CLUB	SW	0.272	0.339	0.353	0.418	0.364	0.339	19392	18	19614
11797	1	BIRD BAY EXECUTIVE GOLF COURSE	RW			0.101	0.122	0.069	0.050	0	18	5597
12075	1	VENETIAN GOLF AND RIVER CLUB	SW	0.380	0.525	0.614	0.786	0.612	0.562	32416	18	34138
Average				0.163	0.204	0.226	0.241	0.225		9013		11602

			2003	2004	2005	2006	2007	TTL	AVERAGE	#Holes	2005	
			WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	Permitted				
			(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	(MGD)	GDPH		GDPH	
SUMTER COUNTY												
2622	5	CONTINENTAL COUNTRY CLUB RO	GW	0.134	0.174	0.150	0.229	0.181	0.569	9645	18	8334
3206	13	THE VILLAGES OF LAKE-SUMTER INC	GW	0.844	0.669	0.371	0.799	0.336	1.345	6708	90	4118
6793	3	SHADY BROOK GOLF AND RV	GW	0.122		0.035	0.010	0.003	0.245	2359	18	1959
10923	0	SPRUCE CREEK DEVELOPMENT	GW		0.415		0.466	0.530	0.446			
10923	0	SPRUCE CREEK DEVELOPMENT	SW		0.419		0.550	0.384	0.446	12528	36	
11856	0	MIONA LAKE GOLF CLUB	GW	0.011		0.006		0.013	0.042	552	18	347
Average				0.278	0.419	0.141	0.411	0.241		6358		3689