A

Water Demand Projections

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The South Florida Water Management District (SFWMD or District) develops water demand estimates and projections in coordination with stakeholder groups, other agencies, utilities, and local governments. **Chapter 2** of the *2022 Lower West Coast Water Supply Plan Update* (2022 LWC Plan Update) provides summary information, and this appendix describes the methods used to develop water demand estimates for 2020 and projections through 2045 for the LWC Planning Area. Demands are developed for six water use categories: Public Supply (PS), Domestic Self-Supply (DSS), Agriculture (AG), Commercial/Industrial/Institutional (CII), Landscape/Recreational (L/R), and Power Generation (PG). Water demand estimates and projections are provided in 5-year increments through 2045 for average rainfall and 1-in-10-year drought conditions. In addition, demands are described and analyzed in two ways: gross (or raw) demand and net (or finished) demand.

POPULATION ESTIMATES AND PROJECTIONS

This section presents the methodology used to develop the 2020 population estimates and 2045 population projections for the LWC Planning Area, which are essential to determining water demands. The University of Florida's Bureau of Economic and Business Research (BEBR) provides population estimates and projections at the county level; however, water supply planning requires population projections at the sub-county level to delineate PS utility service areas and DSS populations. Section 373.709(2)(a)1., Florida Statutes (F.S.), prescribes the use of population projections from BEBR in determining water supply needs in regional water supply plans.

In accordance with Section 373.709(2)(a)1., F.S., permanent resident estimates and projections for each county, published by BEBR (Rayer and Wang 2021), were used as the basis for population projections in this 2022 LWC Plan Update. BEBR county population estimates, and projections are also used by local governments in their Comprehensive Plans. The 2020 permanent resident populations within the LWC Planning Area were as follows:

- Lee County: 750,493 permanent residents
- Collier County: 387,450 permanent residents
- Hendry County: 35,629 permanent residents
- Glades County: 9,390 permanent residents
- Charlotte County: 5,637 permanent residents

Utility Service Areas

To establish current and future PS and DSS populations, each PS utility's 2020 and 2045 potable water service area was delineated. A utility service area refers to the area with water distribution infrastructure and water customers served by a particular PS utility. The SFWMD developed 2020 and 2045 utility service area maps based on information from utilities and the SFWMD's water use permit database. Accuracy of the service area maps was verified through correspondence with all PS utilities.

Population Projection Methodology

Census block populations from the 2020 Decennial Census (United States Census Bureau 2020) and 2020 PS service area maps were used to estimate the 2020 permanent resident populations for PS utilities and DSS areas. Each census block within the LWC Planning Area

was assigned to a PS service area or DSS area. The distribution of population in census blocks not entirely within a single PS service area or DSS area was based on visual comparison of residential land use coverage. PS service area and DSS population estimates for 2017 through 2020 were calculated by applying annual county growth rates published by BEBR 2021 population estimates (Rayer and Wang 2021) and the United States Census Bureau (2020).

Detailed sub-county population projections from county planning departments were assigned to PS utility service areas and DSS areas. In some cases, modifications were made to service area populations based on information from local land use planning maps and local government Comprehensive Plans. Population projections to 2045 were calculated using Future Utility Service Area distributions of population served with the 2020 Decennial Census data (United States Census Bureau 2020). Population growth rate was provided by the population county projections (BEBR medium) from BEBR 2021 (Rayer and Wang 2021) in accordance with Section 373.709, F.S.

Population Projection Results

Table A-1 presents the results of the population distributions by county and PS utility (or DSS area) from 2020 to 2045. The results were shared with and reviewed by utility, municipal, local government, and tribal staff. The populations shown in **Table A-1** indicate the LWC Planning Area will have an additional 428,472 permanent residents by 2045, an increase of approximately 36%. Overall, the utilities in Lee County have the largest current and future populations, accounting for more than half of the region's projected 2045 PS population.

Table A-1. Service area population projections in the LWC Planning Area.

PS Utility or DSS	Service Area Population Projections					
	2020	2025	2030	2035	2040	2045
Charlotte County*						
Charlotte Correctional	1,278	1,278	1,278	1,278	1,278	1,278
Town and Country	1,228	1,326	1,406	1,476	1,535	1,597
PS Total	**2,506**	**2,604**	**2,684**	**2,754**	**2,813**	**2,875**
DSS Total	**3,131**	**3,486**	**3,781**	**4,014**	**4,219**	**4,400**
Charlotte County Total	**5,637**	**6,090**	**6,465**	**6,768**	**7,032**	**7,275**
Collier County						
Ave Maria	5,406	5,893	6,305	6,683	7,017	7,298
Collier County Utilities	209,504	228,359	244,344	259,005	271,955	282,833
Everglades City	1,069	1,165	1,247	1,322	1,388	1,444
Immokalee (IWSD)	24,618	26,834	28,610	29,469	30,058	30,359
Marco Island	18,077	19,162	20,120	21,126	21,971	22,850
Naples	53,812	55,800	59,414	62,692	65,646	68,510
Port of the Islands	907	924	937	947	956	963
STOF – Immokalee [1]	404	474	575	694	819	944
PS Total	**313,797**	**338,611**	**361,552**	**381,938**	**399,810**	**415,201**
DSS Total	**73,653**	**84,989**	**91,248**	**95,862**	**99,890**	**103,799**
Collier County Total	**387,450**	**423,600**	**452,800**	**477,800**	**499,700**	**519,000**

Table A-1. Continued.

PS Utility or DSS	Service Area Population Projections					
	2020	2025	2030	2035	2040	2045
Glades County*						
Clewiston (Glades Portion)	638	670	697	718	740	755
Moore Haven	3,335	3,502	3,642	3,751	3,863	3,940
Port LaBelle (Glades Portion)	733	770	800	824	849	866
Silver Lake – Muse Village	200	234	273	320	374	381
PS Total	**4,906**	**5,176**	**5,412**	**5,613**	**5,826**	**5,942**
DSS Total	**4,484**	**4,691**	**4,800**	**4,875**	**4,938**	**5,029**
Glades County Total	**9,390**	**9,867**	**10,212**	**10,488**	**10,764**	**10,971**
Hendry County*						
Clewiston (Hendry Portion)	14,154	14,288	14,387	14,463	14,528	14,584
LaBelle	7,923	7,998	8,054	8,096	8,132	8,164
Port LaBelle (Hendry Portion)	5,474	5,627	5,785	5,947	6,065	6,186
PS Total	**27,551**	**27,913**	**28,226**	**28,506**	**28,725**	**28,934**
DSS Total	**8,078**	**9,410**	**10,402**	**11,166**	**11,817**	**12,391**
Hendry County Total	**35,629**	**37,323**	**38,628**	**39,672**	**40,542**	**41,325**
Lee County						
Bonita Springs	66,897	74,256	80,197	85,009	89,259	92,829
Cape Coral	160,295	177,928	207,535	224,138	242,069	261,435
Citrus Park – Bonita Terra	1,368	1,560	1,589	1,645	1,686	1,754
FGUA – Lake Fairways	1,187	1,463	1,580	1,675	1,759	1,829
FGUA – Lehigh Acres	27,467	30,488	32,927	34,903	36,648	38,114
Fort Myers	94,421	96,905	102,719	107,855	115,535	122,170
Lee County Utilities	273,284	295,691	309,828	322,221	334,614	371,422
Pine Island (GPIWA)	12,841	13,419	13,848	14,254	14,492	15,072
Sanibel Island (IWA)	7,354	7,508	7,627	7,719	7,796	7,862
PS Total	**645,114**	**699,218**	**757,850**	**799,419**	**843,858**	**894,720**
DSS Total	**105,379**	**130,082**	**136,750**	**149,381**	**152,242**	**143,780**
Lee County Total	**750,493**	**829,300**	**894,600**	**948,800**	**996,100**	**1,038,500**
LWC Planning Area						
PS Total	**993,874**	**1,073,522**	**1,155,724**	**1,218,230**	**1,281,032**	**1,347,672**
DSS Total	**194,725**	**232,658**	**246,981**	**265,298**	**273,106**	**269,399**
LWC Planning Area Total	**1,188,599**	**1,306,180**	**1,402,705**	**1,483,528**	**1,554,138**	**1,617,071**

DSS = Domestic Self-Supply; FGUA = Florida Governmental Utility Authority; GPIWA = Greater Pine Island Water Association; IWA = Island Water Association; IWSD = Immokalee Water Sewer District; LWC = Lower West Coast; PS = Public Supply; STOF – Immokalee = Seminole Tribe of Florida Immokalee Reservation.

* Values listed are only for the area within the LWC Planning Area boundary.

[1] The Seminole Tribe of Florida is a sovereign Indian Tribe and an independent Tribal Government separate from Collier County. However, for discussion purposes, information relating to the Seminole Tribe of Florida Immokalee Reservation is included in the calculations for Collier County.

Comparing this 2022 LWC Plan Update population projection to those published in the 2006, 2012, and 2017 LWC plan updates can provide insight into the importance of population growth rates based on BEBR projections. Prior to the national economic downturn in 2008, high rates of development in the region pointed to higher population growth rates (**Figure A-1**). The population projections in the 2006 LWC Plan Update were a result of higher population growth rates prior to the recession. The BEBR projections used in this 2022 LWC Plan Update indicate slower growth rates from previous plan updates. However, they are closely aligned with the projections published in the 2017 LWC Plan Update.

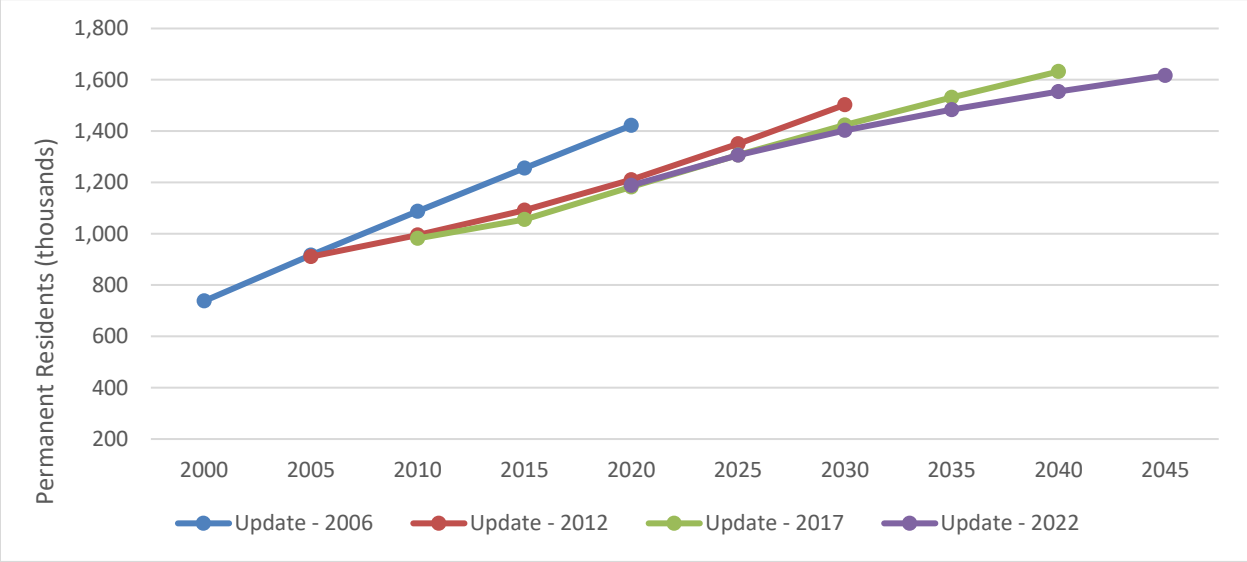

Figure A-1. Comparison of population projections from the 2006, 2012, 2017, and 2022 LWC plan updates.

PUBLIC SUPPLY

The PS category includes potable water supplied by water treatment plants with a current allocation of 0.10 million gallons per day (mgd) or greater. Developing PS demand projections in the LWC Planning Area was a multistep process that included determining PS utility service area and DSS populations, calculating per capita use rates (PCURs), and projecting future water needs.

NOTE

Perceived discrepancies in table totals are due to rounding.

PS Projection Methodology

Per Capita Use Rates

For each PS utility, a net (finished) water PCUR was developed by dividing the annual net (finished) water volume for 2016 through 2020 by the corresponding service area estimated population (permanent residents) for each year; then, the five annual PCURs were averaged (**Table A-2**). Net (finished) water volumes for 2016 through 2020 were obtained from the PS utility monthly operating reports submitted to the Florida Department of Environmental Protection (FDEP). The net (finished) water volume reported to the FDEP includes all water

produced for permanent and seasonal residents; industrial, landscaping, and irrigation water supplied by PS utilities; and any water distribution losses. The resulting PCURs conform to guidance provided by the FDEP for consistent statewide water supply planning. Future water conservation savings (**Chapter 3**) were not factored into demand projections and PCURs due to water savings uncertainty. The LWC Planning Area county average PCURs were calculated by averaging PS and DSS PCURs, weighted by their respective permanent resident populations.

Table A-2. Average net (finished) water per capita use rates (in gallons per capita per day) in the LWC Planning Area.

PS Utility or DSS	2016-2020 Average PCUR
Charlotte County	
Charlotte Correctional	68
Town and Country	103
Charlotte County DSS	85
Charlotte County Average	**85**
Collier County	
Ave Maria	91
Collier County Utilities	130
Everglades City	223
Immokalee (IWSD)	89
Marco Island	425
Naples	264
Port of the Islands	85
STOF – Immokalee[1]	297
Collier County DSS	166
Collier County Average	**166**
Glades County	
Clewiston (Glades Portion)	108
Moore Haven	159
Port LaBelle (Glades Portion)	81
Silver Lake – Muse Village	136
Glades County DSS	134
Glades County Average	**137**
Hendry County	
Clewiston (Hendry Portion)	108
LaBelle	85
Port LaBelle (Hendry Portion)	81
Hendry County DSS	96
Hendry County Average	**93**

Table A-2. Continued.

PS Utility or DSS	2016-2020 Average PCUR
Lee County	
Bonita Springs	153
Cape Coral	81
Citrus Park – Bonita Terra	124
FGUA – Lake Fairways	64
FGUA – Lehigh Acres	87
Fort Myers	91
Lee County Utilities	93
Pine Island (GPIWA)	115
Sanibel Island (IWA)	509
Lee County DSS	101
Lee County Average	**101**
LWC Planning Area Average	**123**

DSS = Domestic Self-Supply; FGUA = Florida Governmental Utility Authority; GPIWA = Greater Pine Island Water Association; IWA = Island Water Association; IWSD = Immokalee Water Sewer District; LWC = Lower West Coast; PCUR = per capita use rate; PS = Public Supply; STOF – Immokalee = Seminole Tribe of Florida Immokalee Reservation.

[1] The Seminole Tribe of Florida is a sovereign Indian Tribe and an independent Tribal Government separate from Collier County. However, for discussion purposes, information relating to the Seminole Tribe of Florida Immokalee Reservation is included in the calculations for Collier County.

Finished to Raw Water Conversion

Net (finished) demands (**Table A-3**) were calculated by multiplying the PS utility service area or DSS area population and the 5-year average PCUR. Gross (raw) water withdrawals are the volumes needed from the water source(s) to produce the required net (finished) water volumes, considering water treatment process losses. Water use permit allocations for PS utilities are based on the gross (raw) water volume to meet service area demands. To determine gross (raw) water demand for each PS utility, net (finished) water projections were multiplied by raw-to-finished ratios (**Table A-4**), which are based on the treatment efficiency of each PS water treatment plant. For example, if a typical reverse osmosis treatment facility withdraws a gross (raw) volume of 10.00 mgd and produces 8.00 mgd of net (finished) water, its treatment losses are 20%. Therefore, its raw-to-finished ratio would be 1.25 (10 mgd divided by 8 mgd).

Treatment efficiencies were determined from information supplied in the water use permit and/or standard treatment process technical documents. The assumed losses are 0% for aeration/disinfection only, 3% for lime softening/flocculation, 15% for nanofiltration, and 25% for reverse osmosis. If a utility has more than one treatment method, the ratio reflects combined treatment efficiencies. Potable water treatment plants in the LWC Planning Area and their treatment processes are shown in **Figures A-2, A-3,** and **A-4**.

Table A-3. PS net (finished) water demands under average rainfall conditions in the LWC Planning Area.

PS Utility	Net (Finished) Demand – Average Rainfall Conditions (mgd)					
	2020	2025	2030	2035	2040	2045
Charlotte County*						
Charlotte Correctional	0.09	0.09	0.09	0.09	0.09	0.09
Town and Country	0.13	0.14	0.14	0.15	0.16	0.16
Charlotte County Total	**0.21**	**0.22**	**0.23**	**0.24**	**0.25**	**0.25**
Collier County						
Ave Maria	0.49	0.54	0.57	0.61	0.64	0.66
Collier County Utilities	27.24	29.69	31.76	33.67	35.35	36.77
Everglades City	0.24	0.26	0.28	0.29	0.31	0.32
Immokalee (IWSD)	2.19	2.39	2.55	2.62	2.68	2.70
Marco Island	7.68	8.14	8.55	8.98	9.34	9.71
Naples	14.21	14.73	15.69	16.55	17.33	18.09
Port of the Islands	0.08	0.08	0.08	0.08	0.08	0.08
STOF – Immokalee[1]	0.15	0.18	0.20	0.22	0.24	0.26
Collier County Total	**52.27**	**56.00**	**59.68**	**63.03**	**65.97**	**68.60**
Glades County*						
Clewiston (Glades Portion)	0.07	0.07	0.08	0.08	0.08	0.08
Moore Haven	0.53	0.56	0.58	0.60	0.61	0.63
Port LaBelle (Glades Portion)	0.06	0.06	0.06	0.07	0.07	0.07
Silver Lake – Muse Village	0.03	0.03	0.04	0.04	0.05	0.05
Glades County Total	**0.69**	**0.72**	**0.76**	**0.78**	**0.81**	**0.83**
Hendry County*						
Clewiston (Hendry Portion)	1.53	1.54	1.55	1.56	1.57	1.58
LaBelle	0.63	0.68	0.68	0.69	0.69	0.69
Port LaBelle (Hendry Portion)	0.46	0.48	0.49	0.50	0.51	0.52
Hendry County Total	**2.62**	**2.70**	**2.73**	**2.75**	**2.77**	**2.79**
Lee County						
Bonita Springs	10.24	11.36	12.27	13.01	13.66	14.20
Cape Coral	12.98	14.41	16.81	18.16	19.61	21.18
Citrus Park – Bonita Terra	0.17	0.19	0.20	0.20	0.21	0.22
FGUA – Lake Fairways	0.08	0.09	0.10	0.11	0.11	0.12
FGUA – Lehigh Acres	2.39	2.65	2.86	3.04	3.19	3.32
Fort Myers	8.59	8.82	9.35	9.81	10.51	11.12
Lee County Utilities	25.42	27.50	28.81	29.97	31.12	34.54
Pine Island (GPIWA)	1.48	1.54	1.59	1.64	1.67	1.73
Sanibel Island (IWA)	3.74	3.82	3.88	3.93	3.97	4.00
Lee County Total	**65.08**	**70.40**	**75.88**	**79.86**	**84.04**	**90.42**
LWC Planning Area Total	**120.87**	**130.05**	**139.28**	**146.66**	**153.84**	**162.89**

FGUA = Florida Governmental Utility Authority; GPIWA = Greater Pine Island Water Association; IWA = Island Water Association; IWSD = Immokalee Water Sewer District; LWC = Lower West Coast; mgd = million gallons per day; PS = Public Supply; STOF – Immokalee = Seminole Tribe of Florida Immokalee Reservation.

* Values listed are only for the area within the LWC Planning Area boundary.

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Table A-4. Raw-to-finished water adjustment ratios for PS utilities in the LWC Planning Area.

PS Utility	Raw-to-Finished Ratio
Charlotte County	
Charlotte Correctional	1.03
Town and Country	1.27
Collier County	
Ave Maria	1.27
Collier County Utilities	1.15
Everglades City	1.11
Immokalee (IWSD)	1.01
Marco Island	1.19
Naples	1.03
Port of the Islands	1.33
STOF – Immokalee[1]	1.33
Glades County	
Moore Haven	1.18
Silver Lake – Muse Village	1.01
Hendry County	
Clewiston (Hendry Portion)	1.47
LaBelle	1.39
Port LaBelle (Hendry Portion)	1.18
Lee County	
Bonita Springs	1.10
Cape Coral	1.10
Citrus Park – Bonita Terra	1.05
FGUA – Lake Fairways	1.02
FGUA – Lehigh Acres	1.03
Fort Myers	1.39
Lee County Utilities	1.12
Pine Island (GPIWA)	1.14
Sanibel Island (IWA)	1.30

FGUA = Florida Governmental Utility Authority; GPIWA = Greater Pine Island Water Association; IWA = Island Water Association; IWSD = Immokalee Water Sewer District; LWC = Lower West Coast; PS = Public Supply; STOF – Immokalee = Seminole Tribe of Florida Immokalee Reservation.

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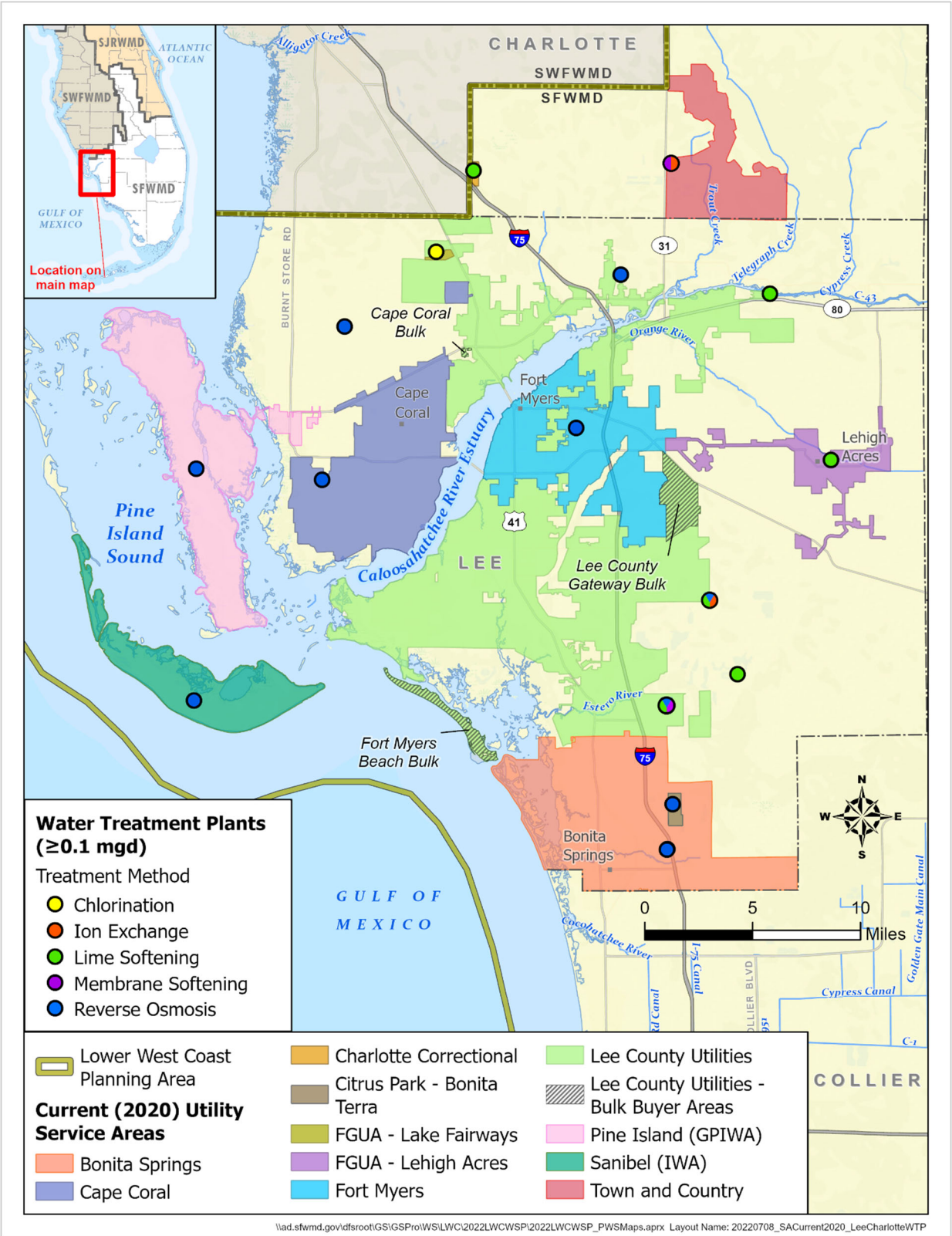

Figure A-2. Potable water treatment plants and Public Supply utility service areas in Lee and Charlotte counties.

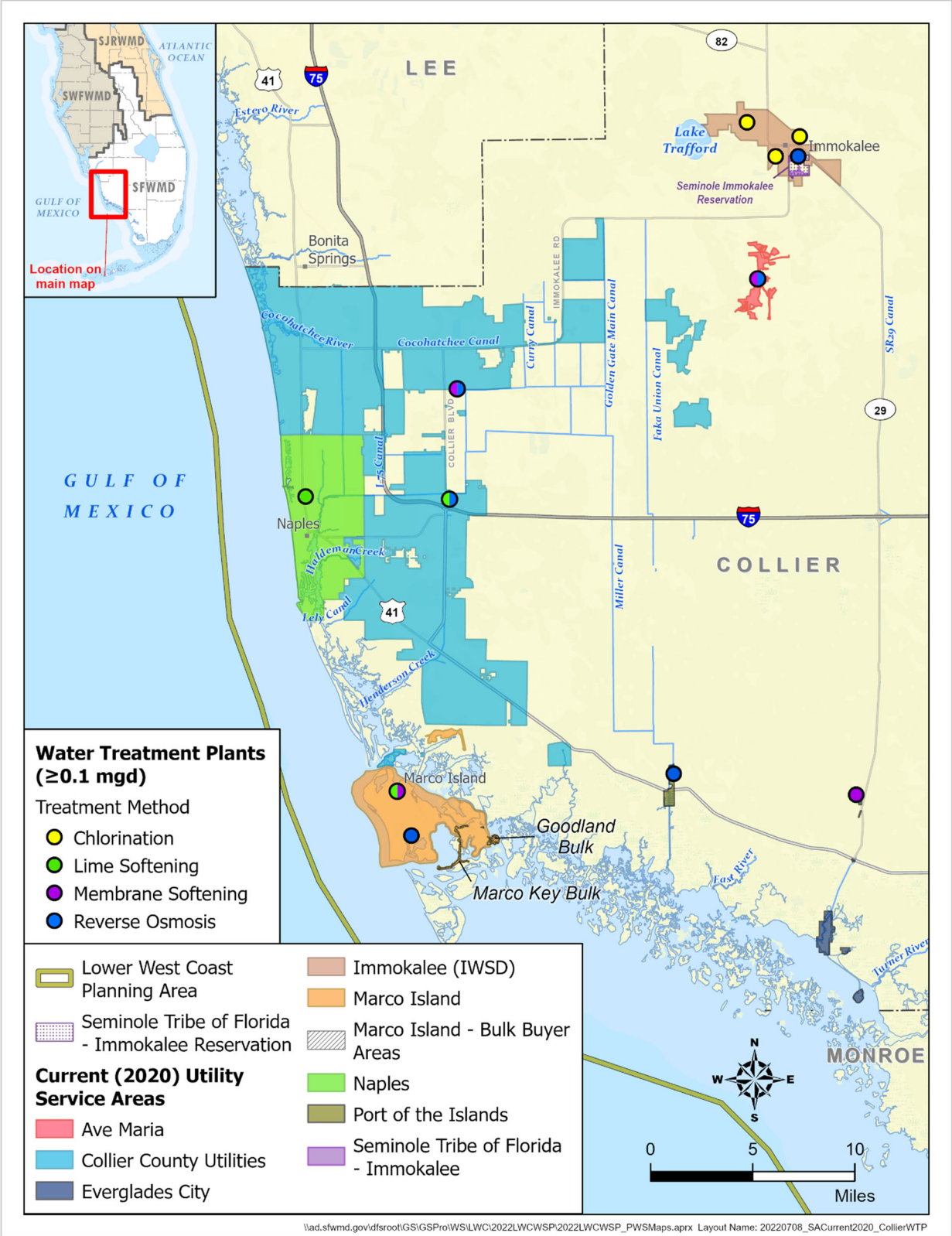

Figure A-3. Potable water treatment plants and Public Supply utility service areas in Collier County.

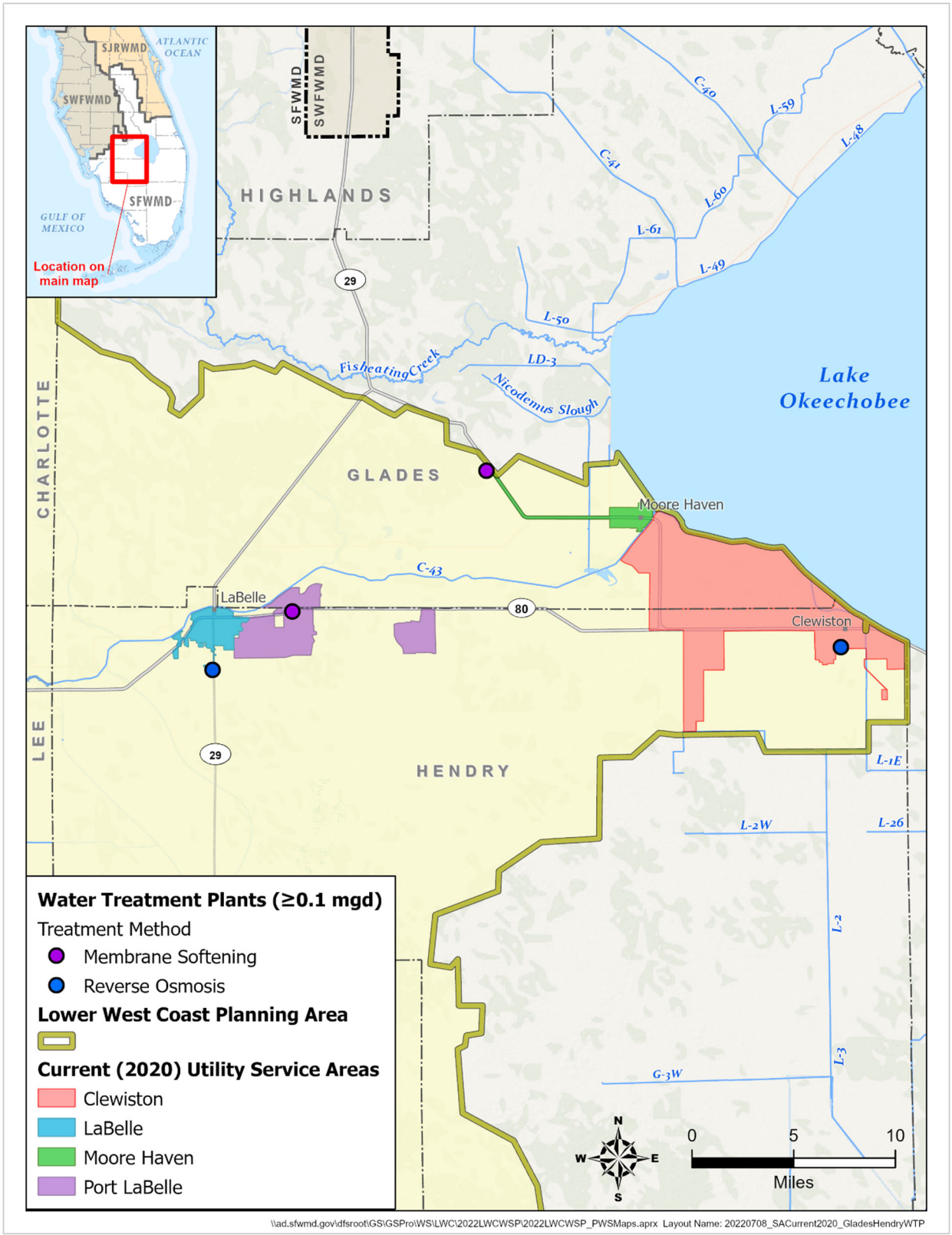

Figure A-4. Potable water treatment plants and Public Supply utility service areas in Glades and Hendry counties.

PS Projection Results

Average Rainfall Conditions

Gross (raw) demands for PS under average rainfall conditions for 2020 through 2045 are provided in **Table A-5**.

Table A-5. PS gross (raw) water demands under average rainfall conditions in the LWC Planning Area.

PS Utility	Gross (Raw) Water Demand – Average Rainfall Conditions (mgd)					
	2020	2025	2030	2035	2040	2045
Charlotte County*						
Charlotte Correctional	0.09	0.09	0.09	0.09	0.09	0.09
Town and Country	0.16	0.17	0.18	0.19	0.20	0.21
Charlotte County Total	**0.25**	**0.26**	**0.27**	**0.28**	**0.29**	**0.30**
Collier County						
Ave Maria	0.62	0.68	0.73	0.77	0.81	0.84
Collier County Utilities	31.32	34.14	36.53	38.72	40.66	42.28
Everglades City	0.26	0.29	0.31	0.33	0.34	0.36
Immokalee (IWSD)	2.21	2.41	2.57	2.65	2.70	2.73
Marco Island	9.14	9.69	10.18	10.68	11.11	11.56
Naples	14.63	15.17	16.16	17.05	17.85	18.63
Port of the Islands	0.10	0.10	0.11	0.11	0.11	0.11
STOF – Immokalee [1]	0.20	0.24	0.27	0.29	0.32	0.35
Collier County Total	**58.50**	**62.73**	**66.84**	**70.60**	**73.90**	**76.85**
Glades County*						
Clewiston (Glades Portion)	0.10	0.11	0.11	0.11	0.12	0.12
Moore Haven	0.63	0.66	0.68	0.70	0.72	0.74
Port LaBelle (Glades Portion)	0.07	0.07	0.08	0.08	0.08	0.08
Silver Lake – Muse Village	0.03	0.03	0.04	0.04	0.05	0.05
Glades County Total	**0.82**	**0.87**	**0.91**	**0.94**	**0.97**	**0.99**
Hendry County*						
Clewiston (Hendry Portion)	2.25	2.27	2.28	2.30	2.31	2.32
LaBelle	0.88	0.94	0.95	0.96	0.96	0.96
Port LaBelle (Hendry Portion)	0.54	0.57	0.58	0.59	0.61	0.61
Hendry County Total	**3.67**	**3.78**	**3.82**	**3.85**	**3.87**	**3.89**

Table A-5. Continued.

PS Utility	Gross (Raw) Water Demand – Average Rainfall Conditions (mgd)					
	2020	2025	2030	2035	2040	2045
Lee County						
Bonita Springs	11.26	12.50	13.50	14.31	15.02	15.62
Cape Coral	14.28	15.85	18.49	19.97	21.57	23.29
Citrus Park – Bonita Terra	0.18	0.20	0.21	0.21	0.22	0.23
FGUA – Lake Fairways	0.08	0.10	0.10	0.11	0.11	0.12
FGUA – Lehigh Acres	2.46	2.73	2.95	3.13	3.28	3.42
Fort Myers	11.94	12.26	12.99	13.64	14.61	15.45
Lee County Utilities	28.47	30.80	32.27	33.56	34.85	38.69
Pine Island (GPIWA)	1.68	1.76	1.82	1.87	1.90	1.98
Sanibel Island (IWA)	4.87	4.97	5.05	5.11	5.16	5.20
Lee County Total	**75.22**	**81.17**	**87.38**	**91.91**	**96.73**	**104.00**
LWC Planning Area Total	**138.46**	**148.81**	**159.22**	**167.58**	**175.78**	**186.04**

FGUA = Florida Governmental Utility Authority; GPIWA = Greater Pine Island Water Association; IWA = Island Water Association; IWSD = Immokalee Water Sewer District; LWC = Lower West Coast; mgd = million gallons per day; PS = Public Supply; STOF – Immokalee = Seminole Tribe of Florida Immokalee Reservation.

* Values listed are only for the area within the LWC Planning Area boundary.

[1] The Seminole Tribe of Florida is a sovereign Indian Tribe and an independent Tribal Government separate from Collier County. However, for discussion purposes, information relating to the Seminole Tribe of Florida Immokalee Reservation is included in the calculations for Collier County.

1-in-10-Year Drought Conditions

Section 373.709, F.S. states that the level-of-certainty planning goal associated with identifying water demands shall be based on meeting demands during 1-in-10-year drought conditions. A 1-in-10-year drought is characterized by diminished rain and increased evapotranspiration relative to the historical record for a specific location. The increased PS demands during 1-in-10-year drought conditions were calculated using the method described in the *Districtwide Water Supply Assessment* (SFWMD 1998), which considers the increased demands on the irrigation portion of PS during droughts. The drought demand factors are as follows:

- Charlotte County: 1.05
- Collier County: 1.08
- Glades County: 1.06
- Hendry County: 1.06
- Lee County: 1.05

NOTE

Average Rainfall and 1-in-10-Year Drought

An **average rainfall** year is defined as a year with a rainfall amount that has a 50% probability of being exceeded in any other year.

A **1-in-10-year drought** is defined as a year in which below normal rainfall occurs, with a 90% probability of being exceeded in any other year. It has an expected return frequency of once in 10 years.

Average water demands were multiplied by the drought demand factor to calculate demands during 1-in-10-year drought conditions (**Tables A-6** and **A-7**).

Table A-6. PS net (finished) water demands under 1-in-10-year drought conditions in the LWC Planning Area.

PS Utility	Net (Finished) Demand – 1-in-10-Year Drought Conditions (mgd)					
	2020	2025	2030	2035	2040	2045
Charlotte County*						
Charlotte Correctional	0.09	0.09	0.09	0.09	0.09	0.09
Town and Country	0.13	0.14	0.15	0.16	0.17	0.17
Charlotte County Total	**0.22**	**0.23**	**0.24**	**0.25**	**0.26**	**0.26**
Collier County						
Ave Maria	0.53	0.58	0.62	0.66	0.69	0.72
Collier County Utilities	29.41	32.06	34.31	36.36	38.18	39.71
Everglades City	0.26	0.28	0.30	0.32	0.33	0.35
Immokalee (IWSD)	2.37	2.58	2.75	2.83	2.89	2.92
Marco Island	8.30	8.80	9.24	9.70	10.08	10.49
Naples	15.34	15.91	16.94	17.87	18.72	19.53
Port of the Islands	0.08	0.08	0.09	0.09	0.09	0.09
STOF – Immokalee[1]	0.16	0.19	0.22	0.24	0.26	0.28
Collier County Total	**56.45**	**60.48**	**64.45**	**68.07**	**71.24**	**74.08**
Glades County*						
Clewiston (Glades Portion)	0.07	0.08	0.08	0.08	0.08	0.09
Moore Haven	0.56	0.59	0.61	0.63	0.65	0.66
Port LaBelle (Glades Portion)	0.06	0.07	0.07	0.07	0.07	0.07
Silver Lake – Muse Village	0.03	0.03	0.04	0.05	0.05	0.05
Glades County Total	**0.73**	**0.77**	**0.80**	**0.83**	**0.86**	**0.88**
Hendry County*						
Clewiston (Hendry Portion)	1.62	1.64	1.65	1.66	1.66	1.67
LaBelle	0.67	0.72	0.73	0.73	0.73	0.74
Port LaBelle (Hendry Portion)	0.49	0.51	0.52	0.53	0.54	0.55
Hendry County Total	**2.78**	**2.86**	**2.90**	**2.92**	**2.94**	**2.96**
Lee County						
Bonita Springs	10.75	11.93	12.88	13.66	14.34	14.91
Cape Coral	13.63	15.13	17.65	19.06	20.59	22.24
Citrus Park – Bonita Terra	0.18	0.20	0.21	0.21	0.22	0.23
FGUA – Lake Fairways	0.08	0.10	0.11	0.11	0.12	0.12
FGUA – Lehigh Acres	2.51	2.79	3.01	3.19	3.35	3.48
Fort Myers	9.02	9.26	9.81	10.31	11.04	11.67
Lee County Utilities	26.69	28.87	30.25	31.46	32.68	36.27
Pine Island	1.55	1.62	1.67	1.72	1.75	1.82
Sanibel Island	3.93	4.01	4.08	4.13	4.17	4.20
Lee County Total	**68.34**	**73.92**	**79.67**	**83.85**	**88.24**	**94.95**
LWC Planning Area Total	**128.52**	**138.27**	**148.07**	**155.92**	**163.55**	**173.13**

FGUA = Florida Governmental Utility Authority; GPIWA = Greater Pine Island Water Association; IWA = Island Water Association; IWSD = Immokalee Water Sewer District; LWC = Lower West Coast; mgd = million gallons per day; PS = Public Supply; STOF – Immokalee = Seminole Tribe of Florida Immokalee Reservation.

* Values listed are only for the area within the LWC Planning Area boundary.

[1] The Seminole Tribe of Florida is a sovereign Indian Tribe and an independent Tribal Government separate from Collier County. However, for discussion purposes, information relating to the Seminole Tribe of Florida Immokalee Reservation is included in the calculations for Collier County.

Table A-7. PS gross (raw) water demands under 1-in-10-year drought conditions in the LWC Planning Area.

PS Utility	Gross (Raw) Demand – 1-in-10-Year Drought Conditions (mgd)					
	2020	2025	2030	2035	2040	2045
Charlotte County*						
Charlotte Correctional	0.09	0.09	0.09	0.09	0.09	0.09
Town and Country	0.17	0.18	0.19	0.20	0.21	0.22
Charlotte County Total	**0.26**	**0.28**	**0.29**	**0.30**	**0.30**	**0.31**
Collier County						
Ave Maria	0.67	0.74	0.79	0.83	0.88	0.91
Collier County Utilities	33.83	36.87	39.45	41.82	43.91	45.67
Everglades City	0.29	0.31	0.33	0.35	0.37	0.39
Immokalee (IWSD)	2.39	2.61	2.78	2.86	2.92	2.95
Marco Island	9.87	10.47	10.99	11.54	12.00	12.48
Naples	15.80	16.39	17.45	18.41	19.28	20.12
Port of the Islands	0.11	0.11	0.11	0.12	0.12	0.12
STOF – Immokalee [1]	0.22	0.26	0.29	0.32	0.34	0.37
Collier County Total	**62.96**	**67.49**	**71.90**	**75.93**	**79.47**	**82.63**
Glades County*						
Clewiston (Glades Portion)	0.11	0.11	0.12	0.12	0.12	0.13
Moore Haven	0.66	0.70	0.72	0.75	0.77	0.78
Port LaBelle (Glades Portion)	0.07	0.08	0.08	0.08	0.09	0.09
Silver Lake – Muse Village	0.03	0.03	0.04	0.05	0.05	0.06
Glades County Total	**0.87**	**0.92**	**0.96**	**1.00**	**1.03**	**1.05**
Hendry County*						
Clewiston (Hendry Portion)	2.38	2.40	2.42	2.43	2.44	2.45
LaBelle	0.93	1.00	1.01	1.01	1.02	1.02
Port LaBelle (Hendry Portion)	0.58	0.60	0.62	0.63	0.64	0.65
Hendry County Total	**3.89**	**4.01**	**4.05**	**4.08**	**4.11**	**4.13**
Lee County						
Bonita Springs	11.82	13.12	14.17	15.02	15.77	16.40
Cape Coral	15.00	16.65	19.42	20.97	22.65	24.46
Citrus Park – Bonita Terra	0.19	0.21	0.22	0.22	0.23	0.24
FGUA – Lake Fairways	0.08	0.10	0.11	0.11	0.12	0.13
FGUA – Lehigh Acres	2.58	2.87	3.10	3.28	3.45	3.59
Fort Myers	12.54	12.87	13.64	14.32	15.34	16.23
Lee County Utilities	29.89	32.34	33.89	35.24	36.60	40.62
Pine Island (GPIWA)	1.77	1.85	1.91	1.96	1.99	2.07
Sanibel Island (IWA)	5.11	5.22	5.30	5.36	5.42	5.46
Lee County Total	**78.98**	**85.22**	**91.74**	**96.51**	**101.57**	**109.20**
LWC Planning Area Total	**146.97**	**157.92**	**168.94**	**177.81**	**186.49**	**197.32**

FGUA = Florida Governmental Utility Authority; GPIWA = Greater Pine Island Water Association; IWA = Island Water Association; IWSD = Immokalee Water Sewer District; LWC = Lower West Coast; mgd = million gallons per day; PS = Public Supply; STOF – Immokalee = Seminole Tribe of Florida Immokalee Reservation.

* Values listed are only for the area within the LWC Planning Area boundary.

[1] The Seminole Tribe of Florida is a sovereign Indian Tribe and an independent Tribal Government separate from Collier County. However, for discussion purposes, information relating to the Seminole Tribe of Florida Immokalee Reservation is included in the calculations for Collier County.

DOMESTIC SELF-SUPPLY

The DSS category includes potable water used by households that are served by small utilities with current allocations less than 0.10 mgd or that are self-supplied by private wells. Permanent resident populations within DSS areas were developed simultaneously with the PS population estimates and projections, as described earlier. All permanent residents outside of PS utility service area boundaries were considered DSS population. To determine the current and future DSS demands, the average PCUR of PS utilities in each county, weighted by the population (**Table A-2**), was multiplied by the DSS permanent resident population in each county. DSS county PCURs remain constant through 2045. For DSS demands, the raw-to-finished water ratio is assumed to be 1.00. Therefore, no distinction is made between gross (raw) and net (finished) water demands.

Tables A-8 and **A-9** contain the LWC Planning Area's DSS demand estimates and projections under average rainfall and 1-in-10-year drought conditions, respectively. The drought demand factor used for PS was used to calculate 1-in-10-year drought demands for DSS. The average DSS demand in 2020 was 24.55 mgd for 195,129 permanent residents (**Table A-1**) and is expected to increase to 33.98 mgd in 2045 due to expansion of PS utility service areas to serve current DSS areas.

Table A-8. DSS gross (raw) water demands under average rainfall conditions in the LWC Planning Area.

County DSS	Demand – Average Rainfall Conditions (mgd)					
	2020	2025	2030	2035	2040	2045
Charlotte DSS	0.27	0.30	0.32	0.34	0.36	0.37
Collier DSS	12.23	14.11	15.15	15.91	16.58	17.23
Glades DSS	0.61	0.64	0.66	0.67	0.68	0.69
Hendry DSS	0.80	0.88	0.97	1.05	1.11	1.17
Lee DSS	10.64	13.14	13.81	15.09	15.38	14.52
LWC DSS Total	**24.55**	**29.06**	**30.91**	**33.06**	**34.10**	**33.98**

DSS = Domestic Self-Supply; LWC = Lower West Coast; mgd = million gallons per day.

Table A-9. DSS gross (raw) water demands under 1-in-10-year drought conditions in the LWC Planning Area.

County DSS	Demand – 1-in-10-Year Drought Conditions (mgd)					
	2020	2025	2030	2035	2040	2045
Charlotte DSS	0.28	0.31	0.34	0.36	0.38	0.39
Collier DSS	13.20	15.24	16.36	17.19	17.91	18.61
Glades DSS	0.65	0.68	0.70	0.71	0.72	0.73
Hendry DSS	0.85	0.93	1.03	1.11	1.17	1.24
Lee DSS	11.18	13.80	14.50	15.84	16.15	15.25
LWC DSS Total	**26.16**	**30.95**	**32.92**	**35.20**	**36.32**	**36.22**

DSS = Domestic Self-Supply; LWC = Lower West Coast; mgd = million gallons per day.

AGRICULTURE

Water demands reported under AG include water used for agricultural production, such as farm irrigation, operation of greenhouses and nurseries, and raising livestock. Water used in the processing of agricultural commodities is accounted for under the CII category.

The 2017 LWC Plan Update relied on various sources to develop agricultural acreage estimates and projections, including agricultural water use permits, parcel-level land use maps, and results from the United States Census of Agriculture. Irrigated acres were translated to water volume estimates (in mgd) using the Agricultural Field-Scale Irrigation Requirements Simulation (AFSIRS) model (Smajstrla 1990).

Florida State legislation passed in 2013 prescribed a new approach for water management districts to consider when developing agricultural water demands for regional water supply plans. Section 570.93, F.S. directs the Florida Department of Agriculture and Consumer Services (FDACS) to develop annual statewide agricultural acreage and water demand projections based on the same 20-year planning horizon used in water supply planning. Under Section 373.709(2)(a), F.S., water management districts are required to consider FDACS projections, and any adjustments or deviations from the projections published by FDACS, "…must be fully described, and the original data must be presented along with the adjusted data."

AG Projection Methodology

FSAID VIII Acreage and Demands Data

FDACS publishes 20-year agricultural acreage and associated water demand projections in annual Florida Statewide Agricultural Irrigation Demand (FSAID) reports. The eighth annual report (referred to as FSAID VIII) was published in 2021 (FDACS 2021). The FSAID VIII acres (**Table A-10**) were used for this 2022 LWC Plan Update to calculate AG demands. For the purposes of this 2022 LWC Plan Update, the 2019 acres in FSAID VIII were considered representative of 2020 conditions. The FSAID VIII demands, as calculated by FDACS (**Table A-11**), were not used in this plan update, and the deviation from using these projections is described below.

Table A-10. Irrigated agricultural acres in the LWC Planning Area (From FDACS 2021).

Crop	2020*	2025	2030	2035	2040	2045
Citrus	118,047	121,391	125,269	125,194	124,675	124,820
Sugarcane	88,640	85,844	85,864	86,104	86,382	86,706
Fresh Market Vegetables	60,251	60,146	59,744	60,851	62,156	62,961
Hay/Pasture	16,223	16,161	16,454	16,816	16,806	16,806
Greenhouse/Nursery	3,239	3,026	2,955	3,740	4,372	5,239
Sod	3,328	3,294	3,294	3,294	3,250	3,287
Potatoes	1,279	1,279	1,279	1,409	1,471	1,199
Field Crops	188	188	281	1,292	2,875	4,244
Fruits (Non-Citrus)	570	570	570	1169	1,397	1,800
Total	**291,765**	**291,899**	**295,709**	**299,870**	**303,383**	**307,062**

FDACS = Florida Department of Agriculture and Consumer Services; LWC = Lower West Coast.
* 2019 acres are considered representative of 2020 conditions for the purposes of this plan update.

Table A-11. Irrigated agricultural demands (in mgd) in the LWC Planning Area (From FDACS 2021).

Crop	2020*	2025	2030	2035	2040	2045
Citrus	104.62	108.42	112.45	112.22	111.50	111.27
Sugarcane	109.19	105.79	105.83	106.17	106.56	107.01
Fresh Market Vegetables	84.16	83.95	83.57	85.25	87.19	88.42
Hay/Pasture	9.89	9.76	9.91	10.21	10.20	10.20
Greenhouse/Nursery	8.39	7.86	7.66	9.37	10.78	12.69
Sod	3.33	3.30	3.30	3.30	3.25	3.32
Potatoes	1.45	1.46	1.46	1.60	1.67	1.37
Field Crops	0.15	0.15	0.23	1.04	2.31	3.42
Fruits (Non-Citrus)	1.22	1.21	1.22	2.31	2.72	3.43
Total	**322.40**	**321.90**	**325.63**	**331.47**	**336.18**	**341.13**

FDACS = Florida Department of Agriculture and Consumer Services; LWC = Lower West Coast; mgd = million gallons per day.
* 2019 acres are considered representative of 2020 conditions for the purposes of this plan update.

Prior to the publication of the FSAID VIII report, SFWMD staff identified FSAID VII parcels for removal from irrigated acreage based on visual inspection of historical aerial imagery, recent regulatory water use data, and the location of recently implemented surface water management or environmental restoration projects. All edits were made in coordination with FDACS and integrated into the FSAID VIII report. The FSAID VIII acreage estimates, and projections are used in this 2022 LWC Plan Update; however, water demands were calculated separately by SFWMD staff using the AFSIRS model. AG demands published in the 2017 LWC Plan Update and in other regional water supply plans were developed using the AFSIRS model. Alternative demands developed using FSAID VIII acreages and the AFSIRS model were evaluated with the demands published in the FSAID VIII report, as described below.

Comparison of FSAID VIII and AFSIRS Demands

The estimated 2020 and projected 2045 demands from the AFSIRS model were compared to the demands in the FSAID VIII report. Both sets of demands are based on the same irrigated acreages, established in the FSAID VIII report. Despite being based on the same unadjusted irrigated footprint, the demand projections differed by 268.14 mgd in 2020 and 278.79 mgd in 2045 (**Figure A-5**).

The SFWMD uses AFSIRS to estimate demands simulated in regional groundwater models, and the demands using AFSIRS resemble those obtained through the SFWMD's permitting methods. After reviewing water demands from FSAID VIII and AFSIRS, the SFWMD chose to use water demand estimates and projections from AFSIRS based on irrigated acres published in the FSAID VIII report. The decision to deviate from water demands published in the FSAID VIII report was made to maintain a consistent approach with previous planning and regional modeling efforts.

Data for soil type, rainfall, reference evapotranspiration, and irrigation method are among the key inputs for AFSIRS to calculate current and future demands. Soil input data were obtained from the Natural Resources Conservation Service's SSURGO database. Daily rainfall data were obtained from the SFWMD's Next Generation Radar (NEXRAD) rainfall data set. Reference evapotranspiration data were obtained from the United States Geological Survey's statewide evapotranspiration information and data. The irrigation method for each irrigated parcel used with AFSIRS is part of the FSAID VIII data set. Most citrus groves are irrigated via micro-spray. Flood irrigation is the most common method for all other crop categories.

Water demands associated with livestock and aquaculture production complete the demands for the AG category. Demands for these activities were taken directly from the FSAID VIII report (FDACS 2021) without adjustment.

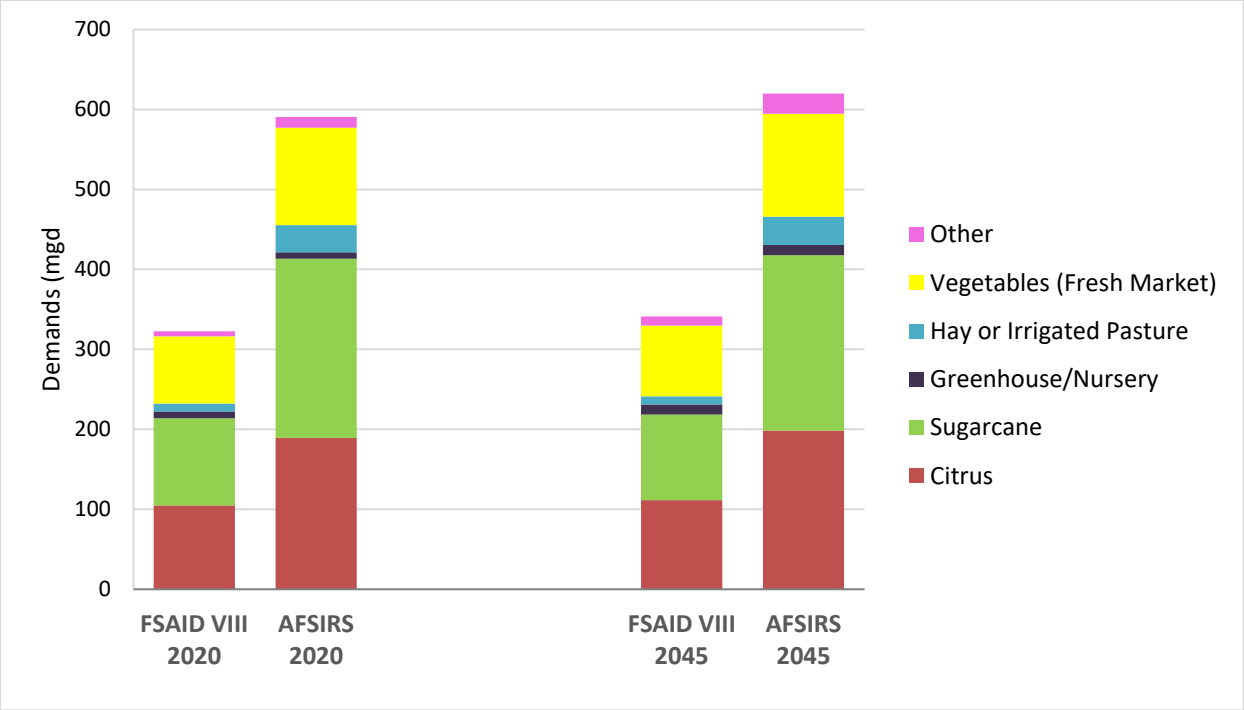

Figure A-5. Comparison of average water demands from the eighth Florida Statewide Agricultural Irrigation Demand (FSAID VIII) report and the Agricultural Field-Scale Irrigation Requirements Simulation (AFSIRS). Note: The "Other" category includes commodities combined from **Table A-11** that are not graphed individually.

AG Projection Results

AG acres and water demands depend on the choices of individual agricultural producers from year to year. Those choices are affected by several factors, including weather, markets, disease, proprietary information, and urban development pressure. AG projections can be affected by population changes as well as future land use conversions.

The gross irrigation requirements for various crop types under the AG category are provided in **Tables A-12** to **A-19**. **Tables A-20** and **A-21** summarize the gross water requirements for livestock and aquaculture.

Citrus

Table A-12 presents the citrus acreage and gross irrigation requirement (water withdrawal demand) projections under average rainfall and 1-in-10-year drought conditions.

Table A-12. Gross irrigation demands (in mgd) for citrus acreage in the LWC Planning Area.

	2020	2025	2030	2035	2040	2045
Charlotte County*						
Irrigated acreage	7,214	7,214	7,339	7,339	7,339	7,339
Average rainfall	13.41	13.41	13.59	13.59	13.59	13.59
1-in-10-year drought	16.41	16.41	16.72	16.72	16.72	16.72
Collier County						
Irrigated acreage	36,568	36,058	36,058	35,827	35,322	35,176
Average rainfall	56.82	55.47	55.47	53.80	53.12	52.82
1-in-10-year drought	70.58	68.00	68.00	66.01	65.25	65.31
Glades County*						
Irrigated acreage	3,258	5,852	7,906	8,035	8,210	8,416
Average rainfall	5.49	9.87	13.33	13.45	13.68	14.03
1-in-10-year drought	8.69	11.87	16.33	16.95	17.18	17.23
Hendry County*						
Irrigated acreage	59,252	60,513	62,212	62,238	62,441	62,527
Average rainfall	95.65	96.23	96.75	97.02	97.95	100.85
1-in-10-year drought	117.31	119.30	121.97	122.01	122.33	122.50
Lee County						
Irrigated acreage	11,754	11,754	11,754	11,754	11,363	11,363
Average rainfall	17.70	17.70	17.70	17.70	17.16	17.16
1-in-10-year drought	23.80	23.80	23.80	23.80	22.96	22.96
LWC Planning Area Total						
Irrigated acreage	**118,047**	**121,391**	**125,269**	**125,194**	**124,675**	**124,821**
Average rainfall	**189.07**	**192.68**	**196.84**	**195.56**	**195.50**	**198.45**
1-in-10-year drought	**236.79**	**239.38**	**246.82**	**245.82**	**244.44**	**244.72**

LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

Citrus Grove

Sugarcane

Table A-13 presents the sugarcane acreage and gross irrigation requirement (water withdrawal demand) projections under average rainfall and 1-in-10-year drought conditions.

Table A-13. Gross irrigation demands (in mgd) for sugarcane acreage in the LWC Planning Area.

	2020	2025	2030	2035	2040	2045
Charlotte County*						
Irrigated acreage	0	0	0	0	0	0
Average rainfall	0.00	0.00	0.00	0.00	0.00	0.00
1-in-10-year drought	0.00	0.00	0.00	0.00	0.00	0.00
Collier County						
Irrigated acreage	0	0	0	0	0	0
Average rainfall	0.00	0.00	0.00	0.00	0.00	0.00
1-in-10-year drought	0.00	0.00	0.00	0.00	0.00	0.00
Glades County*						
Irrigated acreage	28,684	25,777	25,784	26,018	26,290	26,466
Average rainfall	73.55	66.09	66.11	66.71	67.41	67.86
1-in-10-year drought	83.05	75.59	75.51	75.71	76.81	77.16
Hendry County*						
Irrigated acreage	59,956	60,067	60,080	60,086	60,092	60,240
Average rainfall	150.64	150.92	150.95	150.97	150.98	151.36
1-in-10-year drought	169.29	169.57	169.60	169.62	169.63	170.01
Lee County						
Irrigated acreage	0	0	0	0	0	0
Average rainfall	0.00	0.00	0.00	0.00	0.00	0.00
1-in-10-year drought	0.00	0.00	0.00	0.00	0.00	0.00
LWC Planning Area Total						
Irrigated acreage	**88,640**	**85,844**	**85,864**	**86,104**	**86,382**	**86,706**
Average rainfall	**224.19**	**217.02**	**217.07**	**217.68**	**218.40**	**219.22**
1-in-10-year drought	**252.34**	**245.17**	**245.12**	**245.33**	**246.45**	**247.17**

LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

Sugarcane

Fresh Market Vegetables

Table A-14 presents the fresh market vegetable acreage and gross irrigation requirement (water withdrawal demand) projections under average rainfall and 1-in-10-year drought conditions, assuming two plantings per year, lasting 4 months each.

Table A-14. Gross irrigation demands (in mgd) for fresh market vegetable acreage in the LWC Planning Area.

	2020	2025	2030	2035	2040	2045
Charlotte County*						
Irrigated acreage	8,259	8,259	8,259	8,284	8,423	8,499
Average rainfall	16.00	16.00	16.00	16.05	16.32	16.47
1-in-10-year drought	17.50	17.50	17.50	17.55	17.82	17.97
Collier County						
Irrigated acreage	33,169	33,127	32,774	32,668	32,655	32,074
Average rainfall	72.11	72.02	71.25	71.02	70.99	69.73
1-in-10-year drought	83.11	83.02	82.25	82.02	81.99	80.73
Glades County*						
Irrigated acreage	907	907	907	1,835	2,592	3,280
Average rainfall	2.52	2.52	2.52	5.10	7.20	9.11
1-in-10-year drought	4.02	4.02	4.02	6.60	8.70	10.61
Hendry County*						
Irrigated acreage	14,048	14,048	14,048	14,419	14,962	15,631
Average rainfall	24.65	24.65	24.65	25.30	26.25	27.42
1-in-10-year drought	30.05	30.05	30.05	30.70	31.65	32.82
Lee County						
Irrigated acreage	3,868	3,805	3,755	3,644	3,524	3,477
Average rainfall	6.79	6.68	6.59	6.39	6.27	6.10
1-in-10-year drought	8.57	8.46	8.37	8.68	8.52	7.88
LWC Planning Area Total						
Irrigated acreage	**60,251**	**60,146**	**59,743**	**60,850**	**62,156**	**62,961**
Average rainfall	**122.07**	**121.87**	**121.01**	**123.86**	**127.03**	**128.83**
1-in-10-year drought	**143.25**	**143.05**	**142.19**	**145.55**	**148.68**	**150.01**

LWC = Lower West Coast; mgd = million gallons per day.

* Values listed are only for the area within the LWC Planning Area boundary.

Hay/Irrigated Pasture

Table A-15 presents the hay/pasture acreage and gross irrigation requirement (water withdrawal demand) projections under average rainfall and 1-in-10-year drought conditions. The FSAID acres for this category are labeled and modeled as hay. The associated demands calculated with AFSIRS are assumed to capture irrigation for hay and any irrigation used for improved pasture.

Table A-15. Gross irrigation demands (in mgd) for hay/pasture acreage in the LWC Planning Area.

	2020	2025	2030	2035	2040	2045
Charlotte County*						
Irrigated acreage	408	408	408	408	408	408
Average rainfall	0.88	0.88	0.88	0.88	0.88	0.88
1-in-10-year drought	1.88	1.88	1.88	1.88	1.88	1.88
Collier County						
Irrigated acreage	655	655	655	655	655	655
Average rainfall	1.34	1.34	1.34	1.34	1.34	1.34
1-in-10-year drought	1.51	1.51	1.51	1.51	1.51	1.51
Glades County*						
Irrigated acreage	6,340	6,340	6,557	6,654	6,654	6,654
Average rainfall	14.09	14.09	14.57	14.79	14.79	14.79
1-in-10-year drought	16.21	16.21	16.69	16.91	16.91	16.91
Hendry County*						
Irrigated acreage	8,662	8,662	8,777	9,043	9,043	9,043
Average rainfall	17.50	17.50	17.73	18.27	18.27	18.27
1-in-10-year drought	20.35	20.35	20.58	21.12	21.12	21.12
Lee County						
Irrigated acreage	158	96	57	57	47	47
Average rainfall	0.22	0.14	0.08	0.08	0.07	0.07
1-in-10-year drought	0.58	0.39	0.33	0.33	0.43	0.43
LWC Planning Area Total						
Irrigated acreage	**16,223**	**16,161**	**16,454**	**16,817**	**16,807**	**16,807**
Average rainfall	**34.03**	**33.94**	**34.60**	**35.36**	**35.34**	**35.34**
1-in-10-year drought	**40.53**	**40.34**	**40.99**	**41.75**	**41.84**	**41.84**

LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

Greenhouse/Nursery

Table A-16 presents the greenhouse/nursery acreage and gross irrigation requirement (water withdrawal demand) projections under average rainfall and 1-in-10-year drought conditions.

Table A-16. Gross irrigation demands (in mgd) for greenhouse/nursery acreage in the LWC Planning Area

	2020	2025	2030	2035	2040	2045
Charlotte County*						
Irrigated acreage	0	0	0	0	0	0
Average rainfall	0.00	0.00	0.00	0.00	0.00	0.00
1-in-10-year drought	0.00	0.00	0.00	0.00	0.00	0.00
Collier County						
Irrigated acreage	480	322	322	322	322	322
Average rainfall	1.09	0.73	0.73	0.73	0.73	0.73
1-in-10-year drought	1.18	0.82	0.82	0.82	0.82	0.82
Glades County*						
Irrigated acreage	270	270	293	936	1,260	1,721
Average rainfall	0.72	0.72	0.79	2.51	3.38	4.61
1-in-10-year drought	0.79	0.84	0.93	5.51	6.38	7.61
Hendry County*						
Irrigated acreage	234	234	234	411	720	1,126
Average rainfall	0.48	0.48	0.48	0.84	1.47	2.30
1-in-10-year drought	0.56	0.56	0.56	0.92	1.55	2.38
Lee County						
Irrigated acreage	2,255	2,200	2,106	2,070	2,070	2,070
Average rainfall	5.57	5.43	5.20	5.11	5.11	5.11
1-in-10-year drought	6.01	5.87	5.64	5.55	5.55	5.55
LWC Planning Area Total						
Irrigated acreage	**3,239**	**3,026**	**2,955**	**3,740**	**4,372**	**5,239**
Average rainfall	**7.86**	**7.37**	**7.20**	**9.19**	**10.69**	**12.76**
1-in-10-year drought	**8.54**	**8.10**	**7.95**	**12.80**	**14.30**	**16.37**

LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

Sod

Table A-17 presents the sod acreage and gross irrigation requirement (water withdrawal demand) projections under average rainfall and 1-in-10-year drought conditions.

Table A-17. Gross irrigation demands (in mgd) for sod acreage in the LWC Planning Area.

	2020	2025	2030	2035	2040	2045
Charlotte County*						
Irrigated acreage	466	466	466	466	466	466
Average rainfall	1.32	1.32	1.32	1.32	1.32	1.32
1-in-10-year drought	1.72	1.72	1.72	1.72	1.72	1.72
Collier County						
Irrigated acreage	570	570	570	570	570	570
Average rainfall	1.48	1.48	1.48	1.48	1.48	1.48
1-in-10-year drought	1.76	1.76	1.76	1.76	1.76	1.76
Glades County*						
Irrigated acreage	455	455	455	455	455	487
Average rainfall	1.42	1.42	1.42	1.42	1.42	1.52
1-in-10-year drought	2.27	2.27	2.27	2.27	2.27	2.37
Hendry County*						
Irrigated acreage	1,747	1,747	1,747	1,747	1,747	1,753
Average rainfall	4.60	4.60	4.60	4.60	4.60	4.61
1-in-10-year drought	5.05	5.05	5.05	5.05	5.05	5.06
Lee County						
Irrigated acreage	90	56	56	56	12	12
Average rainfall	0.37	0.32	0.32	0.32	0.05	0.05
1-in-10-year drought	0.48	0.34	0.34	0.34	0.16	0.16
LWC Planning Area Total						
Irrigated acreage	**3,328**	**3,294**	**3,294**	**3,294**	**3,250**	**3,287**
Average rainfall	**9.20**	**9.15**	**9.15**	**9.15**	**8.88**	**8.99**
1-in-10-year drought	**11.29**	**11.15**	**11.15**	**11.15**	**10.97**	**11.08**

LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

Sod Farm

Potatoes

Table A-18 presents the potato acreage and gross irrigation requirement (water withdrawal demand) projections under average rainfall and 1-in-10-year drought conditions.

Table A-18. Gross irrigation demands (in mgd) for potato acreage in the LWC Planning Area.

	2020	2025	2030	2035	2040	2045
Charlotte County*						
Irrigated acreage	0	0	0	0	0	0
Average rainfall	0.00	0.00	0.00	0.00	0.00	0.00
1-in-10-year drought	0.00	0.00	0.00	0.00	0.00	0.00
Collier County						
Irrigated acreage	0	0	0	0	0	0
Average rainfall	0.00	0.00	0.00	0.00	0.00	0.00
1-in-10-year drought	0.00	0.00	0.00	0.00	0.00	0.00
Glades County*						
Irrigated acreage	0	0	0	264	287	304
Average rainfall	0.00	0.00	0.00	0.48	0.52	0.55
1-in-10-year drought	0.20	0.20	0.20	0.68	0.72	0.75
Hendry County*						
Irrigated acreage	131	131	131	137	175	175
Average rainfall	0.24	0.24	0.24	0.25	0.32	0.32
1-in-10-year drought	0.28	0.28	0.28	0.29	0.36	0.36
Lee County						
Irrigated acreage	1,147	1,147	1,147	1,009	1,009	719
Average rainfall	2.49	2.49	2.49	2.19	2.19	1.56
1-in-10-year drought	2.70	2.70	2.70	2.40	2.40	1.77
LWC Planning Area Total						
Irrigated acreage	**1,278**	**1,278**	**1,278**	**1,410**	**1,471**	**1,198**
Average rainfall	**2.73**	**2.73**	**2.73**	**2.92**	**3.03**	**2.43**
1-in-10-year drought	**3.18**	**3.18**	**3.18**	**3.37**	**3.48**	**2.88**

LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

Field Crops

Table A-19 presents the field crop acreage and gross irrigation requirement (water withdrawal demand) projections under average rainfall and 1-in-10-year drought conditions.

Table A-19. Gross irrigation demands (in mgd) for field crop acreage in the LWC Planning Area.

	2020	2025	2030	2035	2040	2045
Charlotte County*						
Irrigated acreage	0	0	0	92	92	129
Average rainfall	0.00	0.00	0.00	0.22	0.22	0.31
1-in-10-year drought	0.00	0.00	0.00	0.76	0.76	0.85
Collier County						
Irrigated acreage	0	0	0	0	0	0
Average rainfall	0.00	0.00	0.00	0.00	0.00	0.00
1-in-10-year drought	0.00	0.00	0.00	0.00	0.00	0.00
Glades County*						
Irrigated acreage	149	149	241	725	1,510	2,209
Average rainfall	0.40	0.40	0.65	1.95	4.06	5.94
1-in-10-year drought	0.71	0.71	0.96	2.26	4.37	6.25
Hendry County*						
Irrigated acreage	39	39	39	475	1,273	1,906
Average rainfall	0.10	0.10	0.10	1.17	3.14	4.71
1-in-10-year drought	0.18	0.18	0.18	1.25	3.22	4.79
Lee County						
Irrigated acreage	0	0	0	0	0	0
Average rainfall	0.00	0.00	0.00	0.00	0.00	0.00
1-in-10-year drought	0.00	0.00	0.00	0.00	0.00	0.00
LWC Planning Area Total						
Irrigated acreage	**188**	**188**	**280**	**1,292**	**2,875**	**4,244**
Average rainfall	**0.50**	**0.50**	**0.74**	**3.35**	**7.43**	**10.96**
1-in-10-year drought	**0.89**	**0.89**	**1.13**	**3.51**	**7.59**	**11.03**

LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

Corn

Fruits (Non-Citrus)

Table A-20 presents the fruits (non-citrus) acreage and gross irrigation requirement (water withdrawal demand) projections under average rainfall and 1-in-10-year drought conditions.

Table A-20. Gross irrigation demands (in mgd) for fruits (non-citrus) acreage in the LWC Planning Area.

	2020	2025	2030	2035	2040	2045
Charlotte County*						
Irrigated acreage	0	0	0	97	97	150
Average rainfall	0.00	0.00	0.00	0.15	0.15	0.23
1-in-10-year drought	0.00	0.00	0.00	0.19	0.19	0.27
Collier County						
Irrigated acreage	80	80	80	80	80	80
Average rainfall	0.12	0.12	0.12	0.12	0.12	0.12
1-in-10-year drought	0.16	0.16	0.16	0.16	0.16	0.16
Glades County*						
Irrigated acreage	269	269	269	625	729	1,069
Average rainfall	0.45	0.45	0.45	1.03	1.21	1.77
1-in-10-year drought	1.35	1.35	1.35	1.93	2.11	2.67
Hendry County*						
Irrigated acreage	58	58	58	204	328	346
Average rainfall	0.10	0.10	0.10	0.35	0.57	0.60
1-in-10-year drought	0.12	0.12	0.12	0.37	0.59	0.62
Lee County						
Irrigated acreage	162	162	162	162	162	155
Average rainfall	0.14	0.14	0.14	0.14	0.14	0.13
1-in-10-year drought	0.18	0.18	0.18	0.18	0.18	0.17
LWC Planning Area Total						
Irrigated acreage	**569**	**569**	**569**	**1,168**	**1,396**	**1,800**
Average rainfall	**0.81**	**0.81**	**0.81**	**1.80**	**2.18**	**2.85**
1-in-10-year drought	**1.81**	**1.81**	**1.81**	**2.84**	**3.22**	**3.89**

LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

Livestock

Table A-21 presents the FSAID VIII water demand projections for livestock. Livestock demands published in the FSAID VIII report were developed with assumed water requirements per head of livestock. Livestock demands were assumed to be the same under average rainfall and 1-in-10-year drought conditions.

Table A-21. Gross water demands (in mgd) for livestock in the LWC Planning Area.

2020	2025	2030	2035	2040	2045
Charlotte County					
0.18	0.18	0.18	0.18	0.18	0.18
Collier County					
0.12	0.12	0.12	0.12	0.12	0.12
Glades County					
0.28	0.28	0.28	0.28	0.28	0.28
Hendry County					
0.40	0.40	0.40	0.40	0.40	0.40
Lee County					
0.15	0.15	0.15	0.15	0.15	0.15
LWC Planning Area					
1.13	**1.13**	**1.13**	**1.13**	**1.13**	**1.13**

LWC = Lower West Coast; mgd = million gallons per day.
Note: Water demands for livestock were obtained from the eighth Florida Statewide Agricultural Irrigation Demand (FSAID VIII) report, not calculated using the Agricultural Field-Scale Irrigation Requirements Simulation (AFSIRS) model.

Cattle

Aquaculture

Table A-22 presents the FSAID VIII water demand projections for aquaculture. Aquaculture demands were assumed to be the same under average rainfall and 1-in-10-year drought conditions.

Table A-22. Gross water demands (in mgd) for aquaculture in the LWC Planning Area.

2020	2025	2030	2035	2040	2045
Charlotte County					
0.08	0.08	0.08	0.08	0.08	0.08
Collier County					
0.05	0.05	0.05	0.05	0.05	0.05
Glades County					
0.03	0.03	0.03	0.03	0.03	0.03
Hendry County					
0.19	0.19	0.19	0.19	0.19	0.19
Lee County					
0.09	0.09	0.09	0.09	0.09	0.09
LWC Planning Area					
0.44	**0.44**	**0.44**	**0.44**	**0.44**	**0.44**

LWC = Lower West Coast; mgd = million gallons per day.
Note: Water demands for aquaculture were obtained from the eighth Florida Statewide Agricultural Irrigation Demand (FSAID VIII) report, not calculated using the Agricultural Field-Scale Irrigation Requirements Simulation (AFSIRS) model.

Summary of Agricultural Results

Irrigated agricultural acres are projected to increase 5% over the planning horizon, from 291,765 to 307,062 acres (**Tables A-23** and **A-24**). The majority of the counties are projected to experience rise in demands, except for Collier and Lee counties which will continue to exhibit reduction of irrigated acres and AG demands through 2045 (**Table A-24**). AG demands across the LWC Planning Area are projected to increase approximately 5%, from 590.45 mgd in 2020 to 619.83 mgd in 2045 under average rainfall conditions. Sugarcane accounts for the largest share of AG demands: 224.28 mgd in 2020 and 219.31 mgd in 2045. Citrus and fresh market vegetables had the second and third largest AG demands, respectively, with 189.07 mgd for citrus in 2020 and 198.45 mgd in 2045, whereas fresh market vegetables accounted for 122.06 mgd in 2020 and 128.83 mgd by 2045. Field crops have the greatest demand increase over the planning period of 0.50 mgd in 2020 and 10.96 mgd by 2045.

Table A-23. Summary of gross water demands (in mgd) for all agricultural acreage, livestock, and aquaculture in the LWC Planning Area, by commodity.

	2020	2025	2030	2035	2040	2045
Citrus						
Irrigated acres	118,047	121,391	125,269	125,193	124,675	124,820
Average rainfall	189.07	192.68	196.84	195.56	195.50	198.45
1-in-10-year drought	236.79	239.38	246.82	245.99	245.00	244.72
Sugarcane						
Irrigated acres	88,640	85,844	85,864	86,104	86,382	86,706
Average rainfall	224.19	217.02	217.07	217.68	218.4	219.22
1-in-10-year drought	252.34	245.17	245.12	245.33	246.45	247.17
Fresh Market Vegetables						
Irrigated acres	60,251	60,146	59,744	60,851	62,156	62,961
Average rainfall	122.06	121.86	121.02	123.86	127.03	128.83
1-in-10-year drought	143.24	143.05	142.19	145.80	148.88	150.87
Hay/Irrigated Pasture						
Irrigated acres	16,223	16,161	16,454	16,816	16,806	16,806
Average rainfall	34.03	33.94	34.6	35.36	35.34	35.34
1-in-10-year drought	40.53	40.34	40.98	41.75	41.84	41.84
Greenhouse/Nursery						
Irrigated acres	3,239	3,026	2,955	3,740	4,372	5,239
Average rainfall	7.86	7.37	7.20	9.19	10.69	12.76
1-in-10-year drought	8.54	8.10	7.95	12.80	14.30	16.37
Sod						
Irrigated acres	3,328	3,294	3,294	3,294	3,250	3,287
Average rainfall	9.2	9.15	9.15	9.15	8.88	8.99
1-in-10-year drought	11.29	11.15	11.15	11.15	10.97	11.08
Potatoes						
Irrigated acres	1,279	1,279	1,279	1,410	1,471	1,199
Average rainfall	2.73	2.73	2.73	2.92	3.03	2.43
1-in-10-year drought	3.18	3.18	3.18	3.37	3.48	2.88
Field Crops						
Irrigated acres	188	188	281	1,292	2,875	4,244
Average rainfall	0.50	0.50	0.74	3.35	7.43	10.96
1-in-10-year drought	0.89	0.89	1.13	3.51	7.59	11.03
Fruits (Non-Citrus)						
Irrigated acres	570	570	570	1,169	1,397	1,800
Average rainfall	0.81	0.81	0.81	1.8	2.18	2.85
1-in-10-year drought	1.81	1.81	1.81	2.84	3.22	3.89
Livestock						
Irrigated acres	--	--	--	--	--	--
Average rainfall	1.13	1.13	1.13	1.13	1.13	1.13
1-in-10-year drought	1.13	1.13	1.13	1.13	1.13	1.13

Table A-23. Continued.

	2020	2025	2030	2035	2040	2045
Aquaculture						
Irrigated acres	--	--	--	--	--	--
Average rainfall	0.44	0.44	0.44	0.44	0.44	0.44
1-in-10-year drought	0.44	0.44	0.44	0.44	0.44	0.44
LWC Planning Area						
Irrigated acres	**291,765**	**291,899**	**295,709**	**299,869**	**303,384**	**307,062**
Average rainfall	**592.02**	**587.62**	**591.72**	**600.44**	**610.05**	**621.40**
1-in-10-year drought	**700.18**	**694.63**	**701.90**	**714.11**	**723.30**	**731.42**

LWC = Lower West Coast; mgd = million gallons per day.

Table A-24. Summary of gross water demands (in mgd) for all agricultural acreage, livestock, and aquaculture in the LWC Planning Area, by county.

	2020	2025	2030	2035	2040	2045
Charlotte County						
Irrigated acres	16,347	16,347	16,472	16,686	16,825	16,991
Average rainfall	31.88	31.88	32.06	32.48	32.75	33.06
1-in-10-year drought	37.52	37.52	37.83	38.83	39.10	39.42
Collier County						
Irrigated acres	71,522	70,812	70,459	70,122	69,604	68,877
Average rainfall	133.13	131.33	130.57	128.66	127.95	126.39
1-in-10-year drought	158.30	155.28	154.50	152.28	151.49	150.29
Glades County						
Irrigated acres	40,332	40,019	42,412	45,547	47,987	50,605
Average rainfall	98.95	95.87	100.14	107.75	113.97	120.49
1-in-10-year drought	117.29	113.06	118.25	128.82	135.44	141.57
Hendry County						
Irrigated acres	144,127	145,499	147,326	148,760	150,780	152,746
Average rainfall	294.54	295.40	296.18	299.37	304.14	311.02
1-in-10-year drought	343.18	345.45	348.38	351.33	355.50	359.66
Lee County						
Irrigated acres	19,434	19,220	19,037	18,752	18,187	17,843
Average rainfall	33.52	33.14	32.76	32.17	31.23	30.43
1-in-10-year drought	42.32	41.74	41.36	41.28	40.20	38.92
LWC Planning Area						
Irrigated acres	**291,762**	**291,897**	**295,706**	**299,868**	**303,383**	**307,062**
Average rainfall	**592.02**	**587.62**	**591.72**	**600.44**	**610.05**	**621.40**
1-in-10-year drought	**700.18**	**694.63**	**701.90**	**714.11**	**723.30**	**731.42**

LWC = Lower West Coast; mgd = million gallons per day.

COMMERCIAL/INDUSTRIAL/INSTITUTIONAL

The CII water use category includes water demands associated with commercial and industrial operations for processing, manufacturing, and technical needs such as concrete, citrus processing, and mining operations. Commercial or industrial or commercial users that receive water from PS utilities or use recirculated water in closed-loop geothermal heating and cooling systems are not included in CII demand calculations. Although a large portion of CII water used by the mining industry for activities such as rock washing is returned to the source, all mining water use is included in demand estimates and projections. All CII demand estimates and projections are presumed to be the same for average rainfall and 1-in-10-year drought conditions.

CII Projection Methodology

CII estimates and projections are based on water use data from the SFWMD's regulatory database. If an active CII permit holder did not report water use, demand estimates were calculated as described in the *2020 Estimated Water Use Report* (SFWMD 2022).

Increases in the CII category are expected to be driven by growth of the regional economy and permanent resident population. Therefore, CII projections are anticipated to increase steadily as county permanent resident populations increase. Previous analyses of the relationship between CII demands and population growth support this approach.

CII Projection Results

Table A-25 summarizes the current and projected CII demands in the LWC Planning Area in 5-year increments through 2045. Glades and Lee counties maintain the two-dominant share of the region's CII demands over the planning horizon.

Table A-25. CII demand projections in the LWC Planning Area.

County	Demand (mgd)					
	2020	2025	2030	2035	2040	2045
Charlotte*	0.07	0.08	0.08	0.09	0.09	0.09
Collier	7.52	8.19	8.76	9.29	9.75	10.14
Glades*	13.76	14.45	15.03	15.48	15.94	16.26
Hendry*	4.59	4.82	5.02	5.17	5.27	5.38
Lee	11.79	13.09	14.14	14.98	15.73	16.36
LWC Planning Area Total	**37.73**	**40.63**	**43.03**	**45.01**	**46.78**	**48.23**

CII = Industrial/Commercial/Institutional; LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

LANDSCAPE/RECREATIONAL

L/R water demands include irrigation for golf courses and other landscaped areas such as parks, sports fields, and common areas of residential developments. Demands were calculated using a combination of water use reported to the SFWMD as part of its regulatory compliance program and reclaimed water use reported by wastewater utilities to the FDEP. Demands under the L/R category include areas permitted by the SFWMD and areas not permitted but relying solely on reclaimed water for supplemental or back-up supply.

There are two types of irrigated landscaped areas outside those permitted by the SFWMD that are excluded from the L/R demands. The first type includes landscaped areas irrigated with potable water provided PS utilities. These demands are accounted for in PS estimates and projections. The second type is irrigated landscaped areas served by individual residential wells permitted by rule (Rule 40E-2.061, Florida Administrative Code) rather than with an individual water use permit.

L/R Projection Methodology

L/R 2020 water use data reported to the SFWMD and estimated data for those not required to report are available in the *2020 Estimated Water Use Report* (SFWMD 2022). The 2021 reuse inventory reports filed by wastewater utilities to the FDEP provided wastewater and reclaimed water use data for 2020. The 2020 use data from both sources were considered representative of demands under average rainfall conditions for 2020.

Both the SFWMD's reported water use and the 2021 reuse inventory reports by wastewater utilities allow for the disaggregation of L/R demands into the landscape and golf irrigation subcategories. Irrigated landscape and golf course acres indicated in **Table A-26** were calculated using the permitted L/R acreage from the SFWMD's regulatory database. L/R acreages reflect only the acres under water use permits and do not include acres irrigated solely with reclaimed water that do not have a water use permit for supplemental or back-up supply.

The distinction is made between L/R acres and demands for golf courses and other landscaped areas because they are projected to grow at different rates. Landscape irrigation was assumed to increase at the same rate as the counties' permanent resident populations. Golf course acreage and associated water demands are projected to remain relatively stable through 2045. This approach is used in other planning areas within the SFWMD and by other water management districts in Florida.

Table A-26. L/R permitted acres in the LWC Planning Area.

Land Use	Permitted Acres					
	2020	2025	2030	2035	2040	2045
Charlotte County*						
Landscape	220	238	234	248	260	270
Golf	0	0	125	125	130	130
Charlotte County Total	**220**	**238**	**359**	**373**	**390**	**400**
Collier County						
Landscape	9,369	10,212	10,927	11,583	12,162	12,648
Golf	8,166	8,166	8,166	7,839	7,839	7,839
Collier County Total	**17,535**	**18,378**	**19,093**	**19,422**	**20,001**	**20,487**
Glades County*						
Landscape	191	201	209	215	221	225
Golf	52	52	52	52	52	52
Glades County Total	**243**	**253**	**261**	**267**	**273**	**277**
Hendry County*						
Landscape	1,763	1,851	1,925	1,983	2,023	2,063
Golf	134	134	134	134	134	134
Hendry County Total	**1,897**	**1,985**	**2,059**	**2,117**	**2,157**	**2,197**
Lee County						
Landscape	10,933	12,136	13,107	13,893	14,588	15,172
Golf	5,015	5,015	5,015	5,015	5,015	5,015
Lee County Total	**15,948**	**17,151**	**18,122**	**18,908**	**19,603**	**20,187**
LWC Planning Area						
Landscape	22,476	24,638	26,402	27,922	29,254	30,378
Golf	13,367	13,367	13,492	13,165	13,170	13,170
LWC Planning Area Total	**35,843**	**38,005**	**39,894**	**41,087**	**42,424**	**43,548**

L/R = Landscape/Recreational; LWC = Lower West Coast.
* Values listed are only for the area within the LWC Planning Area boundary.

L/R Projection Results

Gross water demands for L/R were met with a combination of traditional water sources (groundwater and surface water) and reclaimed water. **Table A-27** shows that groundwater and surface water supply sources met approximately 64% of the 2020 L/R water demands, with reclaimed water supplementing the remaining 36%.

Table A-27. L/R gross water demands in the LWC Planning Area, by county and source.

Source	Demand – Average Rainfall Conditions (mgd)					
	2020	2025	2030	2035	2040	2045
Charlotte County*						
Groundwater/Surface Water	1.87	2.02	2.19	2.30	2.39	2.48
Reclaimed Water	0.81	0.81	0.81	0.81	0.81	0.81
Charlotte County Total	**2.68**	**2.83**	**3.00**	**3.11**	**3.20**	**3.29**
Collier County						
Groundwater/Surface Water	57.89	63.11	67.52	71.58	75.16	78.16
Reclaimed Water	26.91	24.01	21.55	19.29	17.29	15.62
Collier County Total	**84.80**	**87.12**	**89.07**	**90.87**	**92.45**	**93.78**
Glades County*						
Groundwater/Surface Water	0.18	0.19	0.20	0.20	0.20	0.20
Reclaimed Water	0.00	0.00	0.00	0.00	0.00	0.00
Glades County Total	**0.18**	**0.19**	**0.20**	**0.20**	**0.20**	**0.20**
Hendry County*						
Groundwater/Surface Water	0.64	0.67	0.70	0.72	0.73	0.74
Reclaimed Water	0.00	0.00	0.00	0.00	0.00	0.00
Hendry County Total	**0.64**	**0.67**	**0.70**	**0.72**	**0.73**	**0.74**
Lee County						
Groundwater/Surface Water	79.12	86.18	90.96	95.35	99.22	102.48
Reclaimed Water	51.75	56.49	60.03	62.90	65.43	67.55
Lee County Total	**130.87**	**142.67**	**150.99**	**158.25**	**164.65**	**170.03**
LWC Planning Area						
Groundwater/Surface Water	139.70	152.17	161.57	170.15	177.70	184.06
Reclaimed Water	79.47	81.31	82.39	83.00	83.53	83.98
LWC Planning Area Total	**219.17**	**233.48**	**243.96**	**253.15**	**261.23**	**268.04**

L/R = Landscape Recreational; LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

L/R gross irrigation demand projections under average rainfall conditions with reclaimed water are presented in **Table A-28**. The volume of reclaimed water meeting future L/R demands was increased at the same rate as the counties' permanent resident populations from 2020. This volume was then apportioned into landscape and golf by maintaining 2020 golf course utilization volumes (since acreage was relatively constant), and the remainder was assigned to landscape irrigation. **Table A-29** shows the estimated quantity of water needed to meet projected demands during 1-in-10-year drought conditions which includes reclaimed water.

Table A-28. L/R gross irrigation demands under average rainfall conditions in the LWC Planning Area.

Land Use	Demand – Average Rainfall Conditions (mgd)					
	2020	2025	2030	2035	2040	2045
Charlotte County*						
Landscape	2.24	2.39	2.51	2.62	2.71	2.80
Golf	0.44	0.44	0.49	0.49	0.49	0.49
Charlotte County Total	**2.68**	**2.83**	**3.00**	**3.11**	**3.20**	**3.29**
Collier County						
Landscape	44.34	46.66	48.61	51.01	52.59	53.92
Golf	40.46	40.46	40.46	39.86	39.86	39.86
Collier County Total	**84.80**	**87.12**	**89.07**	**90.87**	**92.45**	**93.78**
Glades County*						
Landscape	0.13	0.14	0.15	0.15	0.15	0.15
Golf	0.05	0.05	0.05	0.05	0.05	0.05
Glades County Total	**0.18**	**0.19**	**0.20**	**0.20**	**0.20**	**0.20**
Hendry County*						
Landscape	0.64	0.67	0.70	0.72	0.73	0.74
Golf	0.00	0.00	0.00	0.00	0.00	0.00
Hendry County Total	**0.64**	**0.67**	**0.70**	**0.72**	**0.73**	**0.74**
Lee County						
Landscape	100.75	112.55	120.87	128.13	134.53	139.91
Golf	30.12	30.12	30.12	30.12	30.12	30.12
Lee County Total	**130.87**	**142.67**	**150.99**	**158.25**	**164.65**	**170.03**
LWC Planning Area						
Landscape	148.10	162.41	172.84	182.63	190.71	197.52
Golf	71.07	71.07	71.12	70.52	70.52	70.52
LWC Planning Area Total	**219.17**	**233.48**	**243.96**	**253.15**	**261.23**	**268.04**

L/R = Landscape/Recreational; LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

Table A-29. L/R gross irrigation demands under 1-in-10-year drought conditions in the LWC Planning Area.

Land Use	Demand – 1-in-10-Year Drought Conditions (mgd)					
	2020	2025	2030	2035	2040	2045
Charlotte County*						
Landscape	2.82	3.01	3.16	3.30	3.41	3.53
Golf	0.57	0.57	0.64	0.64	0.64	0.64
Charlotte County Total	**3.39**	**3.58**	**3.80**	**3.94**	**4.05**	**4.17**
Collier County						
Landscape	55.87	58.79	61.25	64.27	66.26	67.94
Golf	52.60	52.60	52.60	51.82	51.82	51.82
Collier County Total	**108.47**	**111.39**	**113.85**	**116.09**	**118.08**	**119.76**
Glades County*						
Landscape	0.16	0.18	0.19	0.19	0.19	0.19
Golf	0.07	0.07	0.07	0.07	0.07	0.07
Glades County Total	**0.23**	**0.24**	**0.25**	**0.25**	**0.25**	**0.25**
Hendry County*						
Landscape	0.81	0.84	0.88	0.91	0.92	0.93
Golf	0.00	0.00	0.00	0.00	0.00	0.00
Hendry County Total	**0.81**	**0.84**	**0.88**	**0.91**	**0.92**	**0.93**
Lee County						
Landscape	126.95	141.81	152.30	161.44	169.51	176.29
Golf	39.16	39.16	39.16	39.16	39.16	39.16
Lee County Total	**166.10**	**180.97**	**191.45**	**200.60**	**208.66**	**215.44**
LWC Planning Area						
Landscape	186.61	204.64	217.78	230.11	240.29	248.88
Golf	92.39	92.39	92.46	91.68	91.68	91.68
LWC Planning Area Total	**279.00**	**297.03**	**310.23**	**321.79**	**331.97**	**340.55**

L/R = Landscape/Recreational; LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

POWER GENERATION

Demands under the PG category include use of groundwater, fresh surface water, or reclaimed water by thermoelectric power generation facilities. There are two power generation plants currently operating in Lee County that are addressed in this plan update: Florida Power & Light (FPL) Fort Myers and Lee County Solid Waste Energy Recovery Facility.

The FPL Fort Myers facility mainly uses brackish surface water from the Caloosahatchee River Estuary for its cooling tower technology as a one-time pass-through and is returned to the river. As a result, this is not considered as part of the demands, only the groundwater portion is considered. Groundwater is used for make-up water for steam generators, inlet spray coolers, and other industrial uses. For the planning period 2020 to 2045, the FPL Fort Myers facility is estimated to have a constant PG demand of 0.53 mgd. This demand is based on the average daily use in 2020 from groundwater sources.

The Lee County Solid Waste Energy Recovery Facility relies entirely on reclaimed water provided by the City of Fort Myers and is anticipated to continue relying on reclaimed water through the planning horizon. In 2020, 1.01 mgd of reclaimed water was supplied to this facility, and demands are anticipated to increase to 1.50 mgd by 2045.

No new power generation facilities are planned for construction or operation through 2045, and PG demands are projected to remain stable (**Table A-30**). All PG demand estimates and projections are presumed to be the same for average rainfall and 1-in-10-year drought conditions.

Table A-30. Average gross water demand for PG in the LWC Planning Area between 2020 and 2045.

Facilities	Gross Water Demand (mgd)					
	2020	2025	2030	2035	2040	2045
FPL – Fort Myers	0.53	0.53	0.53	0.53	0.53	0.53
Lee County Solid Waste	1.01	1.08	1.16	1.50	1.50	1.50
LWC Planning Area Total	**1.54**	**1.61**	**1.69**	**2.03**	**2.03**	**2.03**

FPL = Florida Power & Light; LWC = Lower West Coast; mgd = million gallons per day; PG = Power Generation.

SUMMARY OF DEMAND PROJECTIONS

Total demands for the LWC Planning Area are anticipated to increase by 146.25 mgd. AG demands are projected to increase modestly from 2020 to 2045, with 592.02 mgd to 621.40 mgd. PS and DSS are expected to increase due to the projected population growth of 428,472 permanent residents, reaching a combined demand of 202.01 mgd by 2045. Also driven by population growth, L/R demands are projected to reach 268.04 mgd by 2045. The demands for all remaining categories (CII and PG) are small and projected to be 50.26 mgd, combined, in 2045. Gross water demands in 5-year increments, by county and water use category, are provided in **Table A-31** for average rainfall conditions and **Table A-32** for 1-in-10-year drought conditions.

Table A-31. Summary of gross water demands under average rainfall conditions in the LWC Planning Area, by water use category.

Water Use Category	Demand – Average Rainfall Conditions (mgd)					
	2020	2025	2030	2035	2040	2045
Charlotte County*						
Public Supply	0.25	0.26	0.27	0.28	0.29	0.30
Domestic Self-Supply	0.27	0.30	0.32	0.34	0.36	0.37
Agriculture	31.88	31.88	32.06	32.48	32.75	33.07
Commercial/Industrial/Institutional	0.07	0.08	0.08	0.09	0.09	0.09
Landscape/Recreational	2.68	2.83	3.00	3.11	3.20	3.29
Power Generation	0.00	0.00	0.00	0.00	0.00	0.00
Charlotte County Total	**35.15**	**35.35**	**35.73**	**36.30**	**36.69**	**37.12**
Collier County						
Public Supply	58.5	62.73	66.84	70.60	73.9	76.85
Domestic Self-Supply	12.23	14.11	15.15	15.91	16.58	17.23
Agriculture	133.13	131.33	130.57	128.66	127.95	126.39
Commercial/Industrial/Institutional	7.52	8.19	8.76	9.29	9.75	10.14
Landscape/Recreational	84.80	87.12	89.07	90.87	92.45	93.78
Power Generation	0.00	0.00	0.00	0.00	0.00	0.00
Collier County Total	**296.18**	**303.48**	**310.39**	**315.33**	**320.63**	**324.39**
Glades County*						
Public Supply	0.82	0.87	0.91	0.94	0.97	0.99
Domestic Self-Supply	0.61	0.64	0.66	0.67	0.68	0.69
Agriculture	98.95	95.87	100.14	107.75	113.97	120.49
Commercial/Industrial/Institutional	13.76	14.45	15.03	15.48	15.94	16.26
Landscape/Recreational	0.18	0.19	0.20	0.20	0.20	0.20
Power Generation	0.00	0.00	0.00	0.00	0.00	0.00
Glades County Total	**114.32**	**112.02**	**116.94**	**125.04**	**131.76**	**138.63**
Hendry County*						
Public Supply	3.67	3.78	3.82	3.85	3.87	3.89
Domestic Self-Supply	0.80	0.88	0.97	1.05	1.11	1.17
Agriculture	294.54	295.40	296.18	299.36	304.14	311.01
Commercial/Industrial/Institutional	4.59	4.82	5.02	5.17	5.27	5.38
Landscape/Recreational	0.64	0.67	0.70	0.72	0.73	0.74
Power Generation	0.00	0.00	0.00	0.00	0.00	0.00
Hendry County Total	**304.24**	**305.55**	**306.69**	**310.15**	**315.12**	**322.19**
Lee County						
Public Supply	75.22	81.17	87.38	91.91	96.73	104
Domestic Self-Supply	10.64	13.14	13.81	15.09	15.38	14.52
Agriculture	33.52	33.14	32.76	32.18	31.23	30.45
Commercial/Industrial/Institutional	11.78	13.09	14.14	14.98	15.73	16.36
Landscape/Recreational	130.87	142.67	150.99	158.25	164.65	170.03
Power Generation	1.54	1.61	1.69	2.03	2.03	2.03
Lee County Total	**263.57**	**284.82**	**300.77**	**314.44**	**325.75**	**337.39**

Table A-31. Continued.

Water Use Category	Demand – Average Rainfall Conditions (mgd)					
	2020	2025	2030	2035	2040	2045
LWC Planning Area						
Public Supply	138.46	148.81	159.22	167.58	175.76	186.03
Domestic Self-Supply	24.55	29.07	30.91	33.06	34.11	33.98
Agriculture	592.02	587.62	591.71	600.43	610.04	621.41
Commercial/Industrial/Institutional	37.72	40.63	43.03	45.01	46.78	48.23
Landscape/Recreational	219.17	233.48	243.96	253.15	261.23	268.04
Power Generation	1.54	1.61	1.69	2.03	2.03	2.03
LWC Planning Area Total	**1,013.47**	**1,041.22**	**1,070.52**	**1,101.26**	**1,129.95**	**1,159.72**

LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

Table A-32. Summary of gross water demands under 1-in-10-year drought conditions in the LWC Planning Area, by water use category.

Water Use Category	Demand – 1-in-10-Year Drought Conditions (mgd)					
	2020	2025	2030	2035	2040	2045
Charlotte County*						
Public Supply	0.26	0.28	0.29	0.30	0.30	0.31
Domestic Self-Supply	0.28	0.31	0.34	0.36	0.38	0.39
Agriculture	37.52	37.52	37.83	38.83	39.10	39.42
Commercial/Industrial/Institutional	0.07	0.08	0.08	0.09	0.09	0.09
Landscape/Recreational	3.39	3.58	3.80	3.94	4.05	4.17
Power Generation	0.00	0.00	0.00	0.00	0.00	0.00
Charlotte County Total	**41.52**	**41.77**	**42.34**	**43.52**	**43.92**	**44.38**
Collier County						
Public Supply	62.96	67.49	71.90	75.93	79.47	82.63
Domestic Self-Supply	13.20	15.24	16.36	17.19	17.91	18.61
Agriculture	158.30	155.28	154.50	152.28	151.49	150.29
Commercial/Industrial/Institutional	7.52	8.19	8.76	9.29	9.75	10.14
Landscape/Recreational	108.47	111.39	113.85	116.09	118.08	119.76
Power Generation	0.00	0.00	0.00	0.00	0.00	0.00
Collier County Total	**350.45**	**357.59**	**365.37**	**370.78**	**376.70**	**381.43**
Glades County*						
Public Supply	0.87	0.92	0.96	1.00	1.03	1.05
Domestic Self-Supply	0.65	0.68	0.70	0.71	0.72	0.73
Agriculture	117.29	113.06	118.25	128.82	135.44	141.57
Commercial/Industrial/Institutional	13.76	14.45	15.03	15.48	15.94	16.26
Landscape/Recreational	0.23	0.24	0.25	0.25	0.25	0.25
Power Generation	0.00	0.00	0.00	0.00	0.00	0.00
Glades County Total	**132.80**	**129.35**	**135.19**	**146.26**	**153.38**	**159.86**

Table A-32. Continued.

Water Use Category	Demand – 1-in-10-Year Drought Conditions (mgd)					
	2020	2025	2030	2035	2040	2045
Hendry County*						
Public Supply	3.89	4.01	4.05	4.08	4.11	4.13
Domestic Self-Supply	0.85	0.93	1.03	1.11	1.17	1.24
Agriculture	343.18	345.45	348.38	351.33	355.50	359.66
Commercial/Industrial/Institutional	4.59	4.82	5.02	5.17	5.27	5.38
Landscape/Recreational	0.81	0.84	0.88	0.91	0.92	0.93
Power Generation	0.00	0.00	0.00	0.00	0.00	0.00
Hendry County Total	**353.32**	**356.05**	**359.36**	**362.60**	**366.97**	**371.34**
Lee County						
Public Supply	78.98	85.22	91.74	96.51	101.57	109.20
Domestic Self-Supply	11.18	13.80	14.50	15.84	16.15	15.25
Agriculture	42.32	41.74	41.36	41.28	40.20	38.92
Commercial/Industrial/Institutional	11.79	13.09	14.14	14.98	15.73	16.36
Landscape/Recreational	166.10	180.97	191.45	200.60	208.66	215.44
Power Generation	1.54	1.61	1.69	2.03	2.03	2.03
Lee County Total	**311.91**	**336.43**	**354.88**	**371.24**	**384.34**	**397.20**
LWC Planning Area						
Public Supply	146.96	157.92	168.94	177.82	186.48	197.32
Domestic Self-Supply	26.16	30.96	32.93	35.21	36.33	36.22
Agriculture	700.18	694.63	701.90	714.11	723.30	731.42
Commercial/Industrial/Institutional	37.73	40.63	43.03	45.01	46.78	48.23
Landscape/Recreational	279.00	297.03	310.23	321.79	331.97	340.55
Power Generation	1.54	1.61	1.69	2.03	2.03	2.03
LWC Planning Area Total	**1,191.58**	**1,222.77**	**1,258.71**	**1,295.95**	**1,326.89**	**1,355.77**

LWC = Lower West Coast; mgd = million gallons per day.
* Values listed are only for the area within the LWC Planning Area boundary.

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