A

Water Demand Projections

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POPULATION ESTIMATES AND PROJECTIONS

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 *2024 Lower Kissimmee Basin Water Supply Plan Update* (2024 LKB Plan Update) provides summary information, and this appendix describes the methods used to develop water demand estimates for the 2022 base year as well as projections through 2045 for the LKB 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 for PS are described and analyzed in two ways: gross (or raw) demand and net (or finished) demand.

This section presents the methodology used to develop the 2022 population estimates and 2045 population projections for the LKB 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 subcounty level to delineate domestic self-supply and utility service areas for DSS and PS demands. Section 373.709(2)(a)1., Florida Statutes (F.S.), prescribes the use of population projections in determining water supply needs in regional water supply plans, as follows:

> *Population projections used for determining public water supply needs must be based upon the best available data. In determining best available data, the district shall consider the University of Florida's Bureau of Economic and Business Research (BEBR) medium population projections and any population projection data and analysis submitted by a local government pursuant to the public workshop described in subsection (1) if the data and analysis support the local government's comprehensive plan. Any adjustment of or deviation from the BEBR projections must be fully described, and the original BEBR data must be presented along with the adjusted data.*

In accordance with Section 373.709(2)(a)1., F.S., permanent resident estimates and projections for each county, published by BEBR (Rayer 2023), were used as the basis of population projections in this 2024 LKB Plan Update. BEBR county population estimates and projections also are used by local governments in their Comprehensive Plans. Adjustments were made to include only the portions of Glades, Highlands, and Okeechobee counties within the LKB Planning Area. The 2022 permanent resident populations within the LKB Planning Area were as follows:

- Glades County: 4,214 permanent residents
- Highlands County: 8,562 permanent residents
- Okeechobee County: 39,658 permanent residents

Utility Service Areas

To establish current and future PS and DSS populations, each PS utility's 2022 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 2022 and 2045 utility service area maps based on information from utilities and the SFWMD's permit database. Okeechobee Utility Authority is the only PS utility with an expanded service area since 2019. Accuracy of the service area maps was verified through correspondence with all PS utilities.

Population Projection Methodology

Census block populations from the 2020 United States Census (United States Census Bureau 2020) and 2022 PS service area maps were used to estimate the 2022 permanent resident populations for PS utilities and DSS areas. Each census block within the LKB 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 2018 through 2022 were calculated by applying annual county growth rates published by BEBR with 2022 population estimates (Rayer 2023) and the United States Census Bureau (2020).

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 county population projections (BEBR medium) from BEBR (Rayer 2023). BEBR publishes low, medium, and high population projections to account for uncertainty in future population growth.

Population Projection Results

Table A-1 provides the results of the population distributions by county and PS utility (or DSS) from 2022 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 LKB Planning Area will contain 4,795 additional permanent residents by 2045, an increase of approximately 9%. The Okeechobee Utility Authority has the largest current and future populations, accounting for 51% of the region's projected 2045 PS population.

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

PS Utility or DSS	Service Area Population Projections						
	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Lakeport	1,579	1,584	1,592	1,605	1,618	1,630	1,644
OUA (Glades Portion)	1,488	1,493	2,579	3,658	4,728	4,740	4,752
STOF – Brighton[b]	725	746	752	773	794	815	836
PS Total	**3,792**	**3,823**	**4,923**	**6,036**	**7,140**	**7,185**	**7,232**
DSS Total	**361**	**391**	**461**	**427**	**381**	**336**	**289**
Glades County Total	**4,153**	**4,214**	**5,384**	**6,463**	**7,521**	**7,521**	**7,521**
Highlands County[a]							
Sebring Airport[c]	-	-	-	-	-	-	-
Spring Lake Improvement District	3,108	3,140	3,189	3,265	3,311	3,351	3,388
PS Total	**3,108**	**3,140**	**3,189**	**3,265**	**3,311**	**3,351**	**3,388**
DSS Total	**5,567**	**5,421**	**5,203**	**5,343**	**5,473**	**5,553**	**5,620**
Highlands County Total	**8,675**	**8,562**	**8,392**	**8,608**	**8,784**	**8,904**	**9,008**
Okeechobee County[a]							
Okeechobee Correctional	2,320	2,320	2,320	2,320	2,320	2,320	2,320
OUA (Okeechobee Portion)	23,586	23,661	23,775	23,965	24,085	24,205	24,326
PS Total	**25,906**	**25,981**	**26,095**	**26,285**	**26,405**	**26,525**	**26,646**
DSS Total	**13,725**	**13,677**	**13,605**	**13,715**	**13,895**	**13,975**	**14,054**
Okeechobee County Total	**39,631**	**39,658**	**39,700**	**40,000**	**40,300**	**40,500**	**40,700**
LKB Planning Area Total							
LKB Planning Area PS Total	**32,806**	**32,945**	**34,206**	**35,586**	**36,855**	**37,061**	**37,265**
LKB Planning Area DSS Total	**19,653**	**19,489**	**19,270**	**19,485**	**19,750**	**19,864**	**19,964**
LKB Planning Area Total	**52,459**	**52,434**	**53,476**	**55,071**	**56,605**	**56,925**	**57,229**

DSS = Domestic Self-Supply; LKB = Lower Kissimmee Basin; OUA = Okeechobee Utility Authority; PS = Public Supply; STOF = Seminole Tribe of Florida.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

[b] The STOF is a sovereign Indian Tribe and an independent Tribal Government separate from Glades County. However, for discussion purposes, information relating to the STOF Brighton Reservation is included in the calculations for Glades County.

[c] Population projections for the Sebring Airport are zero because there is no permanent population within the service area boundaries.

Comparing these 2024 LKB Plan Update population projections to those published in the *2019 Lower Kissimmee Basin Water Supply Plan* (2019 LKB Plan Update; SFWMD 2019) can provide insight into the importance of population growth rates based on BEBR medium 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 *2005–2006 Kissimmee Basin Water Supply Plan Update* (SFWMD 2006) were a result of the higher population growth rates prior to the recession. The BEBR medium projections used in the 2019 and this 2024 LKB Plan Update indicated slower growth rates compared to previous plans.

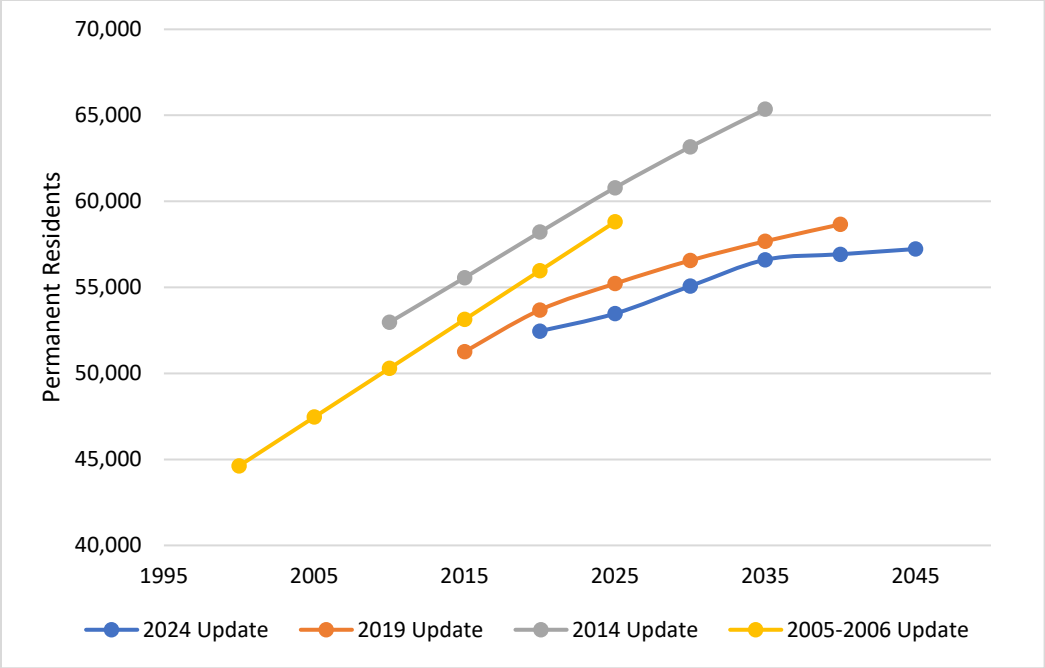

Figure A-1. Comparison of population projections from the *2005–2006 Kissimmee Basin Water Supply Plan Update* and the 2014, 2019, and 2024 LKB plan updates.

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 LKB 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 2018 through 2022 by the corresponding service area populations (permanent residents) for each year. The five annual PCURs were then averaged (**Table A-2**). Net (finished) water volumes for 2018 through 2022 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 were not factored into demand projections and PCURs due to water savings uncertainty. The average PCURs for each county 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 LKB Planning Area.

PS Utility or DSS	2018-2022 Average PCUR
Glades County[a]	
Lakeport	61
OUA (Glades Portion)	102
STOF – Brighton[b]	584
Glades County DSS	81
Glades County Average	**170**
Highlands County[a]	
Sebring Airport	N/A
Spring Lake Improvement District	69
Highlands County DSS	69
Highlands County Average	**69**
Okeechobee County[a]	
Okeechobee Correctional	95
OUA (Okeechobee Portion)	102
Okeechobee County DSS	102
Okeechobee County Average	**102**
LKB Planning Area Average	**101**

DSS = Domestic Self-Supply; LKB = Lower Kissimmee Basin; OUA = Okeechobee Utility Authority; PCUR = per capita use rate; PS = Public Supply; STOF = Seminole Tribe of Florida.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

[b] The STOF is a sovereign Indian Tribe and an independent Tribal Government separate from Glades County. However, for discussion purposes, information relating to the STOF Brighton Reservation is included in the calculations for Glades County.

Finished-to-Raw Water Conversion

Net (finished) demands (**Table A-3**) were calculated by multiplying the PS 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 are based on the gross (raw) water volume needed to meet service area demands, based on the demands projected at the time of the permit application. Therefore, it is important to present gross (raw) demands in water supply plans along with the net (finished) demands. To determine the projected gross (raw) water demand for each PS utility, net (finished) water projections were multiplied by finished-to-raw ratios (**Table A-4**), which are based on the treatment efficiency of each PS 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 finished-to-raw ratio would be 1.25 (10 mgd divided by 8 mgd).

Treatment efficiencies were determined from information supplied in the water use permit applications, from the FDEP Drinking Water Database (FDEP 2023), and from actual pumpage reports. 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. Finished-to-raw adjustments for potable water treatment plants in the LKB Planning Area

based on their treatment processes are shown in **Figure A-2**. Recent developments by the United States Environmental Protection Agency on the regulatory criteria for polyfluoroalkyl substances or PFAS could require changes in the level of treatment required and may result in increased future demands.

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

PS Utility	Net (Finished) Demand – Average Rainfall Conditions (mgd)						
	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Lakeport	0.10	0.10	0.10	0.10	0.10	0.10	0.10
OUA (Glades Portion)	0.15	0.15	0.26	0.37	0.48	0.48	0.48
STOF – Brighton[b]	0.34	0.44	0.58	0.68	0.71	0.73	0.76
Glades County Total	**0.59**	**0.69**	**0.94**	**1.15**	**1.29**	**1.31**	**1.34**
Highlands County[a]							
Sebring Airport	0.08	0.09	0.09	0.09	0.09	0.09	0.09
Spring Lake Improvement District	0.21	0.22	0.22	0.23	0.23	0.23	0.23
Highlands County Total	**0.29**	**0.31**	**0.31**	**0.32**	**0.32**	**0.32**	**0.32**
Okeechobee County[a]							
Okeechobee Correctional	0.22	0.22	0.22	0.22	0.22	0.22	0.22
OUA (Okeechobee Portion)	2.41	2.41	2.43	2.44	2.46	2.47	2.48
Okeechobee County Total	**2.63**	**2.63**	**2.65**	**2.66**	**2.68**	**2.69**	**2.70**
LKB Planning Area Total	**3.51**	**3.63**	**3.90**	**4.13**	**4.29**	**4.32**	**4.36**

LKB = Lower Kissimmee Basin; mgd = million gallons per day; OUA = Okeechobee Utility Authority; PS = Public Supply; STOF = Seminole Tribe of Florida.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

[b] The STOF is a sovereign Indian Tribe and an independent Tribal Government separate from Glades County. However, for discussion purposes, information relating to the STOF Brighton Reservation is included in the calculations for Glades County.

Table A-4. Finished-to-raw water adjustment ratios for PS utilities in the LKB Planning Area.

PS Utility	Finished-to-Raw Ratio
Glades County[a]	
Lakeport	1.33
OUA (Glades Portion)	1.13
STOF – Brighton[b]	1.33
Highlands County[a]	
Sebring Airport	1.00
Spring Lake Improvement District	1.03
Okeechobee County[a]	
Okeechobee Correctional	1.00
OUA (Okeechobee Portion)	1.13

LKB = Lower Kissimmee Basin; OUA = Okeechobee Utility Authority; PS = Public Supply; STOF = Seminole Tribe of Florida.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

[b] The STOF is a sovereign Indian Tribe and an independent Tribal Government separate from Glades County. However, for discussion purposes, information relating to the STOF Brighton Reservation is included in the calculations for Glades County.

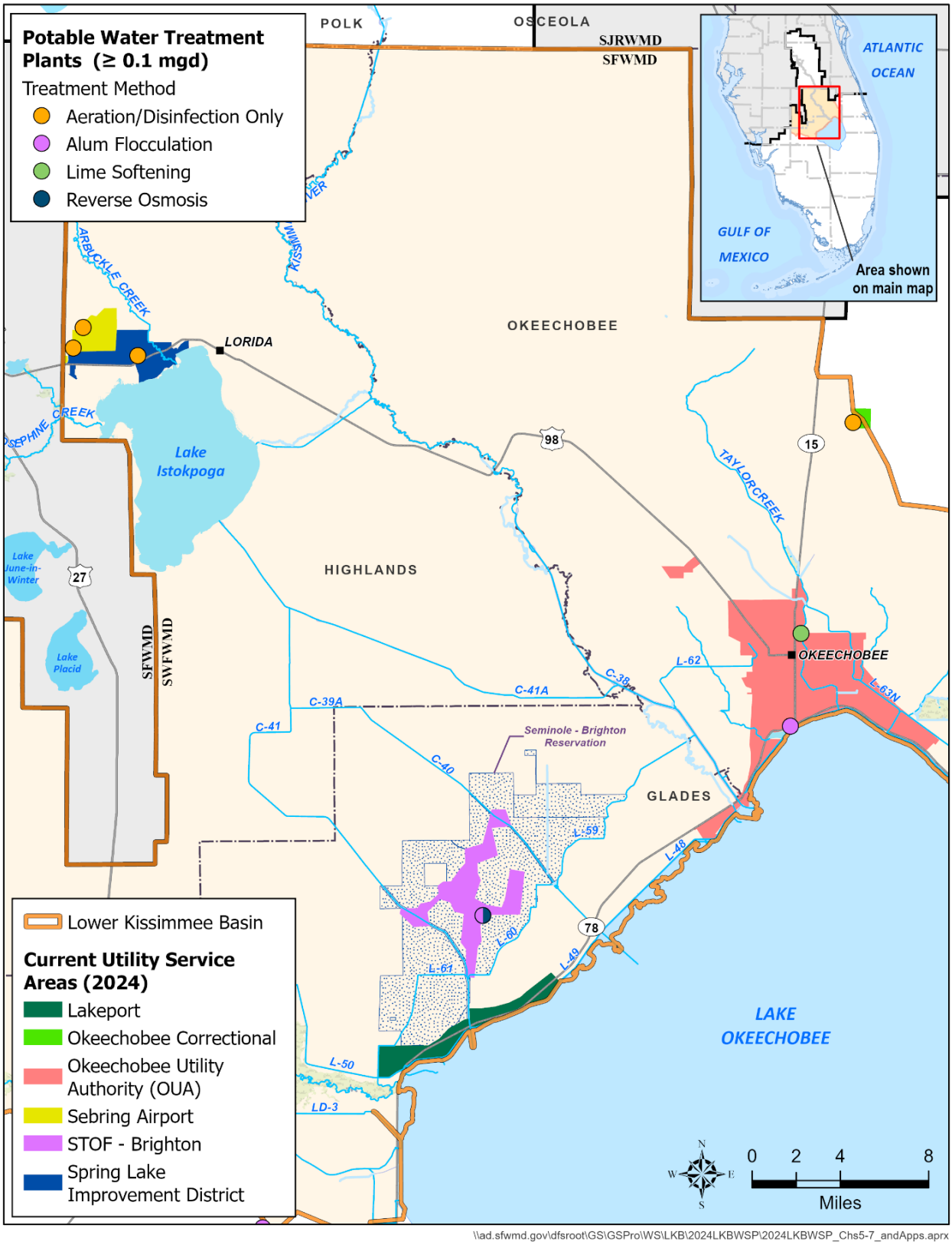

Figure A-2. Potable water treatment plants and Public Supply utility service areas in the LKB Planning Area.

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 LKB Planning Area.

PS Utility	Gross (Raw) Water Demand – Average Rainfall Conditions (mgd)						
	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Lakeport	0.13	0.13	0.13	0.13	0.13	0.13	0.13
OUA (Glades Portion)	0.17	0.17	0.29	0.42	0.54	0.54	0.54
STOF – Brighton[b]	0.45	0.58	0.77	0.90	0.94	0.97	1.01
Glades County Total	**0.75**	**0.88**	**1.19**	**1.45**	**1.61**	**1.64**	**1.68**
Highlands County[a]							
Sebring Airport	0.08	0.09	0.09	0.09	0.09	0.09	0.09
Spring Lake Improvement District	0.22	0.23	0.23	0.24	0.24	0.24	0.24
Highlands County Total	**0.30**	**0.32**	**0.32**	**0.33**	**0.33**	**0.33**	**0.33**
Okeechobee County[a]							
Okeechobee Correctional	0.22	0.22	0.22	0.22	0.22	0.22	0.22
OUA (Okeechobee Portion)	2.72	2.72	2.75	2.76	2.78	2.79	2.80
Okeechobee County Total	**2.94**	**2.94**	**2.97**	**2.98**	**3.00**	**3.01**	**3.02**
LKB Planning Area Total	**3.99**	**4.14**	**4.48**	**4.76**	**4.94**	**4.98**	**5.03**

LKB = Lower Kissimmee Basin; mgd = million gallons per day; OUA = Okeechobee Utility Authority; PS = Public Supply; STOF = Seminole Tribe of Florida.

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[b] The STOF is a sovereign Indian Tribe and an independent Tribal Government separate from Glades County. However, for discussion purposes, information relating to the STOF Brighton Reservation is included in the calculations for Glades 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 particular 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 factor is 1.06 for each county portion within the LKB Planning Area. 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**).

NOTE

Average Rainfall and 1-in-10-Year Drought

An **average rainfall** year is defined as a year having rainfall with 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.

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

PS Utility	Net (Finished) Water Demand – 1-in-10-Year Drought Conditions (mgd)						
	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Lakeport	0.10	0.10	0.10	0.10	0.10	0.11	0.11
OUA (Glades Portion)	0.16	0.16	0.28	0.40	0.51	0.51	0.51
STOF – Brighton[b]	0.36	0.46	0.61	0.72	0.75	0.77	0.81
Glades County Total	**0.62**	**0.72**	**0.99**	**1.22**	**1.36**	**1.39**	**1.43**
Highlands County[a]							
Sebring Airport	0.08	0.10	0.10	0.10	0.10	0.10	0.10
Spring Lake Improvement District	0.23	0.23	0.23	0.24	0.24	0.25	0.25
Highlands County Total	**0.31**	**0.33**	**0.33**	**0.34**	**0.34**	**0.35**	**0.35**
Okeechobee County[a]							
Okeechobee Correctional	0.23	0.23	0.23	0.23	0.23	0.23	0.23
OUA (Okeechobee Portion)	2.55	2.56	2.57	2.59	2.60	2.62	2.63
Okeechobee County Total	**2.78**	**2.79**	**2.80**	**2.82**	**2.83**	**2.85**	**2.86**
LKB Planning Area Total	**3.71**	**3.84**	**4.12**	**4.38**	**4.53**	**4.59**	**4.64**

LKB = Lower Kissimmee Basin; mgd = million gallons per day; OUA = Okeechobee Utility Authority; PS = Public Supply; STOF = Seminole Tribe of Florida.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

[b] The STOF is a sovereign Indian Tribe and an independent Tribal Government separate from Glades County. However, for discussion purposes, information relating to the STOF Brighton Reservation is included in the calculations for Glades County.

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

PS Utility	Gross (Raw) Water Demand – 1-in-10-Year Drought Conditions (mgd)						
	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Lakeport	0.14	0.14	0.14	0.14	0.14	0.14	0.14
OUA (Glades Portion)	0.18	0.18	0.31	0.44	0.57	0.57	0.57
STOF – Brighton[b]	0.48	0.61	0.82	0.96	1.00	1.03	1.07
Glades County Total	**0.80**	**0.93**	**1.27**	**1.54**	**1.71**	**1.74**	**1.78**
Highlands County[a]							
Sebring Airport	0.08	0.10	0.10	0.10	0.10	0.10	0.10
Spring Lake Improvement District	0.23	0.24	0.24	0.25	0.25	0.25	0.25
Highlands County Total	**0.31**	**0.34**	**0.34**	**0.35**	**0.35**	**0.35**	**0.35**
Okeechobee County[a]							
Okeechobee Correctional	0.23	0.23	0.23	0.23	0.23	0.23	0.23
OUA (Okeechobee Portion)	2.89	2.89	2.91	2.92	2.95	2.96	2.97
Okeechobee County Total	**3.12**	**3.12**	**3.14**	**3.15**	**3.18**	**3.19**	**3.20**
LKB Planning Area Total	**4.23**	**4.39**	**4.75**	**5.04**	**5.24**	**5.28**	**5.33**

LKB = Lower Kissimmee Basin; mgd = million gallons per day; OUA = Okeechobee Utility Authority; PS = Public Supply; STOF = Seminole Tribe of Florida.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

[b] The STOF is a sovereign Indian Tribe and an independent Tribal Government separate from Glades County. However, for discussion purposes, information relating to the STOF Brighton Reservation is included in the calculations for Glades County.

DOMESTIC SELF-SUPPLY

The DSS category typically 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. In the LKB Planning Area, there are no small utilities; therefore, the DSS category only includes households that are self-supplied by private wells. The permanent resident populations within DSS areas were developed simultaneously with the PS population estimates and projections, as described earlier. To determine the current and future DSS demands, the weighted average PS PCURs (**Table A-2**) were multiplied by the DSS permanent resident populations in each county. DSS county PCURs remain constant through 2045. For DSS demands, the finished-to-raw 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 LKB Planning Area's DSS demand estimates and projections under average rainfall and 1-in-10-year drought conditions. The drought demand factor used for PS also was used to calculate 1-in-10-year drought DSS demands. The average gross (raw) DSS demands in 2022 were 1.80 mgd for 19,489 permanent residents (**Table A-1**) and are expected to grow to 1.84 mgd in 2045.

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

County DSS[a]	Demand – Average Rainfall Conditions (mgd)						
	2020	2022	2025	2030	2035	2040	2045
Glades[b]	0.03	0.03	0.04	0.03	0.03	0.03	0.02
Highlands	0.38	0.37	0.36	0.37	0.38	0.38	0.39
Okeechobee	1.40	1.40	1.39	1.40	1.42	1.43	1.43
LKB Planning Area Total	**1.81**	**1.80**	**1.79**	**1.80**	**1.83**	**1.84**	**1.84**

DSS = Domestic Self-Supply; LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

[b] The STOF is a sovereign Indian Tribe and an independent Tribal Government separate from Glades County. However, for discussion purposes, information relating to the STOF Brighton Reservation is included in the calculations for Glades County.

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

County DSS[a]	Demand – 1-in-10-Year Drought Conditions (mgd)						
	2020	2022	2025	2030	2035	2040	2045
Glades[b]	0.03	0.03	0.04	0.03	0.03	0.03	0.02
Highlands	0.40	0.39	0.38	0.39	0.40	0.40	0.41
Okeechobee	1.48	1.48	1.47	1.48	1.51	1.52	1.52
LKB Planning Area Total	**1.91**	**1.90**	**1.89**	**1.90**	**1.94**	**1.95**	**1.95**

DSS = Domestic Self- Supply; LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

[b] The STOF is a sovereign Indian Tribe and an independent Tribal Government separate from Glades County. However, for discussion purposes, information relating to the STOF Brighton Reservation is included in the calculations for Glades County.

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.

Previous LKB plan updates 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 (mgd) estimates 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 agricultural water demands from the Florida Department of Agriculture and Consumer Services (FDACS). Section 570.93, F.S., directs the 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 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 10th annual report (referred to as FSAID X) was published in 2023 (FDACS 2023). The FSAID X acre projections (**Tables A-10** and **A-11**) are used in this 2024 LKB Plan Update to calculate AG demands, with some adjustments.

Table A-10. Unadjusted irrigated agricultural acres in the LKB Planning Area (From FDACS 2023).

Crop	2021	2022[a]	2025	2030	2035	2040	2045
Hay/Pasture	36,867	39,062	36,088	34,764	35,107	34,476	34,189
Citrus	27,225	26,393	26,784	26,747	26,178	25,988	25,460
Sugarcane	17,507	17,589	17,507	17,507	17,507	17,507	17,507
Sod	7,646	7,754	7,608	7,608	7,455	7,455	7,241
Fresh Market Vegetables	7,345	7,960	7,345	7,180	7,144	7,026	7,266
Greenhouse/Nursery	3,155	2,773	3,102	3,082	2,930	2,987	2,858
Field Crops	1,484	1,484	1,484	1,667	1,768	2,043	2,059
Potatoes	552	552	552	552	552	552	565
Fruit (excluding citrus)	245	245	245	268	283	305	315
Total	**102,026**	**103,812**	**100,715**	**99,375**	**98,924**	**98,339**	**97,460**

FDACS = Florida Department of Agriculture and Consumer Services; LKB = Lower Kissimmee Basin.
[a] Irrigated agricultural acres listed for 2022 were from draft FSAID XI data.

Table A-11. Unadjusted irrigated agricultural demands (in mgd) in the LKB Planning Area (From FDACS 2023).

Crop	2021	2025	2030	2035	2040	2045
Hay/Pasture	24.60	23.67	22.68	22.85	22.31	21.99
Citrus	23.70	23.61	23.70	23.18	23.01	22.52
Sugarcane	22.08	22.08	22.08	22.08	22.08	22.08
Sod	7.29	7.23	7.23	7.07	7.07	6.86
Fresh Market Vegetables	10.03	10.04	9.80	9.75	9.57	9.86
Greenhouse/Nursery	7.70	7.57	7.52	7.14	7.27	6.97
Field Crops	1.42	1.41	1.56	1.65	1.87	1.88
Potatoes	0.62	0.62	0.63	0.63	0.63	0.64
Fruit (excluding citrus)	0.46	0.46	0.50	0.53	0.58	0.59
Total	**97.90**	**96.69**	**95.70**	**94.88**	**94.39**	**93.39**

FDACS = Florida Department of Agriculture and Consumer Services; LKB = Lower Kissimmee Basin; mgd = million gallons per day.

One adjustment made to FSAID acreage for this 2024 LKB Plan Update involved the base year estimation. The base year contained in the FSAID X report was 2021, while the base year in this plan is 2022. Data for the year 2020 were also presented in the tables to show trends in 5-year increments. Therefore, irrigated crop acreages for 2020 were from the FSAID IX report (FDACS 2022). For 2022, draft data from FSAID XI were used. Acreage projections from

FSAID X were also adjusted in cases where updated crop and county combinations reflected different trends than were projected in past iterations of the report. In these cases, the growth rate provided in the FSAID X dataset was applied to the updated 2022 acreage from the FSAID XI draft data. These methodologies and data adjustments were collaboratively developed and reviewed with FDACS staff and consultants.

Comparison of FSAID X and AFSIRS Demands

The estimated 2022 and projected 2045 demands from the AFSIRS model were compared to the FSAID X report. The demand projections differed by more than 100 mgd despite sharing a similar irrigated acreage footprint (**Figure A-3**).

The SFWMD uses AFSIRS to estimate crop irrigation 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 X and AFSIRS, the SFWMD chose to use water demand estimates and projections from AFSIRS based on irrigated acres published in the FSAID X report (FDACS 2023). The decision to deviate from water demands published in the FSAID X report (FDACS 2023) was made to maintain a consistent approach with previous planning and regional modeling efforts.

Data for soil type, rainfall, and reference evapotranspiration are among the key inputs used with AFSIRS to calculate current and future demands. Soil input data were obtained from the Natural Resources Conservation Service's Soil Survey Geographic (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 South Florida Information Access (SOFIA) database. The irrigation method for each irrigated parcel used with AFSIRS is provided in the FSAID X data set. Most citrus groves are irrigated via microspray. Flood and seepage irrigation are the most common methods for all other crop categories.

Water demands associated with livestock and aquaculture production complete the demands for the AG category. Demands for these activities are taken directly from the FSAID reports (FDACS 2022, 2023) without adjustment.

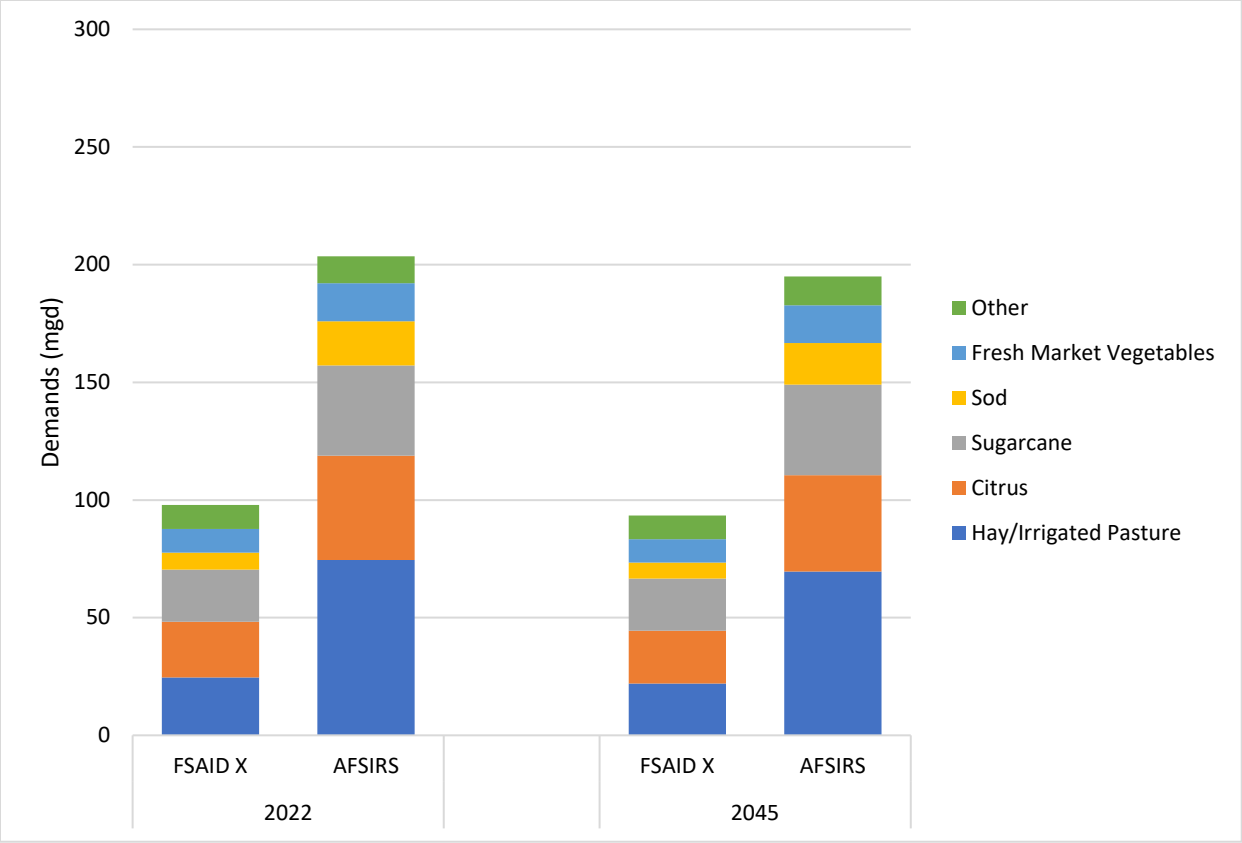

Figure A-3. Comparison of average water demands from the 10th Florida Statewide Agricultural Irrigation Demand (FSAID X) report and the Agricultural Field Scale Irrigation Requirements Simulation (AFSIRS). (Note: The "Other" category includes commodities from **Table A-11** that are not graphed individually.)

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-20**. Tables **A-21** and **A-22** summarize the gross water requirements for livestock and aquaculture. Table **A-23** summarizes all irrigated agricultural acreage and gross water demands in the LKB Planning Area by county, and **Table A-24** summarizes all irrigated agricultural acreage and gross water demands by commodity.

Hay/Pasture

Table A-12 presents the SFWMD's 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/pasture. The associated demands calculated with AFSIRS are assumed to capture irrigation for hay and any irrigation used for improved pasture.

Table A-12. Gross irrigation demands (in mgd) for hay/pasture acreage in the LKB Planning Area.

	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Irrigated acres	17,004	17,192	17,192	17,192	17,550	17,734	17,812
Average rainfall	33.83	34.20	34.20	34.20	34.64	35.00	35.16
1-in-10-year drought	40.08	40.52	40.52	40.52	41.05	41.48	41.66
Highlands County[a]							
Irrigated acres	12,862	14,942	14,742	13,648	13,648	13,267	13,205
Average rainfall	24.33	28.28	27.97	25.92	25.92	25.51	25.39
1-in-10-year drought	28.54	33.17	32.79	30.38	30.38	29.87	29.73
Okeechobee County[a]							
Irrigated acres	7,110	6,928	6,371	5,976	5,962	5,470	5,158
Average rainfall	12.38	12.06	10.94	10.29	10.36	9.55	9.00
1-in-10-year drought	15.07	14.68	13.37	12.58	12.63	11.63	10.96
LKB Planning Area Total							
Irrigated acres	**36,976**	**39,062**	**38,305**	**36,816**	**37,160**	**36,471**	**36,175**
Average rainfall	**70.54**	**74.54**	**73.11**	**70.41**	**70.92**	**70.06**	**69.55**
1-in-10-year drought	**83.69**	**88.37**	**86.68**	**83.48**	**84.06**	**82.98**	**82.35**

LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

Hay Farming

Citrus

Table A-13 presents the SFWMD's citrus 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 citrus acreage in the LKB Planning Area.

	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Irrigated acres	3,535	1,333	1,355	1,525	1,525	1,525	1,525
Average rainfall	6.52	2.46	2.50	2.71	2.71	2.71	2.71
1-in-10-year drought	8.15	3.07	3.08	3.36	3.36	3.36	3.36
Highlands County[a]							
Irrigated acres	26,887	23,174	22,875	22,617	22,064	21,936	21,567
Average rainfall	43.80	37.93	37.22	36.79	35.94	35.77	35.17
1-in-10-year drought	54.14	46.85	46.04	45.51	44.43	44.22	43.48
Okeechobee County[a]							
Irrigated acres	2,095	1,886	1,777	1,777	1,769	1,710	1,556
Average rainfall	4.13	3.85	3.58	3.58	3.54	3.42	3.12
1-in-10-year drought	5.09	4.70	4.39	4.39	4.35	4.20	3.82
LKB Planning Area Total							
Irrigated acres	**32,517**	**26,393**	**26,007**	**25,920**	**25,358**	**25,171**	**24,649**
Average rainfall	**54.45**	**44.24**	**43.30**	**43.08**	**42.19**	**41.90**	**41.00**
1-in-10-year drought	**67.38**	**54.62**	**53.51**	**53.26**	**52.14**	**51.78**	**50.66**

LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

Citrus Grove

Sugarcane

Table A-14 presents the SFWMD's sugarcane acreage and gross irrigation requirement (water withdrawal demand) projections under average rainfall and 1-in-10-year drought conditions.

Table A-14. Gross irrigation demands (in mgd) for sugarcane acreage in the LKB Planning Area.

	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Irrigated acres	13,792	13,676	13,676	13,676	13,676	13,676	13,676
Average rainfall	30.16	30.21	30.21	30.21	30.21	30.21	30.21
1-in-10-year drought	35.73	35.68	35.68	35.68	35.68	35.68	35.68
Highlands County[a]							
Irrigated acres	3,831	3,913	3,913	3,913	3,913	3,913	3,913
Average rainfall	8.06	8.23	8.23	8.23	8.23	8.23	8.23
1-in-10-year drought	9.25	9.45	9.45	9.45	9.45	9.45	9.45
Okeechobee County[a]							
Irrigated acres	0	0	0	0	0	0	0
Average rainfall	0.00	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	0.00
LKB Planning Area Total							
Irrigated acres	**17,623**	**17,589**	**17,589**	**17,589**	**17,589**	**17,589**	**17,589**
Average rainfall	**38.22**	**38.44**	**38.44**	**38.44**	**38.44**	**38.44**	**38.44**
1-in-10-year drought	**44.98**	**45.13**	**45.13**	**45.13**	**45.13**	**45.13**	**45.13**

LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

Sugarcane

Sod

Table A-15 presents the SFWMD's sod acreage and gross irrigation requirement (water withdrawal demand) projections under average rainfall and 1-in-10-year drought conditions.

Table A-15. Gross irrigation demands (in mgd) for sod acreage in the LKB Planning Area.

	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Irrigated acres	403	403	403	403	403	403	403
Average rainfall	1.07	1.07	1.07	1.07	1.07	1.07	1.07
1-in-10-year drought	1.26	1.26	1.26	1.26	1.26	1.26	1.26
Highlands County[a]							
Irrigated acres	6,029	6,137	6,137	6,137	6,137	6,137	6,137
Average rainfall	14.37	14.63	14.63	14.63	14.63	14.63	14.63
1-in-10-year drought	16.55	16.85	16.85	16.85	16.85	16.85	16.85
Okeechobee County[a]							
Irrigated acres	1,214	1,214	1,176	1,176	1,023	1,023	809
Average rainfall	3.01	3.01	2.89	2.89	2.47	2.47	1.95
1-in-10-year drought	3.60	3.60	3.47	3.47	2.97	2.97	2.35
LKB Planning Area Total							
Irrigated acres	**7,646**	**7,754**	**7,716**	**7,716**	**7,563**	**7,563**	**7,349**
Average rainfall	**18.45**	**18.71**	**18.59**	**18.59**	**18.17**	**18.17**	**17.65**
1-in-10-year drought	**21.41**	**21.71**	**21.58**	**21.58**	**21.08**	**21.08**	**20.46**

LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

Sod Farm

Fresh Market Vegetables

Table A-16 presents the SFWMD's fresh market vegetable acreage and gross irrigation requirement (water withdrawal demand) projections under average rainfall and 1-in-10-year drought conditions, assuming 2 plantings per year lasting 4 months each.

Table A-16. Gross irrigation demands (in mgd) for fresh market vegetable acreage in the LKB Planning Area.

	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Irrigated acres	35	35	35	186	265	420	677
Average rainfall	0.07	0.07	0.07	0.39	0.55	0.87	1.41
1-in-10-year drought	0.08	0.08	0.08	0.45	0.64	1.01	1.62
Highlands County[a]							
Irrigated acres	3,115	3,758	3,758	3,569	3,569	3,569	3,549
Average rainfall	6.26	7.55	7.55	7.15	7.15	7.15	7.10
1-in-10-year drought	7.34	8.84	8.84	8.38	8.38	8.38	8.32
Okeechobee County[a]							
Irrigated acres	3,649	4,167	4,167	4,009	3,894	3,621	3,621
Average rainfall	7.55	8.63	8.63	8.30	8.06	7.58	7.58
1-in-10-year drought	8.77	10.02	10.02	9.64	9.37	8.81	8.81
LKB Planning Area Total							
Irrigated acres	**6,799**	**7,960**	**7,960**	**7,764**	**7,728**	**7,610**	**7,847**
Average rainfall	**13.88**	**16.25**	**16.25**	**15.84**	**15.76**	**15.60**	**16.09**
1-in-10-year drought	**16.19**	**18.94**	**18.94**	**18.47**	**18.39**	**18.20**	**18.75**

LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

Tomato Crop

Greenhouse/Nursery

Table A-17 presents the SFWMD's greenhouse/nursery 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 greenhouse/nursery acreage in the LKB Planning Area.

	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Irrigated acres	325	325	325	325	325	382	382
Average rainfall	0.85	0.85	0.85	0.85	0.85	1.00	1.00
1-in-10-year drought	0.99	0.99	0.99	0.99	0.99	1.16	1.16
Highlands County[a]							
Irrigated acres	1,853	1,623	1,588	1,572	1,526	1,526	1,502
Average rainfall	4.35	3.81	3.73	3.68	3.58	3.58	3.52
1-in-10-year drought	4.90	4.28	4.19	4.15	4.03	4.03	3.96
Okeechobee County[a]							
Irrigated acres	778	825	815	815	720	720	620
Average rainfall	1.84	1.96	1.93	1.93	1.70	1.70	1.47
1-in-10-year drought	2.01	2.14	2.11	2.11	1.87	1.87	1.61
LKB Planning Area Total							
Irrigated acres	**2,956**	**2,773**	**2,728**	**2,712**	**2,571**	**2,628**	**2,504**
Average rainfall	**7.04**	**6.62**	**6.51**	**6.46**	**6.13**	**6.28**	**5.99**
1-in-10-year drought	**7.90**	**7.41**	**7.29**	**7.25**	**6.89**	**7.06**	**6.73**

LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

Florida Nursery

Field Crops

Table A-18 presents the SFWMD's field crops acreage and gross irrigation requirement (water withdrawal demand) projections under average rainfall and 1-in-10-year drought conditions. The field crops category includes soybeans, field corn, peanuts, dried beans, lentils, and other grains.

Table A-18. Gross irrigation demands (in mgd) for field crops acreage in the LKB Planning Area.

	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Irrigated acres	0	0	0	183	284	559	575
Average rainfall	0.00	0.00	0.00	0.46	0.71	1.35	1.39
1-in-10-year drought	0.00	0.00	0.00	0.53	0.82	1.55	1.60
Highlands County[a]							
Irrigated acres	1,484	1,484	1,484	1,484	1,484	1,484	1,484
Average rainfall	2.88	2.88	2.88	2.88	2.88	2.88	2.88
1-in-10-year drought	3.45	3.45	3.45	3.45	3.45	3.45	3.45
Okeechobee County[a]							
Irrigated acres	0	0	0	0	0	0	0
Average rainfall	0.00	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	0.00
LKB Planning Area Total							
Irrigated acres	**1,484**	**1,484**	**1,484**	**1,667**	**1,768**	**2,043**	**2,059**
Average rainfall	**2.88**	**2.88**	**2.88**	**3.34**	**3.59**	**4.23**	**4.27**
1-in-10-year drought	**3.45**	**3.45**	**3.45**	**3.98**	**4.27**	**5.00**	**5.05**

LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

Corn Field

Potatoes

Table A-19 presents the SFWMD's potatoes 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 potatoes acreage in the LKB Planning Area.

	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Irrigated acres	229	229	229	229	229	229	242
Average rainfall	0.57	0.57	0.57	0.57	0.57	0.57	0.60
1-in-10-year drought	0.66	0.66	0.66	0.66	0.66	0.66	0.69
Highlands County[a]							
Irrigated acres	0	0	0	0	0	0	0
Average rainfall	0.00	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	0.00
Okeechobee County[a]							
Irrigated acres	323	323	323	323	323	323	323
Average rainfall	0.69	0.69	0.69	0.69	0.69	0.69	0.69
1-in-10-year drought	0.81	0.81	0.81	0.81	0.81	0.81	0.81
LKB Planning Area Total							
Irrigated acres	**552**	**552**	**552**	**552**	**552**	**552**	**565**
Average rainfall	**1.26**	**1.26**	**1.26**	**1.26**	**1.26**	**1.26**	**1.29**
1-in-10-year drought	**1.47**	**1.47**	**1.47**	**1.47**	**1.47**	**1.47**	**1.50**

LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

Potato Crop

Fruit (Excluding Citrus)

Table A-20 presents the SFWMD's fruit (excluding 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 fruit (excluding citrus) acreage in the LKB Planning Area.

	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Irrigated acres	0	0	0	23	38	60	70
Average rainfall	0.00	0.00	0.00	0.04	0.06	0.09	0.11
1-in-10-year drought	0.00	0.00	0.00	0.04	0.07	0.11	0.13
Highlands County[a]							
Irrigated acres	228	230	230	230	230	230	230
Average rainfall	0.54	0.55	0.55	0.55	0.55	0.55	0.55
1-in-10-year drought	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Okeechobee County[a]							
Irrigated acres	15	15	15	15	15	15	15
Average rainfall	0.04	0.04	0.04	0.04	0.04	0.04	0.04
1-in-10-year drought	0.04	0.04	0.04	0.04	0.04	0.04	0.04
LKB Planning Area Total							
Irrigated acres	**243**	**245**	**245**	**268**	**283**	**305**	**315**
Average rainfall	**0.58**	**0.59**	**0.59**	**0.63**	**0.65**	**0.68**	**0.70**
1-in-10-year drought	**0.65**	**0.65**	**0.65**	**0.69**	**0.72**	**0.76**	**0.78**

LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

Strawberry Harvest

Livestock

Table A-21 presents the FSAID X water demand projections for livestock. Livestock demands published in the FSAID X report were developed with assumed water requirements per head of livestock. Livestock demands are 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 LKB Planning Area.

2020	2022	2025	2030	2035	2040	2045
Glades County[a]						
0.51	0.51	0.51	0.51	0.51	0.51	0.51
Highlands County[a]						
1.77	1.78	1.78	1.78	1.78	1.78	1.78
Okeechobee County[a]						
4.70	4.73	4.73	4.73	4.73	4.73	4.73
LKB Planning Area Total						
6.98	**7.02**	**7.02**	**7.02**	**7.02**	**7.02**	**7.02**

LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

Note: Water demands for livestock were obtained from the 10th Florida Statewide Agricultural Irrigation Demand (FSAID X) report and not calculated using the Agricultural Field Scale Irrigation Requirements Simulation (AFSIRS) model.

Cattle Ranch

Aquaculture

Table A-22 presents the FSAID X water demand projections for aquaculture. Aquaculture demands are 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 LKB Planning Area.

2020	2022	2025	2030	2035	2040	2045
Glades County[a]						
0.58	0.55	0.55	0.55	0.55	0.55	0.55
Highlands County[a]						
0.15	0.15	0.15	0.15	0.15	0.15	0.15
Okeechobee County[a]						
0.06	0.06	0.06	0.06	0.06	0.06	0.06
LKB Planning Area Total						
0.79	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**

LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

Note: Water demands for aquaculture were obtained from the 10th Florida Statewide Agricultural Irrigation Demand (FSAID X) report and not calculated using the Agricultural Field Scale Irrigation Requirements Simulation (AFSIRS) model.

Summary of Agricultural Results

Irrigated agricultural acres are projected to decrease 5% over the planning horizon, from 103,812 to 99,052 acres (**Tables A-23** and **A-24**). Highlands and Okeechobee counties are projected to experience reductions in demands, while demands in Glades County are projected to increase (**Table A-23**). Irrigated hay and pasture will continue to dominate AG demands, accounting for 34% of the 2045 total AG demand (**Table A-24**). The largest increase in demands is projected for the field crops category. Field crop demands are projected to grow more than 1 mgd. Overall, the LKB Planning Area total gross water demands under average rainfall conditions for AG are projected to decrease approximately 4%, from 211.31 mgd in 2022 to 202.76 mgd in 2045.

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

	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Irrigated acres	35,323	33,193	33,215	33,742	34,295	34,988	35,362
Average rainfall	74.16	70.49	70.53	71.56	72.43	73.93	74.72
1-in-10-year drought	88.04	83.32	83.33	84.55	85.59	87.33	88.22
Highlands County[a]							
Irrigated acres	56,289	55,261	54,728	53,171	52,571	52,062	51,587
Average rainfall	106.51	105.79	104.69	101.76	100.81	100.23	99.40
1-in-10-year drought	126.70	125.43	124.15	120.71	119.51	118.79	117.78
Okeechobee County[a]							
Irrigated acres	15,184	15,358	14,644	14,091	13,706	12,882	12,102
Average rainfall	34.40	35.03	33.49	32.51	31.65	30.24	28.64
1-in-10-year drought	40.15	40.78	39.00	37.83	36.83	35.12	33.19
LKB Planning Area Total							
Irrigated acres	**106,796**	**103,812**	**102,587**	**101,004**	**100,573**	**99,932**	**99,052**
Average rainfall	**215.07**	**211.31**	**208.71**	**205.83**	**204.89**	**204.40**	**202.76**
1-in-10-year drought	**254.89**	**249.53**	**246.48**	**243.09**	**241.93**	**241.24**	**239.19**

LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

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

	2020	2022	2025	2030	2035	2040	2045
Sugarcane							
Irrigated acres	17,623	17,589	17,589	17,589	17,589	17,589	17,589
Average rainfall	38.22	38.44	38.44	38.44	38.44	38.44	38.44
1-in-10-year drought	44.98	45.13	45.13	45.13	45.13	45.13	45.13
Fresh Market Vegetables							
Irrigated acres	6,799	7,960	7,960	7,764	7,728	7,610	7,847
Average rainfall	13.88	16.25	16.25	15.84	15.76	15.60	16.09
1-in-10-year drought	16.19	18.94	18.94	18.47	18.39	18.20	18.75
Citrus							
Irrigated acres	32,517	26,393	26,007	25,920	25,358	25,171	24,649
Average rainfall	54.45	44.24	43.30	43.08	42.19	41.90	41.00
1-in-10-year drought	67.38	54.62	53.51	53.26	52.14	51.78	50.66
Hay/Pasture							
Irrigated acres	36,976	39,062	38,305	36,816	37,160	36,471	36,175
Average rainfall	70.54	74.54	73.11	70.41	70.92	70.06	69.55
1-in-10-year drought	83.69	88.37	86.68	83.48	84.06	82.98	82.35
Greenhouse/Nursery							
Irrigated acres	2,956	2,773	2,728	2,712	2,571	2,628	2,504
Average rainfall	7.04	6.62	6.51	6.46	6.13	6.28	5.99
1-in-10-year drought	7.90	7.41	7.29	7.25	6.89	7.06	6.73

Table A-24. Continued.

Fruit (Excluding Citrus)							
Irrigated acres	243	245	245	268	283	305	315
Average rainfall	0.58	0.59	0.59	0.63	0.65	0.68	0.70
1-in-10-year drought	0.65	0.65	0.65	0.69	0.72	0.76	0.78
Sod							
Irrigated acres	7,646	7,754	7,716	7,716	7,563	7,563	7,349
Average rainfall	18.45	18.71	18.59	18.59	18.17	18.17	17.65
1-in-10-year drought	21.41	21.71	21.58	21.58	21.08	21.08	20.46
Potatoes							
Irrigated acres	552	552	552	552	552	552	565
Average rainfall	1.26	1.26	1.26	1.26	1.26	1.26	1.29
1-in-10-year drought	1.47	1.47	1.47	1.47	1.47	1.47	1.50
Field Crops							
Irrigated acres	1,484	1,484	1,484	1,667	1,768	2,043	2,059
Average rainfall	2.88	2.88	2.88	3.34	3.59	4.23	4.27
1-in-10-year drought	3.45	3.45	3.45	3.98	4.27	5.00	5.05
Livestock							
Irrigated acres	--	--	--	--	--	--	
Average rainfall	6.98	7.02	7.02	7.02	7.02	7.02	7.02
1-in-10-year drought	6.98	7.02	7.02	7.02	7.02	7.02	7.02
Aquaculture							
Irrigated acres	--	--	--	--	--	--	
Average rainfall	0.79	0.76	0.76	0.76	0.76	0.76	0.76
1-in-10-year drought	0.79	0.76	0.76	0.76	0.76	0.76	0.76
LKB Planning Area Total							
Irrigated acres	**106,796**	**103,812**	**102,587**	**101,004**	**100,573**	**99,932**	**99,052**
Average rainfall	**215.07**	**211.31**	**208.71**	**205.83**	**204.89**	**204.40**	**202.76**
1-in-10-year drought	**254.89**	**249.53**	**246.48**	**243.09**	**241.93**	**241.24**	**239.19**

LKB = Lower Kissimmee Basin; mgd = million gallons per day.

COMMERCIAL/INDUSTRIAL/INSTITUTIONAL

The CII water use category includes demands associated with commercial and industrial operations for processing, manufacturing, and technical needs (e.g., concrete production, citrus and vegetable processing, and mining operations). Commercial, industrial, or institutional 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 *2022 Estimated Water Use Report* (SFWMD 2024).

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 LKB Planning Area in 5-year increments through 2045. Highlands County maintains a dominant share of the region's CII demands over the planning horizon.

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

County[a]	Demand (mgd)						
	2020	2022	2025	2030	2035	2040	2045
Glades[b]	0.53	0.58	0.74	0.89	1.04	1.04	1.04
Highlands	1.47	1.59	1.56	1.60	1.63	1.65	1.67
Okeechobee	0.15	0.17	0.17	0.17	0.17	0.17	0.17
LKB Planning Area Total	**2.15**	**2.34**	**2.47**	**2.66**	**2.84**	**2.86**	**2.88**

CII = Commercial/Industrial/Institutional; LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

[b] The STOF is a sovereign Indian Tribe and an independent Tribal Government separate from Glades County. However, for discussion purposes, information relating to the STOF Brighton Reservation is included in the calculations for Glades County.

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. 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 a supplemental or backup supply. Demands under the L/R category include areas permitted by the SFWMD including those that use reclaimed water that have a water use permit for supplemental or backup supply and areas not permitted that rely solely on reclaimed water. L/R 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.

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 by PS utilities. These demands are accounted for in PS estimates and projections. The second type is irrigated landscaped areas served by individual residential wells and surface water pumps permitted by rule (Rule 40E-2.061, Florida Administrative Code).

Reclaimed water is a major source for the irrigation of permitted and nonpermitted landscaped areas in other planning areas; however, reclaimed water currently is not used for these purposes within the LKB Planning Area. No new uses of reclaimed water under the L/R water use category are expected over the planning horizon.

L/R Projection Methodology

L/R 2022 water use data reported to the SFWMD and estimated data for those not required to report are available in the *2022 Estimated Water Use Report* (SFWMD 2024). The use data from this source was considered representative of demands under average rainfall conditions for 2022.

The SFWMD's reported water use allows 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 Water Use Permit 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 backup supply.

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

Land Use	L/R Permitted Acres in the LKB Planning Area						
	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Landscape	2	10	13	16	19	19	19
Golf	0	0	0	0	0	0	0
Glades County Total	**2**	**10**	**13**	**16**	**19**	**19**	**19**
Highlands County[a]							
Landscape	26	27	26	27	28	28	28
Golf	241	234	234	234	234	234	234
Highlands County Total	**267**	**261**	**260**	**261**	**262**	**262**	**262**
Okeechobee County[a]							
Landscape	433	573	574	578	582	585	588
Golf	64	64	64	64	64	64	64
Okeechobee County Total	**497**	**637**	**638**	**642**	**646**	**649**	**652**
LKB Planning Area Total							
Landscape	**461**	**610**	**613**	**621**	**629**	**632**	**635**
Golf	**305**	**298**	**298**	**298**	**298**	**298**	**298**
LKB Planning Area Total	**766**	**908**	**911**	**919**	**927**	**930**	**933**

L/R = Landscape/Recreational; LKB = Lower Kissimmee Basin.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

[b] The STOF is a sovereign Indian Tribe and an independent Tribal Government separate from Glades County. However, for discussion purposes, information relating to the STOF Brighton Reservation is included in the calculations for Glades County.

The distinction is made between the acres and demands for golf courses and 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 stable through 2045. This approach is used in other planning areas within the SFWMD and by other water management districts in Florida.

L/R Projection Results

Gross water demands for L/R were met with a combination of traditional water sources (groundwater and surface water).

L/R gross irrigation demand projections under average rainfall conditions are presented in **Table A-27**. **Table A-28** shows the estimated quantity of water provided to meet projected demands during 1-in-10-year drought conditions.

Table A-27. L/R gross irrigation demands under average rainfall conditions in the LKB Planning Area.

Land Use	Demand – Average Rainfall Conditions (mgd)						
	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Landscape	0.00	0.03	0.04	0.04	0.05	0.05	0.05
Golf	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Glades County Total	**0.00**	**0.03**	**0.04**	**0.04**	**0.05**	**0.05**	**0.05**
Highlands County[a]							
Landscape	0.06	0.07	0.07	0.07	0.07	0.07	0.07
Golf	0.41	0.48	0.48	0.48	0.48	0.48	0.48
Highlands County Total	**0.47**	**0.55**	**0.55**	**0.55**	**0.55**	**0.55**	**0.55**
Okeechobee County[a]							
Landscape	0.95	1.24	1.24	1.25	1.26	1.26	1.27
Golf	0.01	0.05	0.05	0.05	0.05	0.05	0.05
Okeechobee County Total	**0.96**	**1.29**	**1.29**	**1.30**	**1.31**	**1.31**	**1.32**
LKB Planning Area Total							
Landscape	**1.01**	**1.34**	**1.35**	**1.36**	**1.38**	**1.38**	**1.39**
Golf	**0.42**	**0.53**	**0.53**	**0.53**	**0.53**	**0.53**	**0.53**
LKB Planning Area Total	**1.43**	**1.87**	**1.88**	**1.89**	**1.91**	**1.91**	**1.92**

L/R = Landscape/Recreational; LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

[b] The STOF is a sovereign Indian Tribe and an independent Tribal Government separate from Glades County. However, for discussion purposes, information relating to the STOF Brighton Reservation is included in the calculations for Glades County.

Table A-28. L/R gross irrigation demands under 1-in-10-year drought conditions in the LKB Planning Area.

Land Use	Demand – 1-in-10-Year Drought Conditions (mgd)						
	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Landscape	0.00	0.03	0.04	0.04	0.05	0.05	0.05
Golf	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Glades County Total	**0.00**	**0.03**	**0.04**	**0.04**	**0.05**	**0.05**	**0.05**
Highlands County[a]							
Landscape	0.06	0.07	0.07	0.07	0.07	0.07	0.07
Golf	0.43	0.51	0.51	0.51	0.51	0.51	0.51
Highlands County Total	**0.49**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**
Okeechobee County[a]							
Landscape	1.01	1.31	1.31	1.33	1.34	1.34	1.35
Golf	0.01	0.05	0.05	0.05	0.05	0.05	0.05
Okeechobee County Total	**1.02**	**1.36**	**1.36**	**1.38**	**1.39**	**1.39**	**1.40**
LKB Planning Area Total							
Landscape	**1.07**	**1.41**	**1.42**	**1.44**	**1.46**	**1.46**	**1.47**
Golf	**0.44**	**0.56**	**0.56**	**0.56**	**0.56**	**0.56**	**0.56**
LKB Planning Area Total	**1.51**	**1.97**	**1.98**	**2.00**	**2.02**	**2.02**	**2.03**

L/R = Landscape/Recreational; LKB = Lower Kissimmee Basin; mgd = million gallons per day

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

[b] The STOF is a sovereign Indian Tribe and an independent Tribal Government separate from Glades County. However, for discussion purposes, information relating to the STOF Brighton Reservation is included in the calculations for Glades County.

POWER GENERATION

Demands under the PG category typically include use of groundwater, fresh surface water, or reclaimed water by thermoelectric power generation facilities. However, the are no power demands estimated for 2022 since the power needs of the LKB Planning Area currently are met by facilities located outside of the planning area. There are no new power generation facilities planned. Therefore, PG demands are projected to remain at 0.00 mgd through 2045.

SUMMARY OF DEMAND PROJECTIONS

Total demands for the LKB Planning Area are anticipated to decrease by 7.03 mgd (3%), largely due to decreased demands from the AG category. The combined PS and DSS demands are expected to increase 16%, to 6.87 mgd by 2045, with the projected population growth of 4,795 permanent residents. The demands for all remaining categories (L/R, CII, and PG) are small and projected to be 4.80 mgd, combined, in 2045. Gross water demands in 5-year increments, by county and water use category, are provided in **Table A-29** for average rainfall conditions and **Table A-30** for 1-in-10-year drought conditions.

Table A-29. Summary of gross water demands under average rainfall conditions in the LKB Planning Area by water use category.

Water Use Category	Demand – Average Rainfall Conditions (mgd)						
	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Public Supply	0.75	0.88	1.19	1.45	1.61	1.64	1.68
Domestic Self-Supply	0.03	0.03	0.04	0.03	0.03	0.03	0.02
Agriculture	74.16	70.49	70.53	71.56	72.43	73.93	74.72
Commercial/Industrial/Institutional	0.53	0.58	0.74	0.89	1.04	1.04	1.04
Landscape/Recreational	0.00	0.03	0.04	0.04	0.05	0.05	0.05
Power Generation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Glades County Total	**75.47**	**72.01**	**72.54**	**73.97**	**75.16**	**76.69**	**77.51**
Highlands County[a]							
Public Supply	0.30	0.32	0.32	0.33	0.33	0.33	0.33
Domestic Self-Supply	0.38	0.37	0.36	0.37	0.38	0.38	0.39
Agriculture	106.51	105.79	104.69	101.76	100.81	100.23	99.40
Commercial/Industrial/Institutional	1.47	1.59	1.56	1.60	1.63	1.65	1.67
Landscape/Recreational	0.47	0.55	0.55	0.55	0.55	0.55	0.55
Power Generation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Highlands County Total	**109.13**	**108.62**	**107.48**	**104.61**	**103.70**	**103.14**	**102.34**
Okeechobee County[a]							
Public Supply	2.94	2.94	2.97	2.98	3.00	3.01	3.02
Domestic Self-Supply	1.40	1.40	1.39	1.40	1.42	1.43	1.43
Agriculture	34.40	35.03	33.49	32.51	31.65	30.24	28.64
Commercial/Industrial/Institutional	0.15	0.17	0.17	0.17	0.17	0.17	0.17
Landscape/Recreational	0.96	1.29	1.29	1.30	1.31	1.31	1.32
Power Generation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Okeechobee County Total	**39.85**	**40.83**	**39.31**	**38.36**	**37.55**	**36.16**	**34.58**
LKB Planning Area Total							
Public Supply	**3.99**	**4.14**	**4.48**	**4.76**	**4.94**	**4.98**	**5.03**
Domestic Self-Supply	**1.81**	**1.80**	**1.79**	**1.80**	**1.83**	**1.84**	**1.84**
Agriculture	**215.07**	**211.31**	**208.71**	**205.83**	**204.89**	**204.40**	**202.76**
Commercial/Industrial/Institutional	**2.15**	**2.34**	**2.47**	**2.66**	**2.84**	**2.86**	**2.88**
Landscape/Recreational	**1.43**	**1.87**	**1.88**	**1.89**	**1.91**	**1.91**	**1.92**
Power Generation	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
LKB Planning Area Total	**224.45**	**221.46**	**219.33**	**216.94**	**216.41**	**215.99**	**214.43**

LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

[b] The STOF is a sovereign Indian Tribe and an independent Tribal Government separate from Glades County. However, for discussion purposes, information relating to the STOF Brighton Reservation is included in the calculations for Glades County.

Table A-30. Summary of gross water demands under 1-in-10-year drought conditions in the LKB Planning Area by water use category.

Water Use Category	Demand – 1-in-10-Year Drought Conditions (mgd)						
	2020	2022	2025	2030	2035	2040	2045
Glades County[a]							
Public Supply	0.80	0.93	1.27	1.54	1.71	1.74	1.78
Domestic Self-Supply	0.03	0.03	0.04	0.03	0.03	0.03	0.02
Agriculture	88.04	83.32	83.33	84.55	85.59	87.33	88.22
Commercial/Industrial/Institutional	0.53	0.58	0.74	0.89	1.04	1.04	1.04
Landscape/Recreational	0.00	0.03	0.04	0.04	0.05	0.05	0.05
Power Generation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Glades County Total	**89.40**	**84.89**	**85.42**	**87.05**	**88.42**	**90.19**	**91.11**
Highlands County[a]							
Public Supply	0.31	0.34	0.34	0.35	0.35	0.35	0.35
Domestic Self-Supply	0.40	0.39	0.38	0.39	0.40	0.40	0.41
Agriculture	126.70	125.43	124.15	120.71	119.51	118.79	117.78
Commercial/Industrial/Institutional	1.47	1.59	1.56	1.60	1.63	1.65	1.67
Landscape/Recreational	0.49	0.58	0.58	0.58	0.58	0.58	0.58
Power Generation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Highlands County Total	**129.37**	**128.33**	**127.01**	**123.63**	**122.47**	**121.77**	**120.79**
Okeechobee County[a]							
Public Supply	3.12	3.12	3.14	3.15	3.18	3.19	3.20
Domestic Self-Supply	1.48	1.48	1.47	1.48	1.51	1.52	1.52
Agriculture	40.15	40.78	39.00	37.83	36.83	35.12	33.19
Commercial/Industrial/Institutional	0.15	0.17	0.17	0.17	0.17	0.17	0.17
Landscape/Recreational	1.02	1.36	1.36	1.38	1.39	1.39	1.40
Power Generation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Okeechobee County Total	**45.92**	**46.91**	**45.14**	**44.01**	**43.08**	**41.39**	**39.48**
LKB Planning Area Total							
Public Supply	**4.23**	**4.39**	**4.75**	**5.04**	**5.24**	**5.28**	**5.33**
Domestic Self-Supply	**1.91**	**1.90**	**1.89**	**1.90**	**1.94**	**1.95**	**1.95**
Agriculture	**254.89**	**249.53**	**246.48**	**243.09**	**241.93**	**241.24**	**239.19**
Commercial/Industrial/Institutional	**2.15**	**2.34**	**2.47**	**2.66**	**2.84**	**2.86**	**2.88**
Landscape/Recreational	**1.51**	**1.97**	**1.98**	**2.00**	**2.02**	**2.02**	**2.03**
Power Generation	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
LKB Planning Area Total	**264.69**	**260.13**	**257.57**	**254.69**	**253.97**	**253.35**	**251.38**

LKB = Lower Kissimmee Basin; mgd = million gallons per day.

[a] Values listed are only for the areas within the LKB Planning Area boundaries.

[b] The STOF is a sovereign Indian Tribe and an independent Tribal Government separate from Glades County. However, for discussion purposes, information relating to the STOF Brighton Reservation is included in the calculations for Glades County.

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