

# South Florida Water Management District 2022 Annual Reclaimed Water Status Report

June 2024



[sfwmd.gov](http://sfwmd.gov)

South Florida Water Management District | 3301 Gun Club Road | West Palm Beach, FL 33406

This report was produced by the Water Supply Bureau of the South Florida Water Management District. For further information about this document, please contact:

Robert Wanvestraut, Alternative Water Supply and Reuse Coordinator  
South Florida Water Management District  
3301 Gun Club Road  
West Palm Beach, FL 33406  
[rowanves@sfwmd.gov](mailto:rowanves@sfwmd.gov)

Staff Reviewers:

Mark Elsner, P.E., Bureau Chief, Water Supply Bureau

James Harmon, P.G., Principal Hydrogeologist, Water Supply Bureau

Patricia Casey, Technical Editor, Water Supply Bureau

The data obtained from the South Florida Water Management District's databases may be provisional and thus subject to revision. The District does not warrant, guarantee, or make any representations regarding the use, or the results of the use, of the data in terms of correctness, accuracy, reliability, completeness, usefulness, timeliness or otherwise and the District specifically disclaims any warranty, either expressed or implied, including but not limited to the implied warranties of merchantability and fitness for a particular use. The data are provided "as is" and the entire risk as to quality and performance is with the user. In no event will the District be liable for any direct, indirect, incidental, special, consequential, or other damages, including loss of profit, arising out of the use of these data even if the District has been advised of the possibility of such damages. All data are intended for the District's use. These data do not represent an endorsement or recommendation.

## EXECUTIVE SUMMARY

Reclaimed water is treated wastewater that is reused for a beneficial purpose. Beneficial reuse includes landscape irrigation, agricultural irrigation, groundwater recharge, industrial processes, environmental enhancement, and potable water supply. The use of reclaimed water can reduce stress on traditional freshwater sources, reduce water demands in areas with sensitive ecosystems, hydrate ecologically stressed areas, replenish local groundwater resources, and reduce the disposal of treated wastewater. Additionally, reuse of reclaimed water has allowed continued economic growth in areas where increased use of freshwater sources is limited and has played an integral role in meeting the water needs of South Florida.

Florida Statutes recognize reclaimed water as an alternative, rather than traditional, water supply source. Furthermore, statutes also direct state agencies, including the five water management districts, to encourage and promote the use of reclaimed water. Reclaimed water production and distribution development projects are normally eligible to be considered for state funding. The Florida Legislature has historically provided funding for alternative water supply projects through the Florida Department of Environmental Protection and water management district grant funding programs.

The South Florida Water Management District (SFWMD or District) encompasses all or part of 16 counties from Orlando to the Florida Keys. This report summarizes flow data from 124 wastewater facilities, with permitted treatment capacities of 0.1 million gallons per day (mgd) or greater, which operated in the District during Fiscal Year (FY) 2022, specifically October 1, 2021 to September 30, 2022. Of the 124 facilities, 104 were designed and permitted to produce reclaimed water. These facilities received and treated 892 mgd of wastewater flow. From that flow, 297 mgd of reclaimed water was reused; this total included 31 mgd of supplemental water added to reclaimed water systems to ensure peak seasonal demands could be met. When the supplemental flow was discounted from the total, 266 mgd of wastewater was reused, representing 30% of the total wastewater flow. Finally, 664 mgd of treated effluent was disposed of, with 70% of that (444 mgd) via deep well injection and 27% (169 mgd) via ocean outfalls (which should be eliminated by 2026, except for backup discharge).

For the reuse categories in FY2022, Irrigation (Landscape and Agriculture) was the largest category of reclaimed water use in the District, accounting for 201 mgd (or 68% of the 297 mgd Districtwide total reuse), followed by Groundwater Recharge at 41 mgd (or 14% of the total reuse), and At Treatment Plant (treatment process) use at 29 mgd (or 10% of the total reuse). Industrial and Other uses at 24 mgd (or 8% of the total reuse) and Wetlands Recharge at 1.5 mgd (or 0.5% of the total reuse) made up the remainder of the Districtwide reuse profile. **Figure ES-1** shows the reclaimed water totals by categories Districtwide.

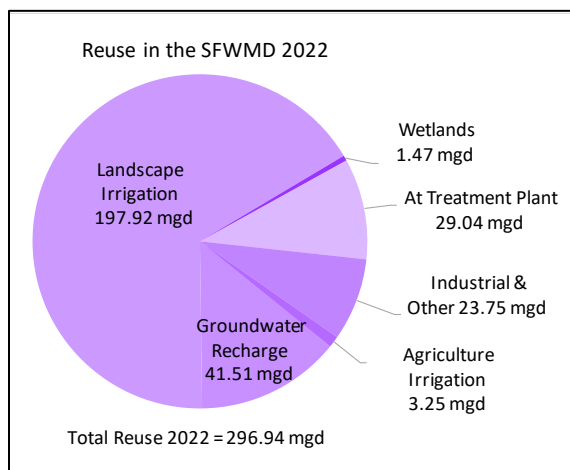


Figure ES-1. Districtwide total reuse flows for categories (inclusive of supplemental water).

To manage water supply and plan for current and future water uses, the District is geographically divided into five planning areas. In FY2022, the Upper Kissimmee Basin Planning Area reused close to 100% of the total effluent (98 mgd). The Lower West Coast and the Lower Kissimmee Basin planning areas each reused approximately two-thirds of their total effluent flows (63 mgd reused of 94 mgd total effluent or 67%, and 0.8 mgd reused of 1.1 mgd of total effluent or 68%, respectively). The Upper East Coast Planning Area reused 35% of the total effluent (9 mgd reused of 25 mgd total effluent). Finally, the Lower East Coast Planning Area reused 14% of its total effluent (95 mgd reused of 673 mgd total effluent). **Table ES-1** presents reuse and related flows by county and planning area.

Table ES-1. Flows for effluent, supplemental water, disposals, reuse, and reused effluent by county and planning area Districtwide in FY2022.

County/Planning Area	Total Effluent (mgd)	Supplemental Water (mgd)	Disposals (mgd)	Total Reuse <sup>a</sup> (mgd)	Reused Effluent <sup>b</sup> (mgd)	% Reused Effluent <sup>c</sup>
Broward	223.23	0.15	202.96	18.09	17.94	8.0%
Miami-Dade	321.07	0.00	310.97	18.11	18.11	5.6%
Monroe	9.61	0.04	8.73	0.38	0.34	3.5%
Palm Beach	118.93	5.25	61.58	64.10	58.85	49.5%
<b>LEC Planning Area Total</b>	<b>672.85</b>	<b>5.44</b>	<b>584.25</b>	<b>100.68</b>	<b>95.24</b>	<b>14.2%</b>
Highlands	0.03	0.00	0.00	0.03	0.03	100.0%
Okeechobee	1.10	0.00	0.36	0.74	0.74	67.4%
<b>LKB Planning Area Total</b>	<b>1.13</b>	<b>0.00</b>	<b>0.36</b>	<b>0.77</b>	<b>0.77</b>	<b>68.3%</b>
Charlotte	0.36	1.26	0.00	1.69	0.43	118.0%
Collier	31.64	3.86	9.97	24.88	21.02	66.4%
Glades	0.23	0.00	0.00	0.23	0.23	100.0%
Hendry	1.83	0.00	0.55	1.62	1.62	88.5%
Lee	59.56	18.01	21.29	57.80	39.79	66.8%
<b>LWC Planning Area Total</b>	<b>93.62</b>	<b>23.13</b>	<b>31.80</b>	<b>86.22</b>	<b>63.09</b>	<b>67.4%</b>
Martin	7.61	0.09	3.38	4.63	4.54	59.7%
St. Lucie	17.21	0.61	13.66	4.65	4.04	23.5%
<b>UEC Planning Area Total</b>	<b>24.82</b>	<b>0.70</b>	<b>17.04</b>	<b>9.28</b>	<b>8.58</b>	<b>34.6%</b>
Orange	65.76	1.60	0.00	65.46	63.86	97.1%
Osceola	31.75	0.48	0.11	34.44	33.96	107.0%
Polk	2.29	0.00	0.26	0.10	0.10	4.2%
<b>UKB Planning Area Total</b>	<b>99.80</b>	<b>2.08</b>	<b>0.37</b>	<b>99.99</b>	<b>97.92</b>	<b>98.1%</b>
<b>Total</b>	<b>892.21</b>	<b>31.34</b>	<b>633.83</b>	<b>296.94</b>	<b>265.60</b>	<b>29.8%</b>

LEC = Lower East Coast; LKB = Lower Kissimmee Basin; LWC = Lower West Coast; UEC = Upper East Coast; UKB = Upper Kissimmee Basin; mgd = million gallons per day.

<sup>a</sup> Total reuse is beneficially reused reclaimed water inclusive of supplemental water.

<sup>b</sup> Reused Effluent = Total Reuse – Supplemental Water.

<sup>c</sup> % Reused Effluent = (Total Reuse – Supplemental Water) / Total Effluent.

In addition to presenting wastewater and reclaimed water flow data for FY2022, this document provides background and brief explanations of factors relevant to water reuse, in general, and water reuse implementation in the District specifically as well as status updates on reuse implementation using the most up-to-date information.

# TABLE OF CONTENTS

<b>1. Introduction.....</b>	<b>1</b>
Reclaimed Water and Reuse in Florida.....	2
Data and Metrics.....	2
<b>2. Factors Relevant to Water Reuse Implementation.....</b>	<b>4</b>
Increasing Demands and Limitations on Traditional Water Sources.....	4
Leah Schad Memorial Ocean Outfall Program.....	5
Surface Water Discharges, Chapter 2021-168, Laws of Florida.....	6
Mandatory Reuse Zones.....	8
Reclaimed Water System Interconnections.....	9
Levels of Reclaimed Water Treatment and Disinfection.....	9
Reclaimed Water: SFWMD Water Use Permitting.....	11
The Florida Potable Reuse Commission.....	12
2024 Legislation Affecting Reuse of Reclaimed Water.....	13
<b>3. Reuse in the SFWMD.....</b>	<b>13</b>
Reuse by Planning Area in the SFWMD.....	14
Reuse and Related Flows in the SFWMD.....	14
Supplemental Sources to Meet Reclaimed Water Demand.....	18
Effluent Disposal.....	19
<b>4. Reuse and Related Flows in the SFWMD by Water Supply Planning Area.....</b>	<b>21</b>
Reuse and Related Flows in the Lower East Coast.....	21
Reuse and Related Flows in the Lower Kissimmee Basin.....	27
Reuse and Related Flows in the Lower West Coast.....	29
Reuse and Related Flows in the Upper East Coast.....	34
Reuse and Related Flows in the Upper Kissimmee Basin.....	37
<b>5. Conclusions and Takeaway Points.....</b>	<b>40</b>
<b>6. References.....</b>	<b>41</b>
<b>Appendix A: Florida Statutes and Florida Administrative Code References.....</b>	<b>A-1</b>

# LIST OF TABLES

Table 1.	SFWMD facilities permitted to conduct surface water discharges in 2023, subdivided by those requesting exemptions, those eliminating all or partial discharges (and their dates of elimination), and those claiming beneficial discharges (and the discharge allowance category) as shown in the FDEP Annual Report (2023a). .....	7
Table 2.	Mandatory reuse zones in the SFWMD. ....	8
Table 3.	An overview of required treatment and disinfection levels for common reuse applications.....	10
Table 4.	Population and percentages of selected reuse and related flows in FY2022 for the five planning areas in the SFWMD. ....	14
Table 5.	Population, reuse and related flows, and percentage of reused effluent by county and planning area in FY2022. ....	14
Table 6.	Reuse by county in FY2022 (inclusive of supplemental water).....	16
Table 7.	Irrigation reuse by subcategory and county in FY2022 (inclusive of supplemental water)....	17
Table 8.	Supplemental water use by source and county in FY2022.....	19
Table 9.	Effluent disposal by method and county in FY2022. ....	20
Table 10.	Reuse and related flows and the percentage of reused effluent by county in the LEC Planning Area. ....	23
Table 11.	Reuse by category and county in the LEC Planning Area. ....	24
Table 12.	Supplemental water by source and county in the LEC Planning Area.....	24
Table 13.	Effluent disposal by county in the LEC Planning Area.....	24
Table 14.	Reuse and related flows and the percentage of reused effluent by county in the LKB Planning Area. ....	28
Table 15.	Reuse by category and county in the LKB Planning Area. ....	29
Table 16.	Effluent disposal by county in the LKB Planning Area. ....	29
Table 17.	Reuse and related flows and the percentage of reused effluent by county in the LWC Planning Area. ....	31
Table 18.	Reuse by category and county in the LWC Planning Area. ....	31
Table 19.	Supplemental water by source and county in the LWC Planning Area. ....	32
Table 20.	Effluent disposal by county in the LWC Planning Area. ....	32
Table 21.	Reuse and related flows and the percentage of reused effluent by county in the UEC Planning Area. ....	35
Table 22.	Reuse by category and county in the UEC Planning Area. ....	35
Table 23.	Supplemental water by source and county in the UEC Planning Area. ....	35
Table 24.	Effluent disposal by county in the UEC Planning Area. ....	36
Table 25.	Reuse and related flows and the percentage of reused effluent by county in the UKB Planning Area.....	38
Table 26.	Reuse by category and county in the UKB Planning Area.....	38
Table 27.	Supplemental Water by source and county in the UKB Planning Area.....	39
Table 28.	Effluent disposal by county in the UKB Planning Area.....	39

## LIST OF FIGURES

Figure 1.	The five planning areas of the South Florida Water Management District.....	1
Figure 2.	Annual average reclaimed water, in million gallons per day, used in the SFWMD from 1994 to 2022.....	13
Figure 3.	Districtwide total reuse flows for categories (inclusive of supplemental water).....	16
Figure 4.	Districtwide total reuse by irrigation subcategories (inclusive of supplemental water).....	17
Figure 5.	Districtwide supplemental water flows by source.....	18
Figure 6.	Districtwide total effluent disposal by method.....	20
Figure 7.	Total reuse by category for the LEC Planning Area (inclusive of supplemental water).....	22
Figure 8.	Reuse system interconnections in northern Palm Beach County..	25
Figure 9.	Reuse system interconnections in southern Palm Beach and Broward counties.....	26
Figure 10.	Reuse system interconnections in Miami-Dade County.....	27
Figure 11.	Total reuse by category in the LKB Planning Area. ....	28
Figure 12.	Total reuse by category for the LWC Planning Area (inclusive of supplemental water).....	30
Figure 13.	Reuse system interconnections in the LWC Planning Area. ....	33
Figure 14.	Total reuse by category for the UEC Planning Area (inclusive of supplemental water).....	34
Figure 15.	Reuse system interconnections in the UEC Planning Area.....	36
Figure 16.	Total reuse by category for the UKB Planning Area.....	37
Figure 17.	Reuse system interconnections in the UKB Planning Area..	40

## **ACRONYMS AND ABBREVIATIONS**

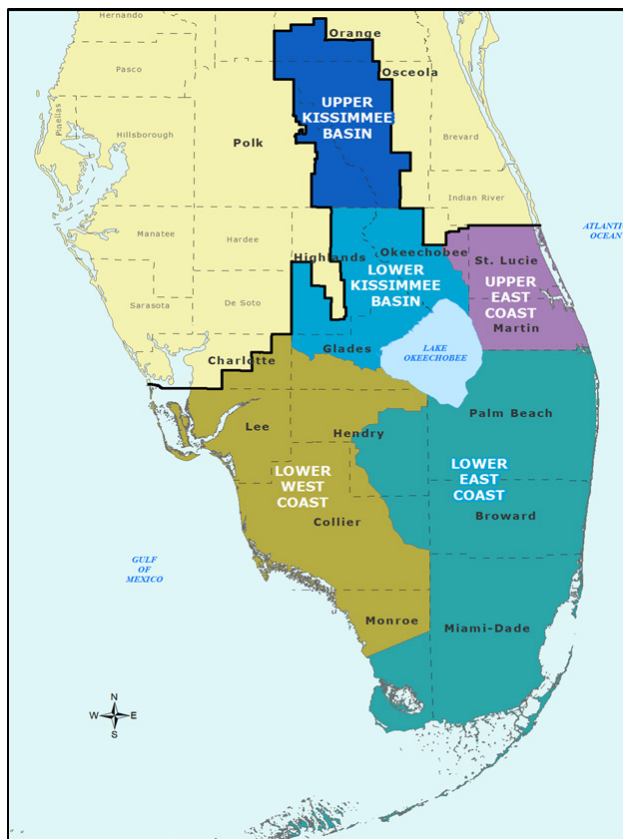
AWT	advanced wastewater treatment
CFWI	Central Florida Water Initiative
District	South Florida Water Management District
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
F.S.	Florida Statutes
FY	Fiscal Year
LEC	Lower East Coast
LKB	Lower Kissimmee Basin
LWC	Lower West Coast
mgd	million gallons per day
MRZ	mandatory reuse zone
OOL	Ocean Outfall Law
PRC	Potable Reuse Commission
SFWMD	South Florida Water Management District
UEC	Upper East Coast
UKB	Upper Kissimmee Basin
WWTF	wastewater treatment facility



# 1. INTRODUCTION

The South Florida Water Management District (SFWMD or District) encompasses all or part of 16 counties from Orlando to the Florida Keys and serves a population of approximately 9 million residents. To manage water supply and plan for current and future water uses, the District is geographically divided into five planning areas shown in **Figure 1**. This document provides insight into the beneficial use of reclaimed water in the District focusing specifically on reuse flow data during Fiscal Year (FY) 2022 (October 1, 2021 to September 30, 2022) following the annual reuse reporting period as designated by the Florida Department of Environmental Protection (FDEP). Other flow data related to the implementation of reuse, including total effluent, water from supplemental sources, and final effluent disposal, are also reported. The main categories of water reuse are presented along with the percentages of reused effluent.

This document is divided into five sections. **Section 1** is a general introduction to the subject of reclaimed water and to the document itself. **Section 2** provides brief explanations of topics related to, or affecting, reuse within the District. These topics include drivers of water reuse (i.e., population, limitations on the use of other water sources, and limitations on wastewater effluent disposal); the Leah Schad Memorial Ocean Outfall Law (OOL); mandatory reuse zones (MRZs); reclaimed water in the water use permitting process; and reclaimed water system interconnections. **Section 2** also summarizes 2024 state legislation affecting water reuse and the ongoing development of rules governing potable reuse. Treatment and disinfection levels, as recognized by the State of Florida, are also briefly introduced. **Section 3** provides reuse and related flow data Districtwide for FY2022. **Section 4** presents reuse and related flow data for each of the District's five planning areas for FY2022. **Section 5** provides conclusions and takeaway points from the information and data analyses conducted for this report. **Appendix A** lists Florida Statutes and Florida Administrative Code numbers and titles referenced in this document.



**Upper Kissimmee Basin:** Portions of Osceola, Orange, and Polk counties

**Lower Kissimmee Basin:** Portions of Okeechobee, Highlands, and Glades counties

**Upper East Coast:** Martin and St. Lucie counties and a portion of eastern Okeechobee County

**Lower East Coast:** Palm Beach, Broward, and Miami-Dade counties and portions of Monroe, Collier, and Hendry counties

**Lower West Coast:** Lee County, most of Collier County, and portions of Glades, Hendry, Monroe, and Charlotte counties

Figure 1. The five planning areas of the South Florida Water Management District.

## Reclaimed Water and Reuse in Florida

Most broadly, reclaimed water is wastewater that has received at least secondary treatment and basic disinfection (levels of treatment and disinfection are discussed later in this section of the document) and is reused for a beneficial purpose after leaving a domestic wastewater treatment facility (WWTF) in accordance with Rule 62-600.200, Florida Administrative Code (F.A.C.). “Reuse” is the deliberate application of reclaimed water for a beneficial purpose. Criteria used to classify projects as “reuse” or “effluent disposal” are contained in Rule 62-610.810, F.A.C.

Chapters 373 and 403, Florida Statutes (F.S.), declare the encouragement and promotion of water reuse are state objectives and that reclaimed water is critical for meeting existing and future water supply needs. These statutes also encourage local governments to implement reuse projects and declare cooperative efforts between state and local government agencies in developing alternative water supplies, which include reclaimed water, as “mandatory.” Finally, the statutes identify water reuse as a recognized alternative water supply source and thereby eligible for state funding.

The Water Resource Implementation Rule (Chapter 62-40, F.A.C.) requires the FDEP and the state’s five water management districts to advocate and direct the use of reclaimed water as integral parts of water management programs, rules, and plans. The SFWMD requires all water use permit applicants proposing to use more than 0.10 million gallons per day (mgd) of water to use reclaimed water, if feasible.

Wastewater reuse conserves water resources by reducing reliance on traditional freshwater sources for many uses, such as irrigation. In some cases, reclaimed water can be utilized at a lower cost than other alternative water sources. Because wastewater is generated year-round, reclaimed water is considered a highly reliable water source and an environmentally sound alternative to traditional effluent (treated wastewater) disposal methods, such as ocean outfalls and deep well injection. However, the reuse of all available effluent by a given utility may not be feasible. Nonetheless, with some exceptions and within some limitations, the percentage of effluent that is reused for a beneficial purpose rather than disposed within a region can be considered a metric of reclaimed water reuse achievement.

## Data and Metrics

Wastewater, reuse, and related flows for FY2022 were analyzed for 124 of the 128 WWTFs in the SFWMD with a treatment capacity of 0.10 mgd or greater, with the exception of the Sebring Airport (Highlands County), permitted at 0.09 mgd, which is included in this report. The four remaining WWTFs, owned and operated by the Seminole Tribe of Florida, are not required by statute to provide data to the State of Florida. Therefore, flows for those facilities are not included.

Twenty of the 124 facilities are not permitted to produce reclaimed water (wastewater treatment permitted only). Flow data for those facilities were obtained via communications with FDEP staff. Flow data for the remaining 104 facilities (permitted to produce reclaimed water) were obtained from the individual reuse inventory reports submitted by the facilities to the FDEP for FY2022 (FDEP 2023b).

All flows presented in this report are annual average daily flows shown in mgd. Differences between any flows reported in the *2022 Reuse Inventory* report (FDEP 2023c) and flows reported within this document are due to data corrections made by the SFWMD after verification via communications with utility staff as necessary. Differences between wastewater flows at treatment facilities and the sum of water reused and disposed from these facilities can exist due to the addition of post-treatment supplemental water (e.g., membrane concentrate), transfer of flows between facilities, and in-facility processes, among other factors, that can lead to double counting of flows and/or metering inaccuracies.

As defined in Section 373.019, F.S. and Chapter 62-610 F.A.C., the following terms are utilized within this document:

- **Reclaimed water** is water that has received at least secondary treatment and basic disinfection and is reused after flowing out of a domestic WWTF. However, basic disinfection is not required for reclaimed water used in once-through, closed-loop cooling systems at industrial facilities, provided it is returned to the treatment facility for treatment after use.
- **Reuse (and water reuse)** refer to the deliberate application of reclaimed water for a beneficial purpose.
- **Reclaimed water distribution system** means a network of pipes, pumping facilities, storage facilities, and appurtenances designed to convey and distribute reclaimed water from one or more domestic WWTFs to one or more users of reclaimed water.

In addition, this document also uses the following terms:

- **Reuse and related flows** consist of treated wastewater (effluent), supplemental water, total reuse, and disposal flows.
- **Reused effluent** refers to the amount of effluent reused for a beneficial purpose independent of water from any supplemental water source. This metric, shown in mgd, is calculated as follows:  $\text{Reused Effluent} = \text{Total Reuse} - \text{Supplemental Water}$ .
- **Supplemental water** refers to surface water, groundwater, treated stormwater, demineralized concentrate, or drinking water added to a reclaimed water system to expand the supply of reclaimed water. This is typically done to ensure peak demands for reclaimed water can be met.
- **Total effluent** refers to the total amount of treated wastewater (effluent) before being reused or disposed of.
- **Total reuse** refers to the total amount of reclaimed water, including any water from a supplemental source added to a reuse system, applied for beneficial purposes. This metric is derived from metered or calculated flows as reported by facility operators in each reuse facility's annual reuse report and is shown in mgd.
- **% of effluent disposed** refers to the amount of effluent disposed as a percentage of the total effluent. This metric, shown as a percentage, is calculated as follows:  $\% \text{ Effluent Disposed} = \text{Effluent Disposed} / \text{Total Effluent}$ .
- **% of reused effluent** refers to the amount of effluent reused for a beneficial purpose as a percentage of the total amount of effluent flow. This metric, shown as a percentage, is calculated as follows:  $\% \text{ Reused Effluent} = (\text{Total Reuse} - \text{Supplemental Water}) / \text{Total Effluent}$ .

As defined in Chapter 62-610, F.A.C., beneficial reuse is divided into the following use categories and subcategories:

- Agricultural Irrigation (including the subcategories of edible crops and other crops)
- Public Access Areas and Landscape Irrigation (including the subcategories of golf course irrigation, residential irrigation, and other public access irrigation).

- Groundwater Recharge<sup>1</sup> (including the subcategories of rapid infiltration basins, absorption fields, sprayfields, and injection to potable aquifers)
- Industrial Uses (including the subcategories of at treatment plant and at other facilities)
- Toilet Flushing<sup>2</sup>
- Fire Protection<sup>3</sup>
- Wetlands Recharge<sup>4</sup>
- Other (such as commercial laundry, vehicle washing, dust suppression, etc.)

For the purposes of this document, the major categories of beneficial reuse are listed below. Due to the significant portion of the District’s reuse profile accounted for by irrigation, irrigation reuse is divided into subcategories.

- **Agricultural Irrigation** (including the subcategories of edible and nonedible crops)
- **Landscape Irrigation** (including the subcategories of residential properties, golf courses, and other public access areas)
- **Groundwater Recharge<sup>4</sup>** (rapid infiltration basins, absorption fields, sprayfields, and injection to potable aquifers)
- **Wetlands Recharge<sup>4</sup>**
- **At Treatment Plant** (reuse within the WWTF such as for filter backwashing, equipment cooling, dust suppression, on-site irrigation)
- **Industrial and Other** (heating, ventilation, and air conditioning or other equipment cooling; toilet flushing; street washdown; dust suppression; and other uses at facilities other than the facility which produced the reclaimed water)

## 2. FACTORS RELEVANT TO WATER REUSE IMPLEMENTATION

### Increasing Demands and Limitations on Traditional Water Sources

The permanent population in the District is projected to grow from 9.2 million in 2023 to 10.8 million by 2045. As the population increases, so will water demands and, with that, stress on water resources and natural systems. Regulatory measures (permitting criteria) have been established to safeguard water resources and natural systems from harm. To further protect these resources, the District has adopted measures that restrict additional water use allocations from specified groundwater and surface water sources, including the adoption of minimum flows and minimum water levels, water reservations, restricted allocation area designations, and water shortage rules. More information on these regulatory measures is provided in Chapter 4 of the *2021–2024 Support Document for Water Supply Plan Updates* (SFWMD 2021b).

---

<sup>1</sup> In a majority of South Florida, the surficial aquifer system is present from land surface to a depth of 100 to 150 feet below land surface. The surficial aquifer system is widely used by many users including public supply; landscape and recreational; commercial, industrial, institutional; and agriculture. The surficial aquifer system is recharged from land surface by rainfall and surface water features, such as canals, ponds, and lakes. As such, reclaimed water percolation ponds and drainfields beneficially recharge the surficial aquifer system and are considered reuse.

<sup>2</sup> Toilet flushing is an extremely rare use of reclaimed water in the SFWMD. Therefore, it has been grouped with At Treatment Plant or Industrial and Other categories as reported by the individual facility operators.

<sup>3</sup> Fire protection is excluded as it is not quantified in reporting documents required by the FDEP.

<sup>4</sup> Chapter 62-610, F.A.C., states if it can be demonstrated affirmatively that a wetland reuse project provides wetland creation, restoration, or enhancement, it is classified as “reuse.” Otherwise it is classified as “effluent disposal.”

Together, the projected increase in water demands fueled by population growth and the regulatory limitations on water resource use act as drivers toward greater use of alternative water supplies. The use of reclaimed water is one way to simultaneously meet increasing water demands and safeguard water supplies while optimally managing treated wastewater. For these reasons, the District’s regional water supply plans (<https://www.sfwmd.gov/our-work/water-supply>) stress the need for greater attention toward the development of alternative water supplies, such as reclaimed water, and demand reduction through water conservation efforts.

## **Leah Schad Memorial Ocean Outfall Program**

In 2008, the OOL pursuant to Section 403.086(10), F.S. was enacted. The OOL was named in honor of Leah Schad, a former SFWMD Governing Board member, board chairwoman of the Florida Audubon Society, and president of the local chapter of the Audubon Society of the Everglades.

The OOL requires ceasing use of ocean outfalls (all six are located in southeastern Florida) as a primary means for disposal of treated domestic wastewater by December 31, 2025, except as a backup for wet weather discharge for a reuse system. The OOL program applies to each of the following facilities/utilities, all of which are in the Lower East Coast Planning Area, that have permits to discharge through an ocean outfall. They are as follows: South Central Regional Water Reclamation Facility (serving the cities of Boynton Beach and Delray Beach), Boca Raton Water Reclamation Facility, Broward County North Regional Water Reclamation Facility, Hollywood Southern Regional Water Reclamation Facility, Miami-Dade North District Wastewater Treatment Plant, and Miami-Dade District Wastewater Treatment Plant. In addition, Cooper City and the Town of Davie have obligations to meet OOL requirements as they are permitted to discharge effluent through the outfall operated by the City of Hollywood (via the Southern Regional Facility).

The objectives of the OOL are to reduce treated wastewater disposal (and the associated nutrient loading) to the ocean environment and to beneficially reuse that water to meet water demands. Affected wastewater utilities are required to reuse at least 60% of their baseline outfall flows (the average outfall flows for the calendar years 2003 through 2007) by December 31, 2025. Beginning in 2026, ocean outfalls will be used only for backup disposal. This will have a significant impact on the reuse profile of the Lower East Coast (LEC) Planning Area.

The impacts of reclaimed water use in the areas affected by the OOL are presented in **Section 4** (see Reuse and Related Flows by County: Lower East Coast). More detailed information on the progress of the affected utilities toward meeting their reuse requirements of the OOL can be found in Appendix E of the upcoming *2023–2024 Lower East Coast Water Supply Plan Update*.

The OOL provides utilities an option to satisfy their reuse requirements by entering a contract with another utility under provisions of Section 163.01, F.S., otherwise known as the Florida Interlocal Cooperation Act of 1969. Under contractual or “virtual” reuse agreements, one city/utility can contribute financially to the development of another city/utility’s reuse system and receive credit for the subsequent reuse flows toward meeting the OOL requirements.

## Surface Water Discharges, Chapter 2021-168, Laws of Florida

The goal of Chapter 2021-168, Laws of Florida, previously known as Senate Bill 64 (SB-64) is to eliminate nonbeneficial effluent disposal to surface water bodies by January 1, 2032. Although the law covers facilities anywhere in the state, it was created primarily to protect springs and other sensitive watersheds outside the SFWMD.

Under SB-64, utilities were required to submit surface water discharge phase-out plans to the FDEP by November 1, 2021. SB-64 allows for certain continued discharges: those associated with an indirect potable reuse project, wet weather backup, stormwater management systems subsequently withdrawn by a user for irrigation purposes, ecological or public water supply benefits (such as rehydrating wetlands or implementing the requirements of minimum flows and minimum water levels), and for facilities that reused 90% or more of their annual average flow for the prior 5 consecutive years. Additionally, exemptions to SB-64 exist for facilities located in some rural and/or economically challenged areas and for small facilities, such as mobile home parks.

The FDEP's Division of Water Resource Management is required to produce an annual progress report regarding the status of the state's affected WWTFs. The latest report, *Annual Report on Facilities Requiring Elimination of Discharges to Surface Waters* (Annual Report; FDEP 2023a), was released in December 2023. Based on the information submitted in 2023 for the entire state, by January 1, 2032, approximately 470 mgd of surface water discharges will be eliminated (13 mgd of which has already been eliminated). In addition, approximately 482 mgd of beneficial surface water discharges will continue.

Per the FDEP Annual Report (FDEP 2023a), there were 27 SFWMD facilities permitted to conduct surface water discharges in 2023, many associated with potential discharges from reclaimed water storage ponds. Among those 27 facilities, 3 are claiming exemption from SB-64, 3 are preparing to fully eliminate surface water discharge flows, 7 have proposed to partially eliminate surface water discharges, and 21 (including the 7 which have proposed to partially eliminate surface water discharges) have submitted plans to allow for the continuation of beneficial surface water discharges. Among the 21 claiming beneficial discharges are 8 facilities mandated to meet the OOL statutory requirements under Section 403.086(10), F.S. **Table 1** shows SFWMD facilities permitted to conduct surface water discharges in 2023, subdivided by those requesting exemptions, those eliminating all or partial discharges (and their dates of elimination), and those claiming beneficial discharges (and the discharge allowance category) as shown in the FDEP Annual Report (2023a).

In FY2022, only six facilities within the SFWMD actually disposed of effluent to surface or coastal waters for a total combined flow of 16.28 mgd (excluding ocean outfalls) which represented just 3.5% of all treated effluent disposals Districtwide. Of those facilities, one (Clewiston) has filed for an exemption, four (Avon Correctional, Fort Myers Central, Fort Myers South, and Lee County Utilities Fiesta Village) claim beneficial discharge allowances.

In conclusion, surface water discharges among facilities in the SFWMD were not significant in FY2022 (excluding ocean outfalls, which should be nearly eliminated by 2026, and emergency backup use). Nonetheless, SB-64 will serve to further reduce current and future disposal options for WWTFs in the District and create additional incentives for WWTFs within the District to investigate alternative disposal options, including water reuse.

Table 1. SFWMD facilities permitted to conduct surface water discharges in 2023, subdivided by those requesting exemptions, those eliminating all or partial discharges (and their dates of elimination), and those claiming beneficial discharges (and the discharge allowance category) as shown in the FDEP Annual Report (2023a).

<b>Exemption Requests</b>	<b>Exemption Claimed</b>
Clewiston	Rural Area
Ocean Maisonettes	Fiscally Constrained
Wellington Arms Condo	Fiscally Constrained
<b>Facilities Eliminating All Discharges</b>	<b>Date of Elimination</b>
Collier County North	2/3/2023
Fort Pierce Utilities Authority	1/1/2028
Toho-Walnut	12/31/2023 (Facility decommissioned 2/2024)
<b>Facilities Partially Eliminating Discharges</b>	<b>Date of Elimination</b>
Broward County–North Regional	12/31/2025
Davie	12/31/2025
Fort Myers Central	12/31/2023
Fort Myers South	12/31/2023; 12/31/2025; 12/31/2028
Lee County Utilities Fiesta Village	12/31/2023
Miami-Dade Central District	12/31/2025
Miami-Dade North District	12/31/2025
<b>Facilities Claiming Beneficial Discharges</b>	<b>Discharge Allowance Category</b>
Avon Park Correctional	Direct ecological benefit
Boca Raton	Meets Section 403.086(10), F.S.
Broward County–North Regional	Meets Section 403.086(10), F.S.
Cape Coral Everest	Wet weather discharge; 90% reuse
Collier County South	Stormwater management for irrigation
Cooper City	Meets Section 403.086(10), F.S.
Davie	Meets Section 403.086(10), F.S.
Fort Myers Central	Wet weather discharge
Fort Myers South	Wet weather discharge
Hollywood Southern Regional	Meets Section 403.086(10), F.S.
Lee County Utilities Fiesta Village	Stormwater management for irrigation; wet weather discharge
Loxahatchee River District	Stormwater management for irrigation; wet weather discharge
Martin Tropical Farms	Stormwater management for irrigation
Miami-Dade Central District	Meets Section 403.086(10), F.S.
Miami-Dade North District	Meets Section 403.086(10), F.S.
Naples	90% reuse
Palm Beach County Central Regional	Stormwater management for irrigation
Palm Beach County Southern Regional	Stormwater management for irrigation; direct ecological benefit
Seacoast	Stormwater management for irrigation
South Central Regional (Boynton Beach/Delray Beach)	Meets Section 403.086(10), F.S.
St. Lucie County South Hutchinson Island	90% reuse

F.S. = Florida Statutes; mgd = million gallons per day.

Note: Section 403.086(10), F.S., outlines OOL requirements (allows only backup disposal).

## Mandatory Reuse Zones

MRZs are designated sections within a utility service area or local municipality where properties are required to receive or prepare to receive reclaimed water, most often for irrigation, pending service being active or anticipated. MRZs are specified in local ordinances or as a condition of (water) service for new developments. While most ordinances require properties within an MRZ to connect to reclaimed water lines when service becomes available, individual municipalities have varying and conditional connection requirements. These requirements may apply to existing developments and/or new or future developments and may be based on property or parcel type as well as distance to existing reclaimed water distribution lines.

Entities with MRZs and their respective ordinance number, or other reference document, are shown in **Table 2**. For specifics on a particular MRZ's connection requirements, refer to each MRZ reference document.

Table 2. Mandatory reuse zones in the SFWMD.

Planning Area	County	Municipality/Reuse Provider	MRZ Reference Document
LEC	Broward	Broward County	Chapter 34 Article XI Sec. 34-253
	Broward	Davie	Chapter 25 Article VI Sec. 25-60
	Broward	Hollywood	Title V Chapter 52 Sec. 52.75
	Broward	Lighthouse Point	Chapter 50 Article II Sec. 50-4
	Broward	Miramar	Chapter 21 Article IX Sec. 21-296
	Broward	Pompano Beach	Title V Chapter 54 Sec. 54.02
	Broward	Sunrise	Chapter 15 Article V Sec. 15-152
	Monroe	Key West	Chapter 108 Article IX Sec. 108-957
	Palm Beach	Boca Raton	Chapter 17 Article VII Sec. 17-203
	Palm Beach	Delray Beach	Title 5 Chapter 59 Sec. 59.06
Palm Beach	Palm Beach County	Chapter 27 Article IX Sec. 27-176	
UEC	Martin	Martin County	Chapter 159 Article VI Sec. 159.166
LWC	Collier	Naples	Chapter 30 Article IV Sec. 30-252
	Lee	Lee County	LDC Chapters 10-352 and 10-417
UKB	Orange	Orange County	Chapter 37 Article I Sec. 37-4
	Orange	Orlando	Title I Charter Chapter 32 Sec. 32.3
	Osceola	Osceola County	LDC Chapter 4 Article 4.8 Sec. 4.8.10
	Osceola	Toho Water Authority	Toho Water Authority Water and Wastewater System Standard Developer's Service Agreement (Connection to reclaimed water is required per condition of service for all new developments.)
	Polk	Polk County	Chapter 12 Article II Sec. 12-23 LDC Chapter 7 Sec. 702

LDC = Land Development Code; LEC = Lower East Coast; LKB = Lower Kissimmee Basin; LWC = Lower West Coast; mgd = million gallons per day; UEC = Upper East Coast; UKB = Upper Kissimmee Basin.



## Reclaimed Water System Interconnections

Reclaimed water system interconnections occur when two or more WWTFs are coupled by a direct plant-to-plant connection, or by a shared distribution system (or “network”). These systems may be owned or operated by different utilities or may be between two or more domestic WWTFs of a single utility. In some cases, raw wastewater (untreated, and/or treatment concentrate) or effluent is sent to a second facility for treatment or additional (tertiary) treatment and subsequent inclusion in the receiving facility’s reclaimed water system. In other cases, two or more facilities provide reclaimed water to a shared distribution network. These types of interconnections create system flexibility and increase the efficiency and reliability of the facilities’ reclaimed water systems. Existing reclaimed water system interconnections in each of the District’s planning areas are described in **Section 4** of this document.

## Levels of Reclaimed Water Treatment and Disinfection

A key concept in implementing water reuse is to apply the appropriate level of treatment and disinfection commensurate for the intended application (i.e., compatible water quality). Regulations governing reuse of reclaimed water and land application in Florida and applied by the FDEP are contained in Chapter 62-610, F.A.C. In general, higher levels of disinfection are required for reuse applications where the public would be in contact with the reclaimed water versus applications where public access is restricted (e.g., landscape irrigation versus within an industrial process).

Primary treatment of wastewater occurs at the headworks of a treatment plant, typically using physical methods to remove floating and settleable materials from the wastewater stream. Secondary treatment refers to biological treatment processes designed to reduce organic matter from wastewater. Activated sludge is the most well-known and common type of secondary treatment. As stated previously, reclaimed water is wastewater that has received *at least* secondary treatment and basic disinfection unless specified otherwise in Chapter 62-610 F.A.C.

Tertiary wastewater treatment refers to additional treatment processes aimed at removing organic and inorganic materials, nutrients, metals, pathogens, and suspended solids as well as reducing turbidity remaining after secondary treatment. Methods of tertiary treatment include, but may not be limited to, sand filtration, low- and high-pressure membranes (microfiltration, ultrafiltration, and reverse osmosis), activated carbon, ion exchange, advanced oxidative processes, polishing ponds, and disinfection. While these tertiary processes are highly effective at mineralizing pharmaceutical waste, petroleum waste, dyes, and other unwanted agents, many of the processes can be quite costly and produce significant greenhouse gas emissions. Other tertiary methods known as green infrastructure, such as polishing ponds, for example, can significantly improve many water quality parameters with less associated costs and lower greenhouse gas emissions, but may require larger treatment facility footprints than may be available to some utilities, particularly in more urbanized areas.

Disinfection is employed during wastewater treatment to remove or incapacitate harmful microorganisms typically using chlorine or ultraviolet light. Several water quality and other factors affect final disinfection levels, most significantly, turbidity, mixing ratios (e.g., chlorine concentrations), and contact time. In Florida, disinfection levels are outlined in Rule 62-600.440, F.A.C, where designations (e.g., basic, high) are focused on final fecal coliform levels. Basic and high levels of disinfection indicate a facility’s level of effluent disinfection as described in Subsections 62-600.440(5) and 62-600.440(6), F.A.C., respectively. **Table 3** summarizes the minimum treatment and disinfection levels required for each application defined in Chapter 62-610, F.A.C. Treatment levels for individual facilities can be found in the Reclaimed Water and Effluent Limitations and Monitoring Requirements section of each facility’s FDEP wastewater permit.

Table 3. An overview of required treatment and disinfection levels for common reuse applications.

Reuse Application Type	Short Description	Treatment	Disinfection	Notes
Slow-rate land application with no public access	Application of reclaimed water to a vegetated land surface where public access is restricted	Secondary	Basic	Most often includes sprayfields and pastures. Plant and soil matrix provides additional treatment.
Slow-rate land application with public access	Irrigation of areas accessible to the public (e.g., golf courses, parks, residential properties, and edible crops)	Secondary	High	Also includes toilet flushing, fire protection, street cleaning, dust control, and vehicle washing etc.
Rapid-rate land application	Rapid infiltration basins, percolation ponds, or absorption fields discharging to groundwater	Secondary	Basic and meet the nitrate standard of 12 milligrams per liter	--
Aquifer storage and recovery	Injection of reclaimed water into a subsurface formation for storage and recovery of the stored reclaimed water for beneficial purposes later	Injected water must meet applicable groundwater requirements before injection.	Recovered water must meet fecal coliform standards for high-level disinfection.	Reclaimed water that has been stored in an aquifer is considered "reused" only when it has been recovered and used for beneficial purposes.
Recharge of Class F-I, G-I, and G-II groundwaters	Approved uses of reclaimed water include rapid-rate land application systems, injection, salinity barrier systems to impede migration of saltwater, and discharges to directly connected surface waters.	Treatment requirements specific to the type and class of receiving groundwater		--
Indirect potable reuse	Planned uses of reclaimed water to augment surface water resources which are used or will be used for public water supply include discharges to Class I surface waters and other surface waters directly or indirectly connected to Class I surface waters.	Treatment requirements specific to the type and class of receiving surface water		--
Wetlands creation, restoration, and enhancement	Reclaimed water used to create, restore, or enhance man-made wetlands as well as hydrologically altered wetlands	Wastewater wetlands that discharge to Class I surface waters or contiguous to Class I surface waters must meet the same requirements as other discharges to surface water.		--

Table 3. Continued.

Reuse Application Type	Short Description	Treatment		Disinfection
Industrial uses	Reclaimed water used for cooling water, wash water, or process water at industrial facilities (but not in facilities that process food or beverages)	Secondary	Basic (in most cases)	Some applications may require different levels of treatment.

The term advanced wastewater treatment (AWT) refers not to a treatment method, but to specified resultant water quality. With some exceptions, AWT, as defined in Section 403.086, F.S., generally refers to treatment(s) which will provide a reclaimed water product that is in compliance with the following standards:

- Contains not more, on a permitted annual average basis, than the following concentrations:
  - Biochemical Oxygen Demand (CBOD5), 5 milligrams per liter (mg/L)
  - Suspended Solids, 5 mg/L
  - Total Nitrogen, expressed as N, 3 mg/L
  - Total Phosphorus, expressed as P, 1 mg/L
- Has received high-level disinfection as defined by Subsection 62-600.440(6), F.A.C.

AWT may become more broadly implemented as reclaimed water becomes more widespread, especially when applied as irrigation in ecologically sensitive or protected areas. Furthermore, the removal of a greater number of chemical constituents by water utilities will likely be required for the implementation of direct potable reuse programs. Florida Statutes do not require the implementation of specific tertiary treatment methods. As a result, utilities have flexibility in choosing the most appropriate and efficient treatment methods for their circumstances that will produce AWT quality water.

## Reclaimed Water: SFWMD Water Use Permitting

The FDEP has jurisdiction over permitting of wastewater and reclaimed water facility construction and operation, including treatment and disposal criteria. However, as part of the application criteria for a water use permit, utility applicants must evaluate the feasibility of implementing reuse, while applicants of other use types are required to use reclaimed water if it is feasible.

To receive a general or individual water use permit, an applicant must demonstrate the proposed use is a reasonable-beneficial use of water as required by Section 373.223, F.S. Additionally, Section 2.2.4 of the District’s *Applicant’s Handbook for Water Use Permit Applications within the South Florida Water Management District* (Applicant’s Handbook; SFWMD 2022a) requires public water supply utilities that operate a WWTF, either directly or indirectly, to evaluate (a) the feasibility of implementing reuse along with documentation regarding the availability of reclaimed water within the utility’s service area, (b) a schedule of reuse system implementation, (c) the quantity of available (uncommitted) reclaimed water supply, and (d) the presence of MRZs within the service area, if applicable. Further information is required if the utility requests water for supplementation of its reuse system.

Section 2.2.3 of the Applicant’s Handbook (SFWMD 2022a) states if a source of water of lower quality is available and is feasible for all or a portion of an applicant’s demand, the lower quality water, which may include reclaimed water, must be used before considering additional use of traditional water sources.

Although this section applies to all permit applicants, it more practically applies to applicants that are not a utility.

Applicants that are not a utility, such as a homeowner's association, for example, requesting 0.1 mgd or more water (from a single location or under multiple permits from contiguous locations) are required to use reclaimed water unless they demonstrate the use of reclaimed water is not feasible through an end user feasibility evaluation as described in Section 2.2.4 of the Applicant's Handbook (SFWMD 2022a). The evaluation occurs based on required documentation supplied by the user and relevant utility with the intent of determining if the connection to and use of reclaimed water by the permit applicant is as follows:

1. Environmentally feasible – The FDEP has permitted the reuse facility that will provide the reclaimed water supply, and reclaimed water is of such quality that it is suitable/allowable for the proposed end use.
2. Technically feasible – The reclaimed water supply is accessible at the property boundary.
3. Economically feasible – Obtaining and using reclaimed water will not cause the applicant undue economic hardship.

In addition, Section 2.2.4 of the Applicant's Handbook (SFWMD 2022a) states that for projects located either wholly or partly within an MRZ, the quantity of conventional water permitted shall be limited to the volume needed to meet demands beyond those met by the currently available supply of reclaimed water and/or a quantity necessary for emergency backup purposes.

## **The Florida Potable Reuse Commission**

Potable reuse has been safely implemented in other parts of the United States and internationally and has the potential to provide Florida with a new water source. Potable reuse refers to the implementation of a reuse system intended to be used for potable (drinkable) purposes directly or indirectly. Prior to use, potable reuse water is purified sufficiently to meet or exceed federal and state drinking water standards. As stated earlier, the development of alternative sustainable water sources is critical to meet projected water needs to support Florida's population and economic success. Although potable reuse is an established practice, additional information and supporting regulations are needed to advance potable reuse in Florida.

The Florida Potable Reuse Commission (PRC) is a coalition of a diverse group of water resource, industry, agricultural, environmental, and health professionals first assembled in early 2017. The goal of the PRC is the development of a consensus-based framework to advance the safe implementation of potable reuse in Florida for use by the water industry, regulators, and stakeholders. The PRC also includes a group of leading water industry associations and ex officio organizations in the state, including the FDEP and representatives from Florida's five water management districts.

In 2020, the PRC published its final report titled, *Framework for the Implementation of Potable Reuse in Florida* (WateReuse Association 2020). Also in 2020, the Florida Legislature directed the FDEP to initiate rule revisions based on the recommendations of the PRC's 2020 report. Revisions include updates to Chapters 62-610, 62-550, and 62-555, F.A.C. and the creation of a new chapter to focus on potable reuse implementation, Chapter 62-565, F.A.C. Two public workshops were held in 2022, and the rulemaking effort is ongoing.

Several Florida utilities have conducted pilot projects focused on potable reuse; however, they and other utilities are awaiting adoption of revised regulations before fully engaging in potable reuse programs. Once rules are ratified by the state, it is expected more pilot and full-scale potable reuse projects will be pursued.

## 2024 Legislation Affecting Reuse of Reclaimed Water

### Senate Bill 1386/House Bill 1557 – Department of Environmental Protection

The Florida Legislature Senate Bill 1386/House Bill 1557 amends various Florida Statutes to enhance environmental protection and management, particularly focusing on aquatic conservation, water management, and wastewater treatment. Changes affecting reclaimed water are as follows and are effective as of July 1, 2024:

- Revisions to Section 373.250, F.S., require water management districts to develop rules promoting reclaimed water use and encouraging quantifiable potable water offsets with specific requirements for such rules. These rules will allow for 30-year permit durations or 10-year permit extensions providing certain measures are met.
- Revisions to Section 403.064, F.S., revise requirements of domestic WWTFs to conduct reuse feasibility studies and the implementation of reuse under certain circumstances.
- Revisions to Section 403.086, F.S., establish that WWTFs providing reclaimed water for commercial or residential irrigation or other land applications must meet AWT standards within a basin management action plan or a reasonable assurance plan area if the FDEP has established that the use of reclaimed water is causing or contributing to the nutrient impairment being addressed in such plan.

### 3. REUSE IN THE SFWMD

Reclaimed water used for a beneficial purpose (e.g., landscape irrigation, golf course irrigation, groundwater recharge, cooling water, and other industrial uses) has increased approximately 300% between 1994 and 2022 (Figure 2). Annual fluctuations in the volume of reclaimed water used are due to the addition of new users and variable amounts of rainfall.

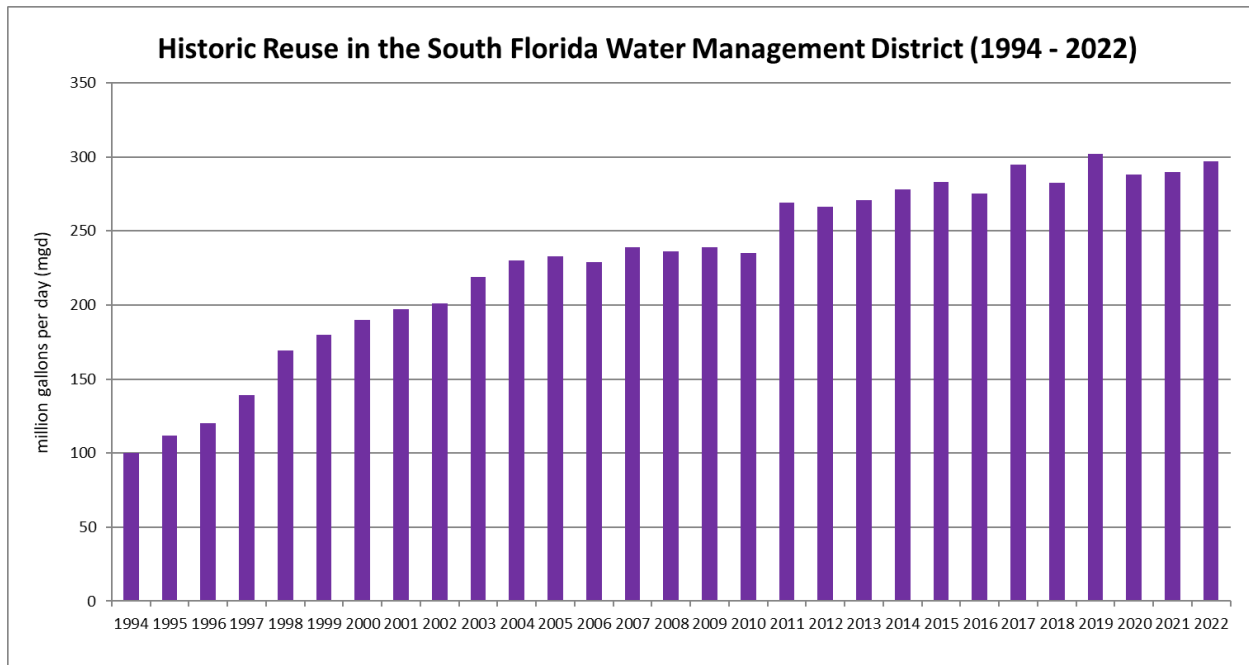


Figure 2. Annual average reclaimed water, in million gallons per day, used in the SFWMD from 1994 to 2022.

## Reuse by Planning Area in the SFWMD

Population and selected reuse and related flow data for the SFWMD in FY2022 are shown by planning area in **Table 4**. Population figures are derived from the University of Florida’s Bureau of Economic and Business Research and modified by SFWMD staff to reflect populations within the SFWMD for counties split with other water management districts.

Table 4. Population and percentages of selected reuse and related flows in FY2022 for the five planning areas in the SFWMD.

Parameter	LEC	LKB	LWC	UEC	UKB	SFWMD Total
Wastewater Treatment Facilities ( $\geq 0.1$ mgd)	47*	4*	40*	20	17	128
Permanent Population	6,414,116	51,018	1,196,711	507,835	872,176	9,041,856
Percent of SFWMD Totals						
Population	70.9%	0.6%	13.2%	5.6%	9.6%	100.0%
Total Effluent	75.4%	0.1%	10.5%	2.8%	11.2%	100.0%
Reuse Flow	33.9%	0.3%	29.0%	3.1%	33.7%	100.0%
Primary Application of Reuse	Landscape Irrigation	Agricultural Irrigation	Landscape Irrigation	Landscape Irrigation	Landscape Irrigation	Landscape Irrigation

LEC = Lower East Coast; LKB = Lower Kissimmee Basin; LWC = Lower West Coast; mgd = million gallons per day; UEC = Upper East Coast; UKB = Upper Kissimmee Basin.

\* Includes facilities owned and operated by the Seminole Tribe of Florida (one in the LWC, two in the LEC, and one in the LKB). Flows for those facilities were not analyzed for this report.

## Reuse and Related Flows in the SFWMD

In FY2022, the 124 facilities analyzed for this report treated an annual daily average wastewater flow of 892.21 mgd. Total reuse Districtwide was 296.94 mgd (which includes 31.34 mgd of supplemental water flows), and 633.83 mgd was disposed of, overwhelmingly, via deep injection wells and ocean outfalls. Supplemental water, discussed in **Section 1** of this document, is often added to reclaimed water supplies primarily to increase reclaimed water supply reliability. When discounting supplemental flows, 29.8% of the total effluent (or 265.60 mgd) produced in the District was reused. **Table 5** shows the population, reuse and related flows, and percentage of reused effluent by county and planning area in FY2022.

Table 5. Population, reuse and related flows, and percentage of reused effluent by county and planning area in FY2022.

County	Population	Planning Area	Total Effluent (mgd)	Supplemental Water (mgd)	Disposals (mgd)	Total Reuse <sup>a</sup> (mgd)	Reused Effluent <sup>b</sup> (mgd)	% Reused Effluent <sup>c</sup>
Broward	1,986,217	LEC	223.23	0.15	202.96	18.09	17.94	8.0%
Charlotte	1,647	LWC	0.36	1.26	0.00	1.69	0.43	118.0%
Collier	389,248	LWC/LEC	31.64	3.86	9.97	24.88	21.02	66.4%
Glades	12,314	LWC/LKB	0.23	0.00	0.00	0.23	0.23	100.0%
Hendry	41,178	LWC/LEC	1.83	0.00	0.55	1.62	1.62	88.5%
Highlands	8,976	LKB	0.03	0.00	0.00	0.03	0.03	100.0%
Lee	796,840	LWC	59.56	18.01	21.29	57.80	39.79	66.8%
Martin	161,558	UEC	7.61	0.09	3.38	4.63	4.54	59.7%
Miami-Dade	2,775,089	LEC	321.07	0.00	310.97	18.11	18.11	5.6%

Table 5. Continued.

County	Population	Planning Area	Total Effluent (mgd)	Supplemental Water (mgd)	Disposals (mgd)	Total Reuse <sup>a</sup> (mgd)	Reused Effluent <sup>b</sup> (mgd)	% Reused Effluent <sup>c</sup>
Monroe	84,636	LEC/LWC	9.61	0.04	8.73	0.38	0.34	3.5%
Okeechobee	38,704	LKB	1.10	0.00	0.36	0.74	0.74	67.4%
Orange	416,743	UKB	65.76	1.60	0.00	65.46	63.86	97.1%
Osceola	412,762	UKB	31.75	0.48	0.11	34.44	33.96	107.0%
Palm Beach	1,526,996	LEC	118.93	5.25	61.58	64.10	58.85	49.5%
Polk	42,671	UKB	2.29	0.00	0.26	0.10	0.10	4.2%
St. Lucie	346,277	UEC	17.21	0.61	13.66	4.65	4.04	23.5%
<b>Total</b>	<b>9,041,856</b>	<b>Districtwide</b>	<b>892.21</b>	<b>31.34</b>	<b>633.83</b>	<b>296.94</b>	<b>265.60</b>	<b>29.8%</b>

LEC = Lower East Coast; LKB = Lower Kissimmee Basin; LWC = Lower West Coast; mgd = million gallons per day; UEC = Upper East Coast; UKB = Upper Kissimmee Basin.

<sup>a</sup> Total reuse is beneficially reused reclaimed water inclusive of supplemental water.

<sup>b</sup> Reused Effluent = Total Reuse – Supplemental Water.

<sup>c</sup> % Reused Effluent = (Total Reuse – Supplemental Water) / Total Effluent.

The differences in the proportions of total reuse flow to population, as can be observed in **Table 5**, can be due to several factors in each county and/or planning area. For example, the two largest and most populated counties in the LEC Planning Area, Miami-Dade and Broward, were heavily developed before reuse implementation became widespread in Florida. This makes installation of reclaimed water transmission pipe and other infrastructure more costly to implement than in other less developed areas, such as the Lower West Coast (LWC) Planning Area (Collier, Lee, and rural parts of Glades, Charlotte, and Hendry counties), which began experiencing growth and development more recently. Much of the growth in the Upper Kissimmee Basin (UKB) Planning Area (Orange, Osceola, and Polk counties) also began after water reuse became more commonly implemented in Florida. In addition, the nature of the UKB's water supply and aquifer withdrawal challenges have created a necessity for utilities in that planning area to diversify water supply sources, including reclaimed water.

In FY2022, Irrigation (Landscape and Agriculture) was the largest category of reclaimed water use in the District, accounting for 201.17 mgd (or 67.7% of the 296.94 mgd Districtwide total reuse), followed by Groundwater Recharge at 41.51 mgd (or 14.0% of the total reuse) and At Treatment Plant (treatment process) use at 29.04 mgd (or 9.8% of the total reuse). Industrial and Other uses at 23.75 mgd (or 8.0% of the total reuse) and Wetlands recharge at 1.47 mgd (or 0.5% of the total reuse) made up the remainder of the Districtwide reuse profile. **Figure 3** shows the reclaimed water totals by categories for the District as a whole. **Table 6** shows the Districtwide breakdown of reuse by category and county.

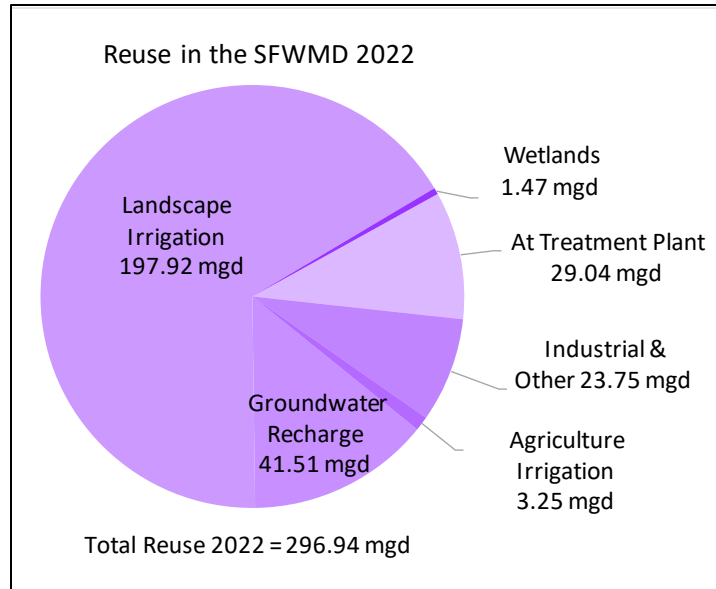


Figure 3. Districtwide total reuse flows for categories (inclusive of supplemental water).

Table 6. Reuse by county in FY2022 (inclusive of supplemental water).

County	Planning Area	Agriculture Irrigation (mgd)	Landscape Irrigation (mgd)	Groundwater Recharge (mgd)	Wetlands Recharge (mgd)	At Treatment Plant (mgd)	Industrial & Other <sup>a</sup> (mgd)	Total Reuse <sup>b</sup> (mgd)
Broward	LEC	0.00	7.60	0.29	0.00	9.66	0.55	18.09
Charlotte	LWC	0.00	1.47	0.05	0.00	0.00	0.17	1.69
Collier	LWC/LEC	0.17	24.27	0.44	0.00	0.00	0.00	24.88
Glades	LWC/LKB	0.00	0.00	0.23	0.00	0.00	0.00	0.23
Hendry	LWC/LEC	1.03	0.00	0.59	0.00	0.00	0.00	1.62
Highlands	LKB	0.03	0.00	0.00	0.00	0.00	0.00	0.03
Lee	LWC	0.00	51.56	4.85	0.00	0.36	1.03	57.80
Martin	UEC	0.29	4.00	0.23	0.00	0.01	0.10	4.63
Miami-Dade	LEC	0.00	0.00	4.10	0.00	14.01	0.00	18.11
Monroe	LEC/LWC	0.00	0.35	0.00	0.00	0.00	0.03	0.38
Okeechobee	LKB	0.42	0.00	0.00	0.00	0.00	0.32	0.74
Orange	UKB	0.49	39.97	22.46	0.00	1.76	0.77	65.46
Osceola	UKB	0.72	23.54	8.01	0.00	0.00	2.17	34.44
Palm Beach	LEC	0.00	40.77	0.06	1.47	3.18	18.62	64.10
Polk	UKB	0.10	0.00	0.00	0.00	0.00	0.00	0.10
St. Lucie	UEC	0.00	4.39	0.20	0.00	0.06	0.00	4.65
<b>Total</b>	<b>Districtwide</b>	<b>3.25</b>	<b>197.92</b>	<b>41.51</b>	<b>1.47</b>	<b>29.04</b>	<b>23.75</b>	<b>296.94</b>

LEC = Lower East Coast; LKB = Lower Kissimmee Basin; LWC = Lower West Coast; mgd = million gallons per day; UEC = Upper East Coast; UKB = Upper Kissimmee Basin.

<sup>a</sup> Other can include, but may not be limited to, activities such as toilet flushing or dust suppression.

<sup>b</sup> Total reuse is beneficially reused reclaimed water inclusive of supplemental water.

Due to the significant portion of the District's reuse profile accounted for by irrigation, inclusive of supplemental water, the reuse categories of Landscape Irrigation and Agricultural Irrigation are divided into subcategories as shown in **Figure 4**. In FY2022, the Landscape Irrigation subcategory of residential



properties, at 87.20 mgd, was the largest, accounting for 43.3% of all Landscape Irrigation reuse, followed by the subcategories of golf courses (57.56 mgd) and other public access areas (53.17 mgd). Agricultural Irrigation accounted for 3.25 mgd, including the subcategories of edible and nonedible crops. **Table 7** shows Landscape Irrigation and Agricultural Irrigation reuse by subcategory and by District planning area.

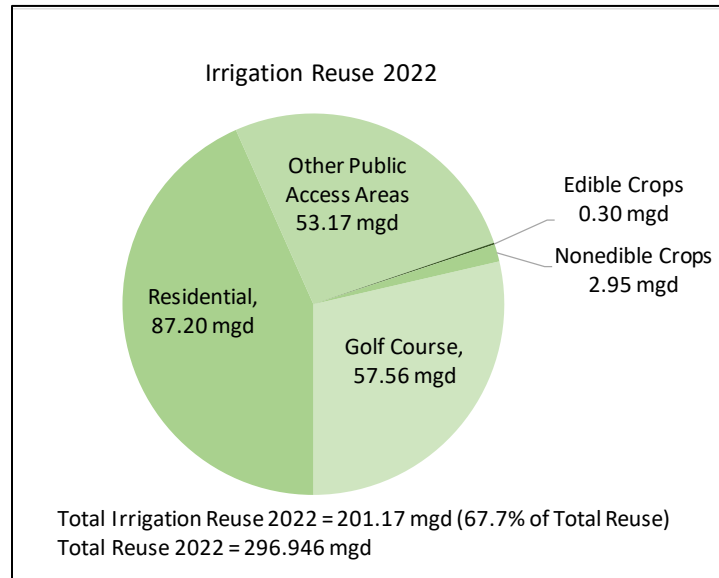


Figure 4. Districtwide total reuse by irrigation subcategories (inclusive of supplemental water).

Table 7. Irrigation reuse by subcategory and county in FY2022 (inclusive of supplemental water).

County	Planning Area	Golf Course (mgd)	Residential (mgd)	Other Public Access (mgd)	Edible Crops (mgd)	Nonedible Crops (mgd)	Total Irrigation (mgd)	Acres Irrigated
Broward	LEC	2.56	3.95	1.10	0.00	0.00	7.60	1,741
Charlotte	LWC	0.89	0.40	0.19	0.00	0.00	1.47	528
Collier	LWC/LEC	7.69	12.50	4.08	0.00	0.17	24.44	9,542
Glades	LWC/LKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hendry	LWC/LEC	0.00	0.00	0.00	0.00	1.03	1.03	198
Highlands	LKB	0.00	0.00	0.00	0.00	0.03	0.03	67
Lee	LWC	11.50	38.57	1.50	0.00	0.00	51.56	18,991
Martin	UEC	2.58	0.95	0.47	0.00	0.29	4.30	2,326
Miami-Dade	LEC	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monroe	LEC/LWC	0.22	0.10	0.03	0.00	0.00	0.35	446
Okeechobee	LKB	0.00	0.00	0.00	0.00	0.42	0.42	1,396
Orange	UKB	3.71	4.20	32.07	0.30	0.19	40.47	35,973
Osceola	UKB	4.37	11.76	7.41	0.00	0.72	24.26	10,947
Palm Beach	LEC	22.07	12.40	6.31	0.00	0.00	40.77	11,752
Polk	UKB	0.00	0.00	0.00	0.00	0.10	0.10	32
St. Lucie	UEC	1.99	2.38	0.02	0.00	0.00	4.39	3,427
<b>Total</b>	<b>Districtwide</b>	<b>57.56</b>	<b>87.20</b>	<b>53.17</b>	<b>0.30</b>	<b>2.95</b>	<b>201.17</b>	<b>97,366</b>

LEC = Lower East Coast; LKB = Lower Kissimmee Basin; LWC = Lower West Coast; mgd = million gallons per day; UEC = Upper East Coast; UKB = Upper Kissimmee Basin.

## Supplemental Sources to Meet Reclaimed Water Demand

Although wastewater, the precursor to reclaimed water, is generated year-round, in many systems there is variability to the flow due to seasonal population, tourism, and rainfall (infiltration/inflow increases). The demand for reclaimed water can also have a seasonal variability, especially in areas where reclaimed water is primarily used for irrigation due to rainfall and cooler winter months. In South Florida, seasonal population increases are not concomitant with (higher) summer demands for irrigation, which is the largest application use of reclaimed water. Therefore, supplemental water is sometimes added to reclaimed water systems by utilities to increase the reliability of their reclaimed water supply, especially to meet peak demands during dry periods.

In the SFWMD, supplemental water sources include the following:

- Surface water
- Groundwater
- Aquifer storage and recovery
- Membrane concentrate from drinking water facilities
- Drinking water

When utilities add membrane concentrate from a potable water facility to their reclaimed water supply, this augments their reclaimed water supply while simultaneously providing a disposal method for this water treatment byproduct. **Figure 5** shows the Districtwide breakdown of the water sources used to supplement reclaimed water.

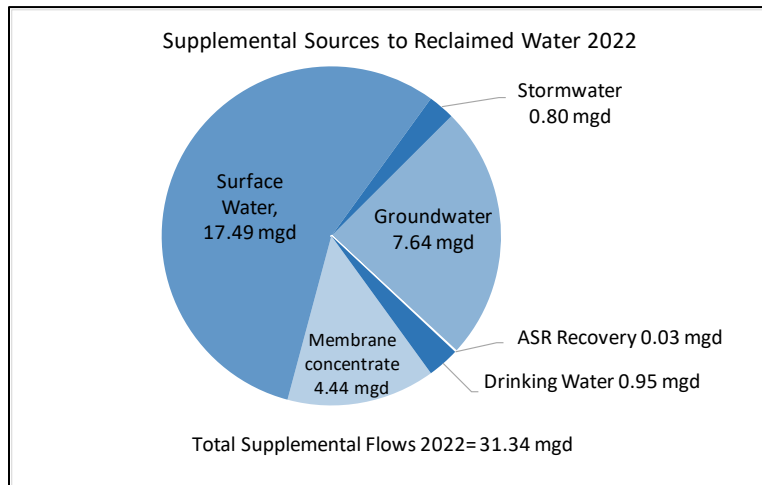


Figure 5. Districtwide supplemental water flows by source.

The use of supplemental water supplies is subject to District water use permitting requirements and water shortage restrictions for most supplemental sources. **Table 8** shows the breakdown of supplemental water by type and county.

Table 8. Supplemental water use by source and county in FY2022.

County	Planning Area	Surface Water (mgd)	Stormwater (mgd)	Groundwater (mgd)	Drinking Water (mgd)	Membrane Concentrate (mgd)	ASR Recovery (mgd)	Total Supplemental (mgd)
Broward	LEC	0.00	0.00	0.00	0.15	0.00	0.00	0.15
Charlotte	LWC	0.00	0.00	1.26	0.00	0.00	0.00	1.26
Collier	LWC/LEC	2.05	0.00	1.73	0.00	0.05	0.03	3.86
Glades	LWC/LKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hendry	LWC/LEC	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Highlands	LKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lee	LWC	15.18	0.22	2.57	0.04	0.00	0.00	18.01
Martin	UEC	0.00	0.00	0.09	0.00	0.00	0.00	0.09
Miami-Dade	LEC	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monroe	LEC/LWC	0.00	0.00	0.00	0.04	0.00	0.00	0.04
Okeechobee	LKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Orange	UKB	0.00	0.00	1.60	0.00	0.00	0.00	1.60
Osceola	UKB	0.24	0.00	0.24	0.00	0.00	0.00	0.48
Palm Beach	LEC	0.00	0.00	0.14	0.72	4.39	0.00	5.25
Polk	UKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00
St. Lucie	UEC	0.02	0.58	0.01	0.00	0.00	0.00	0.61
<b>Total</b>	<b>Districtwide</b>	<b>17.49</b>	<b>0.80</b>	<b>7.64</b>	<b>0.95</b>	<b>4.44</b>	<b>0.03</b>	<b>31.34</b>

LEC = Lower East Coast; LKB = Lower Kissimmee Basin; LWC = Lower West Coast; mgd = million gallons per day; UEC = Upper East Coast; UKB = Upper Kissimmee Basin.

## Effluent Disposal

The disposal of unused effluent is an expense to a water utility that provides no water supply benefit to the utility’s service area. Because wastewater is the precursor to water reuse, effluent disposal is the loss of potentially reusable water. Therefore, effluent disposal can be considered a metric of a utility or a region’s efficient use of water. That said, it may be unrealistic to presume all treated wastewater can be applied as reuse in all cases, as there are some circumstances where the establishment or expansion of a reclaimed water system is not feasible. Such circumstances may include the existing state of development of a community, where roads and other urban infrastructure make the installation of transmission lines costly and technically difficult. Other obstacles include a low demand for alternative (reclaimed) water, environmental water quality restrictions in ecologically sensitive areas, or coastal areas where saltwater has infiltrated into wastewater collection systems, increasing salinity of effluent in excess of the salt tolerance of most irrigated landscapes. In addition, in some locations, increases in water quality standards can push treatment costs higher than costs to dispose of treated effluent.

Wastewater and/or reclaimed water not used for a beneficial purpose is disposed of in the SFWMD via the following methods:

- Deep well injection
- Ocean discharge (phasing out except as emergency backup by 2026)
- Surface water discharge (phasing out with some exceptions by 2032)
- Coastal or estuarine discharge (phasing out with some exceptions by 2032)
- Shallow well injection (limited in the SFWMD to the Florida Keys)
- Other discharge (percolation ponds, sprayfields, borrow pits)

As stated previously, the total effluent disposal in the SFWMD in FY2022 was 633.83 mgd, representing 71.0% of the total effluent generated therein. Of the total effluent disposal, 443.64 mgd (70.0%) was injected into deep aquifer systems (not connected to potable aquifer sources). This is, in part, because many utilities have determined increasing deep well injection is more feasible than expanding water reuse at this time. Additionally, demand for reclaimed water tends to decrease during periods of wet weather. This forces utilities to maintain a reliable disposal option, especially during wet weather when irrigation demands are lowest. Hence, most utilities, including ones with active reuse programs, operate deep injection wells. For these reasons, deep well injection will continue to be the most prevalent means of effluent disposal into the future within South Florida, even as utilities continue to expand their reclaimed water systems.

Following deep well injection, ocean discharge made up the next most significant method of effluent disposal at 168.63 mgd, or 26.6% of the Districtwide total effluent disposal. **Figure 6** shows the Districtwide breakdown of effluent disposal. **Table 9** shows effluent disposal by method and by planning area.

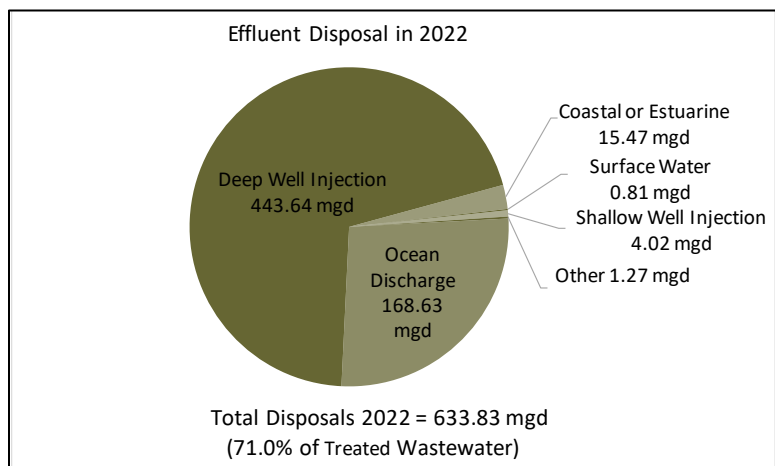


Figure 6. Districtwide total effluent disposal by method.

Table 9. Effluent disposal by method and county in FY2022.

County	Planning Area	Ocean Discharge (mgd)	Coastal or Estuarine (mgd)	Surface Water Discharge (mgd)	Deep Well Injection (mgd)	Shallow Well Injection (mgd)	Other <sup>a</sup> (mgd)	Total Disposal (mgd)	% Effluent Disposed <sup>b</sup>
Broward	LEC	48.90	0.00	0.00	153.67	0.00	0.40	202.96	90.9%
Charlotte	LWC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
Collier	LWC/LEC	0.00	0.00	0.00	9.94	0.00	0.03	9.97	31.5%
Glades	LWC/LKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
Hendry	LWC/LEC	0.00	0.00	0.55	0.00	0.00	0.00	0.55	30.0%
Highlands	LKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
Lee	LWC	0.00	15.47	0.00	5.69	0.00	0.13	21.29	35.7%
Martin	UEC	0.00	0.00	0.00	3.38	0.00	0.00	3.38	44.4%
Miami-Dade	LEC	115.08	0.00	0.00	195.75	0.00	0.14	310.97	96.9%
Monroe	LEC/LWC	0.00	0.00	0.00	4.72	4.02	0.00	8.73	90.9%
Okeechobee	LKB	0.00	0.00	0.00	0.36	0.00	0.00	0.36	32.6%
Orange	UKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%

Table 9. Continued.

County	Planning Area	Ocean Discharge (mgd)	Coastal or Estuarine (mgd)	Surface Water Discharge (mgd)	Deep Well Injection (mgd)	Shallow Well Injection (mgd)	Other <sup>a</sup> (mgd)	Total Disposal (mgd)	% Effluent Disposed <sup>b</sup>
Osceola	UKB	0.00	0.00	0.00	0.11	0.00	0.00	0.11	0.3%
Palm Beach	LEC	4.63	0.00	0.00	56.43	0.00	0.52	61.58	51.8%
Polk	UKB	0.00	0.00	0.26	0.00	0.00	0.00	0.26	11.4%
St. Lucie	UEC	0.02	0.00	0.00	13.60	0.00	0.05	13.66	79.4%
<b>Total</b>	<b>Districtwide</b>	<b>168.63</b>	<b>15.47</b>	<b>0.81</b>	<b>443.64</b>	<b>4.02</b>	<b>1.27</b>	<b>633.83</b>	<b>71.0%</b>

LEC = Lower East Coast; LKB = Lower Kissimmee Basin; LWC = Lower West Coast; mgd = million gallons per day; UEC = Upper East Coast; UKB = Upper Kissimmee Basin.

<sup>a</sup> Other disposal methods include percolation ponds, sprayfields, and borrow pits that are not considered reuse.

<sup>b</sup> % Effluent Disposed = Total Disposal / Treated Effluent.

#### 4. REUSE AND RELATED FLOWS IN THE SFWMD BY WATER SUPPLY PLANNING AREA

This section provides an overview of reuse and related flows, as defined in this document (refer to **Section 1**), in each of the five planning areas of the SFWMD.

##### Reuse and Related Flows in the Lower East Coast

###### *Regional Overview: Lower East Coast*

The LEC Planning Area includes all of Palm Beach, Broward, and Miami-Dade counties, most of Monroe County, and the eastern portions of Hendry and Collier counties (**Figure 1**). The parts of Hendry and Collier in the LEC Planning Area are rural or natural areas and do not contain any operating WWTFs.

In FY2022, the LEC Planning Area contained 45 WWTFs permitted to treat  $\geq 0.1$  mgd of wastewater, which treated a total of 672.85 mgd (total effluent, omitting two facilities owned and operated by the Seminole Tribe of Florida). Total reuse in the planning area was 100.68 mgd, including 5.44 mgd of supplemental water. Approximately 584.25 mgd (or 86.6% of the total effluent) was disposed of via deep injection wells (70.3% of all disposals) and ocean discharge (28.9% of all disposals). Landscape Irrigation accounted for 48.71 mgd (or 48.4% of the total reuse). When discounting supplemental water, approximately 95.24 mgd (or 14.2% of the total effluent) was reused. **Figure 7** shows the breakdown of total reuse for the LEC Planning Area.

Palm Beach County is projected to experience strong population growth and development through 2045. Concurrently, reuse implementation is expected to increase as well. In FY2022, Palm Beach County's total effluent was 118.93 mgd, of which 58.85 mgd (49.5%) was reused. The remaining counties in the LEC Planning Area each reused less than 10% of their total effluent. Although population growth is expected through 2045 in Miami-Dade and Broward counties, reuse implementation is expected to increase only slowly. This is partially due to the high costs associated with installing reclaimed water transmission lines in previously developed (urban) areas.

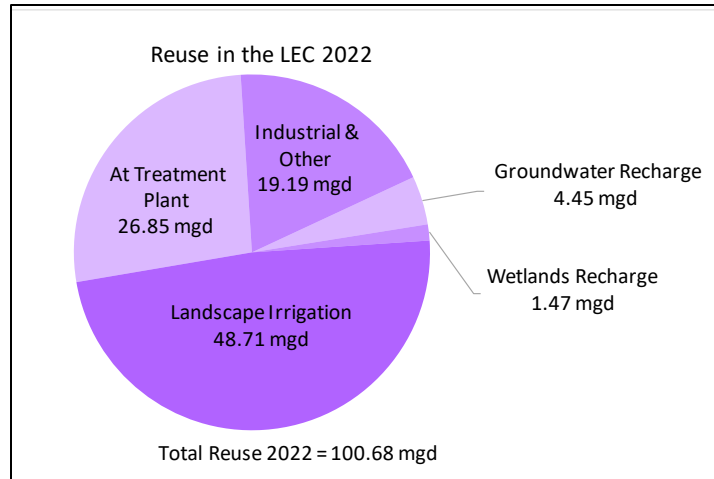


Figure 7. Total reuse by category for the LEC Planning Area (inclusive of supplemental water).

### **Summary and Project Information**

Notable occurrences and observations from reuse and related flow data from the LEC Planning Area in FY2022 are as follows:

- The LEC Planning Area captured 70.9% of the District’s total permanent resident population and accounted for 75.4% of the total effluent in the District.
- Palm Beach County accounted for nearly two-thirds of all reuse in the region, with Miami-Dade and Broward combined accounting for less than 20%.
- Approximately half of all reclaimed water in the LEC Planning Area (48.71 mgd of 100.68 mgd total reuse) was used for the Landscape Irrigation reuse category, and 26.85 mgd (or 26.7% of total reuse) and 19.19 mgd (or 19.1% of total reuse) were used for the At Treatment Plant and Industrial and Other categories, respectively.
- Supplemental water use (5.44 mgd) was not significant.
- The LEC Planning Area disposed of more of its total effluent (86.8%) than any other planning area (584.25 mgd of 672.85 mgd total effluent disposed).
- Of the 584.25 mgd disposed, 168.61 mgd (or 28.9% of the total effluent disposed) was discharged via ocean outfalls. Much of the ocean outfall discharges should be eliminated by 2026 pursuant to the OOL requirements.
- The Broward County – Palm Beach County reclaimed water transmission interconnect will convey approximately 10.5 mgd of reclaimed water from the Broward County North WWTF to users in southern Palm Beach County by 2028. Additionally, by 2045, approximately 5.5 mgd of reclaimed water will be sent to Coconut Creek, the North Springs Improvement District, and Deerfield Beach (all within Broward County) via this interconnection as well.
- The Miami-Dade Water and Sewer Department South WWTF will provide up to 15 mgd of reclaimed water to the Florida Power and Light Turkey Point Clean Energy Center beginning in 2025.

- The draft *2023–2024 Lower East Coast Water Supply Plan Update* (unpublished to date) indicates reuse at the utilities and cities affected by the OOL is projected to increase by over 145 mgd, decrease total disposal by 20 mgd, and decrease ocean outfall disposal of approximately 160 mgd by 2045. During the same period, wastewater flows in these utilities and cities are projected to increase by approximately 100 mgd.
- The cities of Miramar, Hollywood, and Cooper City (all within Broward County) have entered into contractual (virtual) reuse agreements (see **Section 2**, Leah Schad Memorial Ocean Outfall Program).
- Pompano Beach (Broward County) diverted 2.80 mgd of effluent from Broward County’s ocean outfall pipeline for reuse. Because Broward County will cease using its ocean outfall except for backup disposal due to the OOL, a dedicated effluent pipeline is being constructed from Broward County’s North WWTF to Pompano Beach (Broward County), and estimated completion is by 2025. Pompano Beach will receive approximately 5 mgd of effluent (increasing up to 10 mgd by 2045) via the dedicated pipeline.
- The City of Marathon (Monroe County) is evaluating a suite of projects that could involve interconnecting two or more facilities and may include direct potable reuse by 2030.
- Key Largo (Monroe County) is proposing to implement a direct potable reuse pilot project by 2026.
- The Tindall Hammock (Broward County) WWTF is discontinuing its reclaimed water program due to storage issues. All effluent will be disposed of via deep well injection.
- The draft *2023–2024 Lower East Coast Water Supply Plan Update* indicates there are seven utilities with proposed project expansions of reclaimed water production capacity in the LEC Planning Area totaling 32.35 mgd. This would increase the reclaimed water production capacity in the LEC Planning Area from approximately 302 mgd to 335 mgd by 2045. Several utilities also have proposed reclaimed water distribution expansion projects.\*

\* A full list of proposed reclaimed water projects will be available in Chapter 8 of the upcoming *2023–2024 Lower East Coast Water Supply Plan Update*. A draft of the list can be made available upon request.

### **Reuse and Related Flows by County: Lower East Coast**

Reuse and related flows by county, supporting some of the notable occurrences and observations stated previously in this section, are included in **Tables 10 to 13**.

Table 10. Reuse and related flows and the percentage of reused effluent by county in the LEC Planning Area.

County	Total Effluent (mgd)	Supplemental (mgd)	Disposals (mgd)	Total Reuse <sup>a</sup> (mgd)	Reused Effluent <sup>b</sup> (mgd)	% Reused Effluent <sup>c</sup>
Broward	223.23	0.15	202.96	18.09	17.94	8.0%
Miami-Dade	321.07	0.00	310.97	18.11	18.11	5.6%
Monroe	9.61	0.04	8.73	0.38	0.34	3.5%
Palm Beach	118.93	5.25	61.58	64.10	58.85	49.5%
<b>LEC Planning Area</b>	<b>672.85</b>	<b>5.44</b>	<b>584.25</b>	<b>100.68</b>	<b>95.24</b>	<b>14.2%</b>

LEC = Lower East Coast; mgd = million gallons per day.

<sup>a</sup> Total reuse is beneficially reused reclaimed water inclusive of supplemental water.

<sup>b</sup> Reused Effluent = Total Reuse – Supplemental Water.

<sup>c</sup> % Reused Effluent = (Total Reuse – Supplemental Water) / Total Effluent.

Table 11. Reuse by category and county in the LEC Planning Area.

County	Agriculture Irrigation (mgd)	Landscape Irrigation (mgd)	Groundwater Recharge (mgd)	Wetlands Recharge (mgd)	At Treatment Plant (mgd)	Industrial & Other <sup>a</sup> (mgd)	Total Reuse <sup>b</sup> (mgd)
Broward	0.00	7.60	0.29	0.00	9.66	0.55	18.09
Miami-Dade	0.00	0.00	4.10	0.00	14.01	0.00	18.11
Monroe	0.00	0.35	0.00	0.00	0.00	0.03	0.38
Palm Beach	0.00	40.77	0.06	1.47	3.18	18.62	64.10
<b>LEC Planning Area</b>	<b>0.00</b>	<b>48.71</b>	<b>4.45</b>	<b>1.47</b>	<b>26.85</b>	<b>19.19</b>	<b>100.68</b>

LEC = Lower East Coast; mgd = million gallons per day.

<sup>a</sup> Other can include, but may not be limited to, activities such as toilet flushing and dust suppression.

<sup>b</sup> Total reuse is beneficially reused reclaimed water inclusive of supplemental water.

Table 12. Supplemental water by source and county in the LEC Planning Area.

County	Surface Water (mgd)	Stormwater (mgd)	Groundwater (mgd)	Drinking Water (mgd)	Membrane Concentrate (mgd)	Supplemental Total (mgd)
Broward	0.00	0.00	0.00	0.15	0.00	0.15
Miami-Dade	0.00	0.00	0.00	0.00	0.00	0.00
Monroe	0.00	0.00	0.00	0.04	0.00	0.04
Palm Beach	0.001*	0.00	0.14	0.72	4.39	5.25
<b>LEC Planning Area</b>	<b>0.001*</b>	<b>0.00</b>	<b>0.14</b>	<b>0.91</b>	<b>4.39</b>	<b>5.44</b>

LEC = Lower East Coast; mgd = million gallons per day.

\* Shown as reported by the facility (Seacoast Utilities).

Table 13. Effluent disposal by county in the LEC Planning Area.

County	Ocean Discharge (mgd)	Coastal or Estuarine (mgd)	Surface Water (mgd)	Deep Well Injection (mgd)	Shallow Well Injection (mgd)	Other <sup>a</sup> (mgd)	Total Disposal (mgd)	% Effluent Disposed <sup>b</sup>
Broward	48.90	0.00	0.00	153.67	0.00	0.40	202.96	90.1%
Miami-Dade	115.08	0.00	0.00	195.75	0.00	0.14	310.97	96.9%
Monroe	0.00	0.00	0.00	4.72	4.02	0.00	8.73	90.9%
Palm Beach	4.63	0.00	0.00	56.43	0.00	0.52	61.58	51.8%
<b>LEC Planning Area</b>	<b>168.61</b>	<b>0.00</b>	<b>0.00</b>	<b>410.57</b>	<b>4.02</b>	<b>1.06</b>	<b>584.25</b>	<b>86.8%</b>

LEC = Lower East Coast; mgd = million gallons per day.

<sup>a</sup> Other can include, but may not be limited to, activities such as toilet flushing and dust suppression.

<sup>b</sup> % Effluent Disposed = Total Disposal / Treated Effluent.

### ***Reuse System Interconnections in the Lower East Coast***

As stated in **Section 1**, reuse system interconnections exist where two or more reclaimed water systems or treatment plants are interconnected. These types of interconnections add flexibility, efficiency, and reliability of reclaimed water service. Existing system interconnections in the LEC Planning Area are shown in **Figures 8 to 10**, northern Palm Beach County, southern Palm Beach and Broward counties, and Miami-Dade County, respectively.



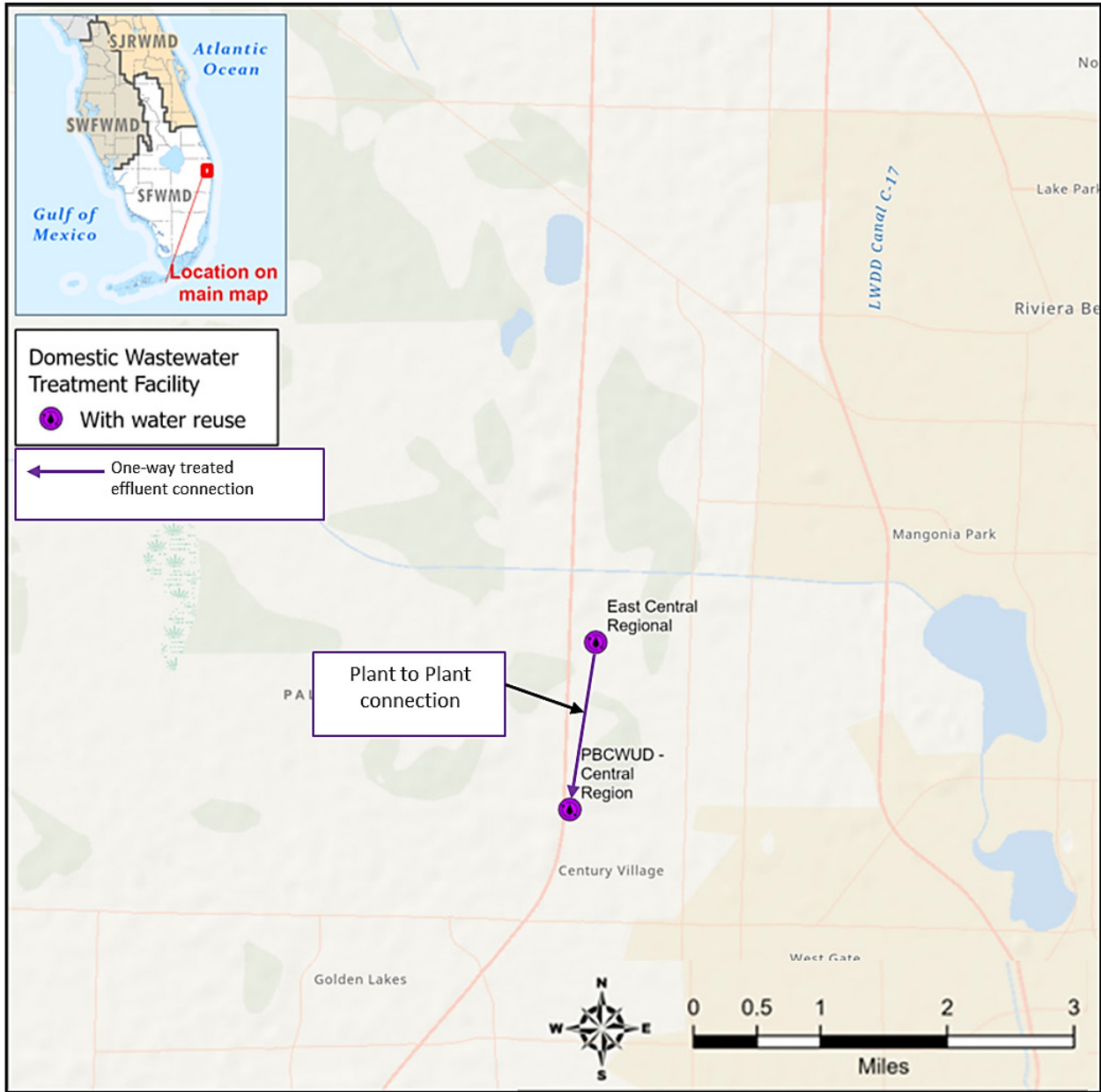


Figure 8. Reuse system interconnections in northern Palm Beach County. Arrows show direction of interconnection flow.

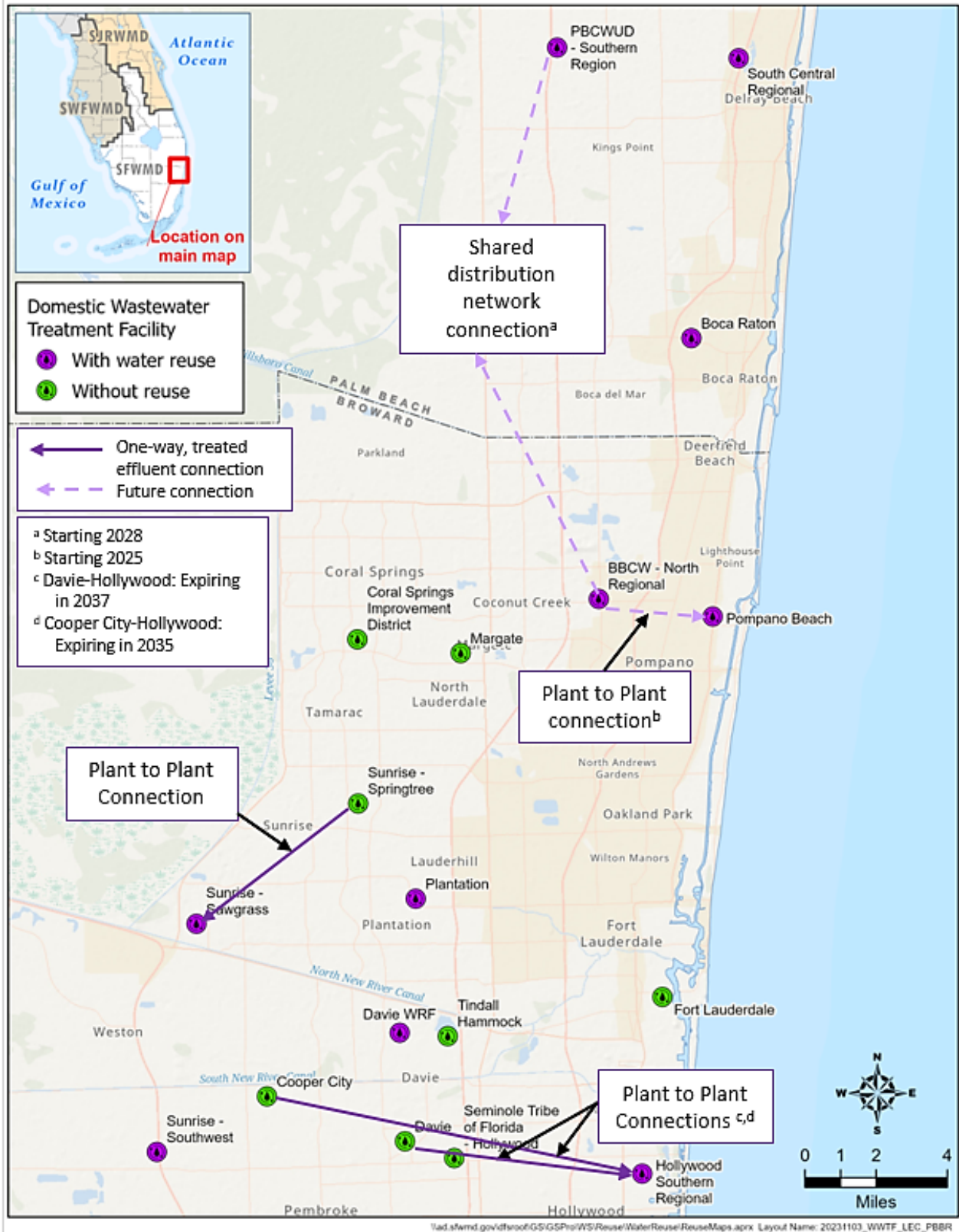


Figure 9. Reuse system interconnections in southern Palm Beach and Broward counties. Arrows show direction of interconnection flow.

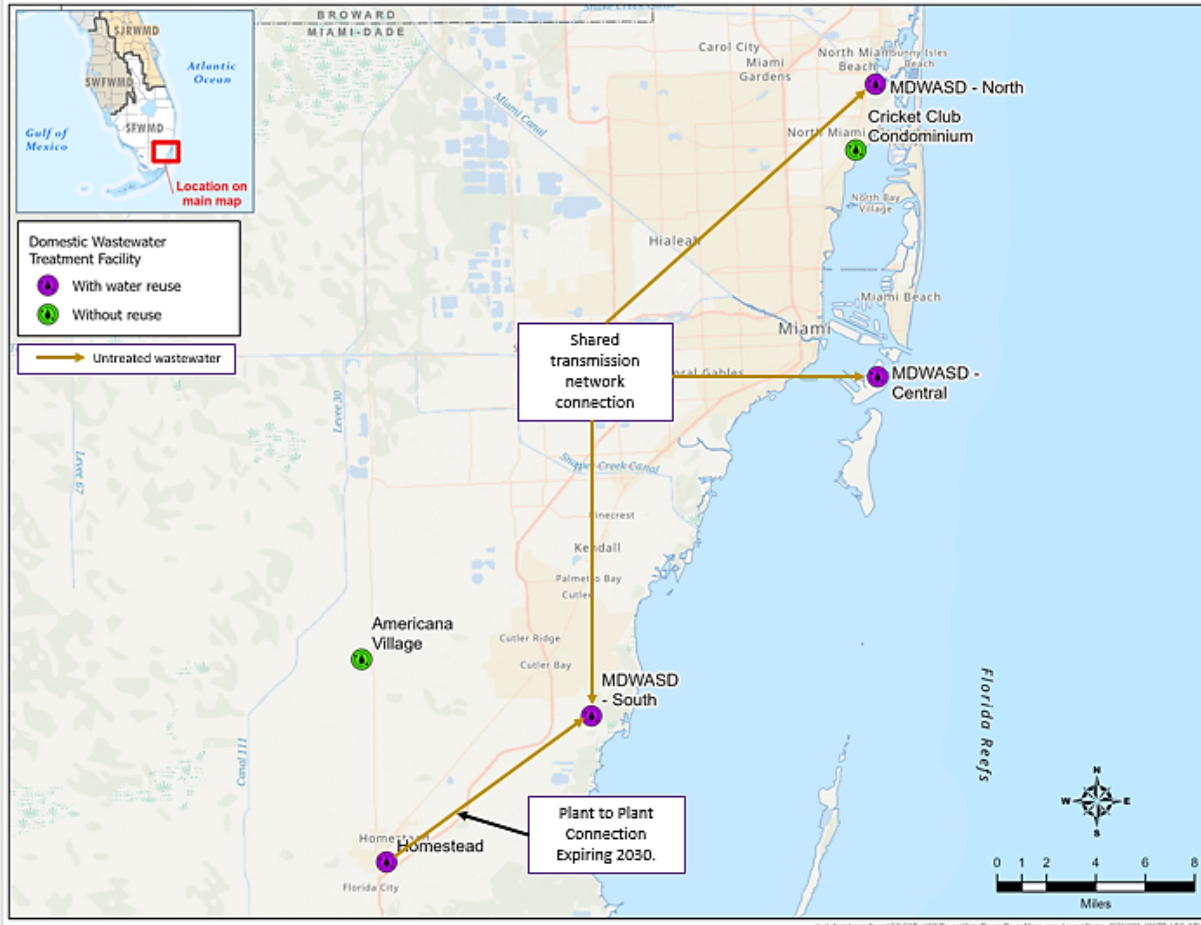


Figure 10. Reuse system interconnections in Miami-Dade County. Arrows show direction of interconnection flow.

## Reuse and Related Flows in the Lower Kissimmee Basin

### *Regional Overview: Lower Kissimmee Basin*

The Lower Kissimmee Basin (LKB) Planning Area includes portions of Okeechobee County (split with the Upper East Coast [UEC] Planning Area), portions of Highlands County (split with the Southwest Florida Water Management District [SWFWMD]), and portions of Glades County (split with the LWC Planning Area). The LKB Planning Area is mostly rural and is projected to grow slightly by approximately 6,000 permanent residents by 2040. The planning area contains two WWTFs permitted to treat  $\geq 0.1$  mgd of wastewater and the Sebring Airport, permitted at 0.09 mgd. The Sebring Airport is included in this report as it is the only other facility in the planning area that produces reclaimed water. These three facilities treated 1.13 mgd of total effluent in FY2022. Two facilities owned and operated by the Seminole Tribe of Florida are not accounted for in this report as they are not required to report flows to the FDEP.

Total reuse in the LKB Planning Area was 0.77 mgd, and no supplemental water was added to any reclaimed water system. Approximately 0.36 mgd (or 31.7% of the total effluent) was disposed of via deep well injection. Agricultural Irrigation accounted for 0.45 mgd, or 58.3% of the total reuse, followed by Industrial and Other uses at 0.32 mgd (41.7% of total reuse). There was no supplemental water use in the facility interconnections within the LKB Planning Area. **Figure 11** shows the breakdown of total reuse by category in the LKB Planning Area.

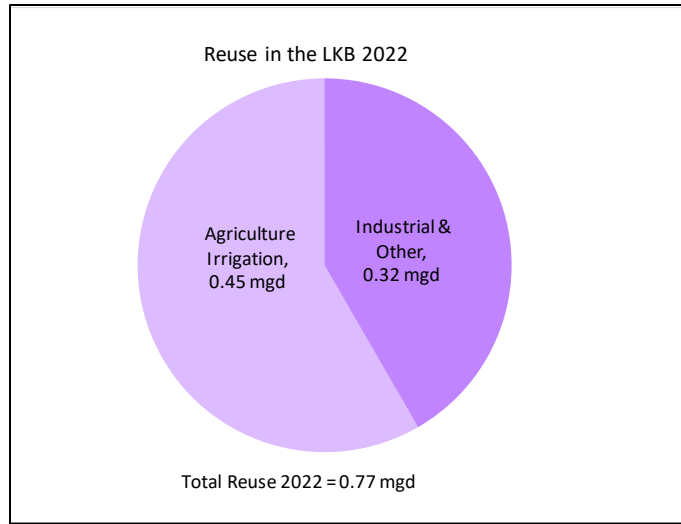


Figure 11. Total reuse by category in the LKB Planning Area.

**Summary and Project Information**

Notable occurrences and observations from reuse and related flow data from the LKB Planning Area in FY2022 are as follows:

- Less than 1% of the District’s permanent resident population resided in the LKB Planning Area.
- At 0.77 mgd, the LKB Planning Area had the smallest volumetric reuse in the District.
- Agricultural Irrigation accounted for 0.45 mgd of reclaimed water use.
- Supplemental water was not added to any reuse systems.
- Approximately two-thirds of total effluent was reused (0.77 mgd reused of 1.13 mgd total effluent).

There were no proposed reclaimed water projects listed in the 2019 Lower Kissimmee Basin Water Supply Plan Update (SFWMD 2019).

**Reuse and Related Flows by County: Lower Kissimmee Basin**

Reuse and related flows by county, supporting some of the notable occurrences and observations stated previously in this section, are included in **Tables 14 to 16**.

Table 14. Reuse and related flows and the percentage of reused effluent by county in the LKB Planning Area.

County	Total Effluent (mgd)	Supplemental (mgd)	Disposals (mgd)	Total Reuse <sup>a</sup> (mgd)	Reused Effluent <sup>b</sup> (mgd)	% Reused Effluent <sup>c</sup>
Glades	0.00	0.00	0.00	0.00	0.00	-
Highlands	0.03	0.00	0.00	0.03	0.03	100.0%
Okeechobee	1.10	0.00	0.36	0.74	0.74	67.4%
<b>LKB Planning Area</b>	<b>1.13</b>	<b>0.00</b>	<b>0.36</b>	<b>0.77</b>	<b>0.77</b>	<b>68.3%</b>

LKB = Lower Kissimmee Basin; mgd = million gallons per day.  
<sup>a</sup> Total reuse is beneficially reused reclaimed water inclusive of supplemental water.  
<sup>b</sup> Reused Effluent = Total Reuse – Supplemental Water.  
<sup>c</sup> % Reused Effluent = (Total Reuse – Supplemental Water) / Total Effluent.

Table 15. Reuse by category and county in the LKB Planning Area.

County	Agriculture Irrigation (mgd)	Landscape Irrigation (mgd)	Groundwater Recharge (mgd)	Wetlands Recharge (mgd)	At Treatment Plant (mgd)	Industrial & Other <sup>a</sup> (mgd)	Total Reuse <sup>b</sup> (mgd)
Glades	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Highlands	0.03	0.00	0.00	0.00	0.00	0.00	0.03
Okeechobee	0.42	0.00	0.00	0.00	0.00	0.32	0.74
<b>LKB Planning Area</b>	<b>0.45</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.32</b>	<b>0.77</b>

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

<sup>a</sup> Other can include, but may not be limited to, activities such as toilet flushing and dust suppression.

<sup>b</sup> Total reuse is beneficially reused reclaimed water inclusive of supplemental water.

Table 16. Effluent disposal by county in the LKB Planning Area.

County	Ocean Discharge (mgd)	Coastal or Estuarine (mgd)	Surface Water (mgd)	Deep Well Injection (mgd)	Shallow Well Injection (mgd)	Other <sup>a</sup> (mgd)	Total Disposal (mgd)	% Effluent Disposed <sup>b</sup>
Glades	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Highlands	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
Okeechobee	0.00	0.00	0.00	0.36	0.00	0.00	0.36	32.6%
<b>LKB Planning Area</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.36</b>	<b>0.00</b>	<b>0.00</b>	<b>0.36</b>	<b>31.7%</b>

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

<sup>a</sup> Other can include, but may not be limited to, activities such as toilet flushing and dust suppression.

<sup>b</sup> % Effluent Disposed = Total Disposal / Treated Effluent.

### ***Reuse System Interconnections in Lower Kissimmee Basin***

There are no facility interconnections within the LKB Planning Area.

## **Reuse and Related Flows in the Lower West Coast**

### ***Regional Overview: Lower West Coast***

The LWC Planning Area includes all of Lee County, most of Collier County, and portions of Charlotte County (split with the SWFWMD), Glades County (split with the LKB Planning Area), and Monroe and Hendry counties (split with the LEC Planning Area). Lee and Collier counties are significantly more populated and growing more rapidly than other locations in the LWC Planning Area. The parts of Charlotte, Glades, Monroe, and Hendry in the planning area are mostly rural and undeveloped, with the exception of Babcock Ranch in Charlotte County.

The LWC Planning Area contained 39 WWTFs permitted to treat  $\geq 0.1$  mgd of wastewater, which treated a total of 93.62 mgd (total effluent) in FY2022 (omitting one facility owned and operated by the Seminole Tribe of Florida). Total reuse in the planning area was 86.22 mgd, including 23.12 mgd of supplemental water. Approximately 34.0% of the total effluent or 31.80 mgd was disposed of, split almost equally between deep injection wells and discharge to the Caloosahatchee River. Landscape Irrigation accounted for 77.30 mgd (or 89.7% of the total reuse). When discounting supplemental water, 63.09 mgd (or 67.4% of the total effluent) was reused. **Figure 12** shows the breakdown of total reuse for the LWC Planning Area.

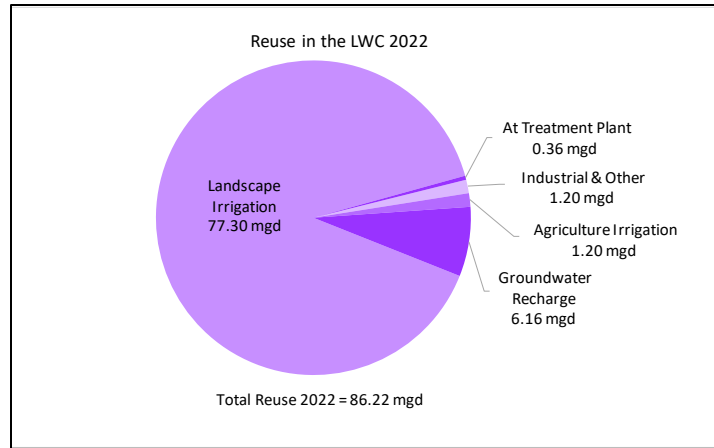


Figure 12. Total reuse by category for the LWC Planning Area (inclusive of supplemental water).

Collier and Lee counties accounted for approximately 95.9% of the total reuse in the region (82.68 mgd of 86.22 mgd) in FY2022. Thirty-four of the 39 WWTFs (excluding one facility owned and operated by the Seminole Tribe of Florida not factored in flow calculations) were located in these two counties.

### **Summary and Project Information**

Notable occurrences and observations from reuse and related flow data from the LWC Planning Area in FY2022 are as follows:

- Of the District’s total permanent resident population, 13.2% resided in the LWC Planning Area.
- Supplemental water use, at 23.13 mgd, was more significant and volumetrically greater in the LWC Planning Area than in any other planning area.
- Landscape Irrigation accounted for 89.7% of all reclaimed water (77.30 mgd of 86.22 mgd total reuse).
- Of the 31.80 mgd of effluent disposed of, 15.47 mgd was discharged to the Caloosahatchee River.
- The Fort Myers South WWTF treatment upgrade has enabled the facility to provide up to 12 mgd of reclaimed water.
- The subaqueous interconnection between the City of Cape Coral’s Everest WWTF and Fort Myers South WWTFs was completed in January in 2024 and will reduce Fort Myer’s discharges to the Caloosahatchee River by up to 12 mgd.
- The Fiesta Village WWTF interconnect with Fort Myers Beach WWTF was completed in 2023.
- The Fort Myers Central WWTF will be expanded by 6 mgd by 2026.
- The Cape Coral Southwest WWTF is scheduled to be expanded from 5 mgd to 20 mgd by 2025.
- The Everglades City WWTF is phasing away from reclaimed water production. The new plant will treat to AWT standards for deep well disposal per the WWTF operations permit.
- The Naples WWTF recovered 0.03 mgd of reclaimed water from its aquifer storage and recovery system in FY2022. This system is one of three aquifer storage and recovery systems in the LWC Planning Area established to support a reclaimed water program but was the only one used for this purpose in FY2022.

- The 2022 Lower West Coast Water Supply Plan Update (SFWMD 2022b) indicated nine utilities have proposed expansions of reclaimed water production capacity totaling 39.70 mgd. This would increase the reclaimed water production capacity in the planning area from approximately 159 mgd to 199 mgd by 2045. Several utilities also proposed reclaimed water distribution expansion projects.\*

\* A full list of proposed reclaimed water projects is available in Chapter 8 of the 2022 Lower West Coast Water Supply Plan Update (SFWMD 2022b).

### **Reuse and Related Flows by County: Lower West Coast**

Reuse and related flows by county, supporting some of the notable occurrences and observations stated previously in this section, are included in **Tables 17 to 20**.

Table 17. Reuse and related flows and the percentage of reused effluent by county in the LWC Planning Area.

County	Total Effluent (mgd)	Supplemental (mgd)	Disposals (mgd)	Total Reuse <sup>a</sup> (mgd)	Reused Effluent <sup>b</sup> (mgd)	% Reused Effluent <sup>c</sup>
Charlotte	0.36	1.26	0.00	1.69	0.43	118.0%
Collier	31.64	3.86	9.97	24.88	21.02	66.4%
Glades	0.23	0.00	0.00	0.23	0.23	100.0%
Hendry	1.83	0.00	0.55	1.62	1.62	88.5%
Lee	59.56	18.01	21.29	57.80	39.79	66.8%
<b>LWC Planning Area</b>	<b>93.62</b>	<b>23.13</b>	<b>31.80</b>	<b>86.22</b>	<b>63.09</b>	<b>67.4%</b>

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

<sup>a</sup> Total reuse is beneficially reused reclaimed water inclusive of supplemental water.

<sup>b</sup> Reused Effluent = Total Reuse – Supplemental Water.

<sup>c</sup> % Reused Effluent = (Total Reuse – Supplemental Water) / Total Effluent.

Table 18. Reuse by category and county in the LWC Planning Area.

County	Agriculture Irrigation (mgd)	Landscape Irrigation (mgd)	Groundwater Recharge (mgd)	Wetlands Recharge (mgd)	At Treatment Plant (mgd)	Industrial & Other <sup>a</sup> (mgd)	Total Reuse <sup>b</sup> (mgd)
Charlotte	0.00	1.47	0.05	0.00	0.00	0.17	1.69
Collier	0.17	24.27	0.44	0.00	0.00	0.00	24.88
Glades	0.00	0.00	0.23	0.00	0.00	0.00	0.23
Hendry	1.03	0.00	0.59	0.00	0.00	0.00	1.62
Lee	0.00	51.56	4.85	0.00	0.36	1.03	57.80
<b>LWC Planning Area</b>	<b>1.20</b>	<b>77.30</b>	<b>6.16</b>	<b>0.00</b>	<b>0.36</b>	<b>1.20</b>	<b>86.22</b>

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

<sup>a</sup> Other can include, but may not be limited to, activities such as toilet flushing and dust suppression.

<sup>b</sup> Total reuse is beneficially reused reclaimed water inclusive of supplemental water.

Table 19. Supplemental water by source and county in the LWC Planning Area.

County	Surface Water (mgd)	Stormwater (mgd)	Groundwater (mgd)	Drinking Water (mgd)	Membrane Concentrate (mgd)	ASR (mgd)	Supplemental Total (mgd)
Charlotte	0.00	0.00	1.26	0.00	0.00	0.00	1.26
Collier	2.05	0.00	1.73	0.00	0.05	0.03	3.86
Glades	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hendry	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lee	15.18	0.22	2.57	0.04	0.00	0.00	18.01
<b>LWC Planning Area</b>	<b>17.23</b>	<b>0.22</b>	<b>5.56</b>	<b>0.04</b>	<b>0.05</b>	<b>0.03</b>	<b>23.13</b>

ASR = aquifer storage and recovery; LWC = Lower West Coast; mgd = million gallons per day.

Table 20. Effluent disposal by county in the LWC Planning Area.

County	Ocean Discharge (mgd)	Coastal or Estuarine (mgd)	Surface Water (mgd)	Deep Well Injection (mgd)	Shallow Well Injection (mgd)	Other <sup>a</sup> (mgd)	Total Disposal (mgd)	% Effluent Disposed <sup>b</sup>
Charlotte	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
Collier	0.00	0.00	0.00	9.94	0.00	0.03	9.97	31.5%
Glades	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
Hendry	0.00	0.00	0.55	0.00	0.00	0.00	0.55	30.0%
Lee	0.00	15.47	0.00	5.69	0.00	0.13	21.29	35.7%
<b>LWC Planning Area</b>	<b>0.00</b>	<b>15.47</b>	<b>0.55</b>	<b>15.62</b>	<b>0.00</b>	<b>0.16</b>	<b>31.80</b>	<b>34.0%</b>

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

<sup>a</sup> Other can include, but may not be limited to, activities such as toilet flushing and dust suppression.

<sup>b</sup> % Effluent Disposed = Total Disposal / Treated Effluent.

### ***Reuse System Interconnections in the Lower West Coast***

As stated in **Section 1**, reuse system interconnections exist where two or more reclaimed water systems or WWTFs are interconnected. These types of interconnections add flexibility, efficiency, and reliability of reclaimed water service. Existing system interconnections in the LWC Planning Area are shown in **Figure 13**.



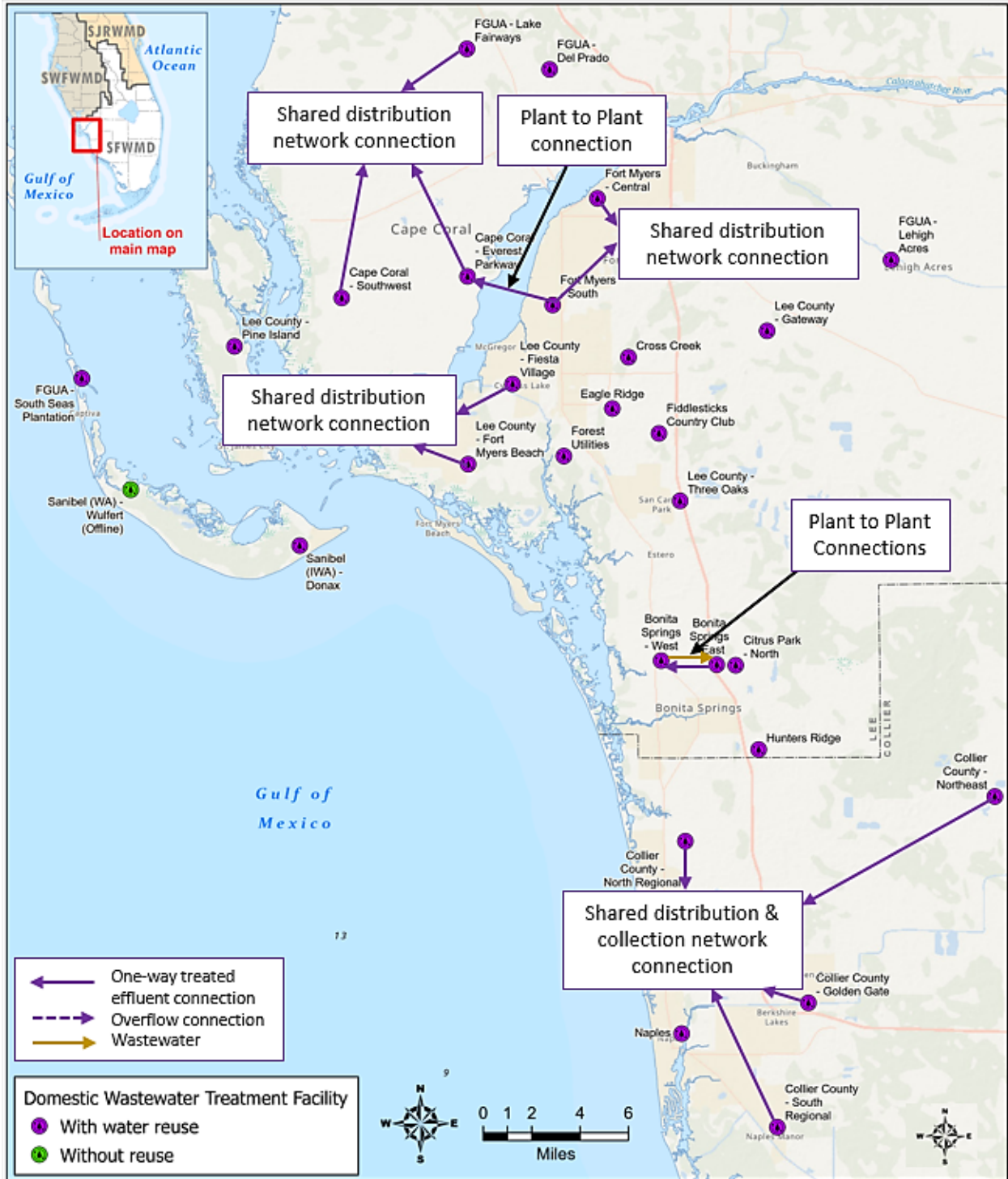


Figure 13. Reuse system interconnections in the LWC Planning Area. Arrows show direction of interconnection flow.

## Reuse and Related Flows in the Upper East Coast

### *Regional Overview: Upper East Coast*

The UEC Planning Area includes St. Lucie and Martin counties and the northeastern portion of Okeechobee County. Both St. Lucie and Martin counties are projected to experience substantial population growth through 2045, while the section of Okeechobee County within in the UEC is projected to increase its population by less than 100 persons.

The UEC contained 20 WWTFs permitted to treat  $\geq 0.1$  mgd of wastewater, which treated a total of 24.82 mgd of wastewater (total effluent) in FY2022. Total reuse in the planning area was 9.28 mgd, including 0.70 mgd of supplemental water. Approximately 68.7% or 17.04 mgd of the total effluent was disposed of primarily via deep well injection (99.6% of effluent disposal). Landscape Irrigation accounted for 8.39 mgd (or 90.3% of the total reuse). When discounting supplemental water, 8.58 mgd (or 34.6% of the total effluent) was reused. **Figure 14** shows the breakdown of total reuse for the UEC Planning Area.

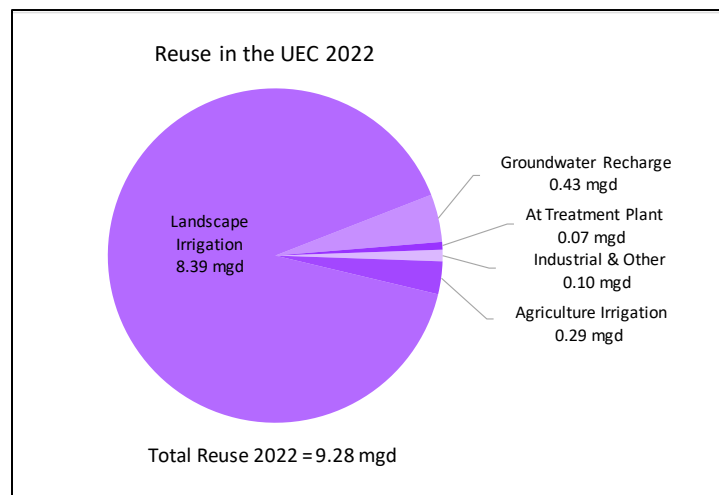


Figure 14. Total reuse by category for the UEC Planning Area (inclusive of supplemental water).

### **Summary and Project Information**

Notable occurrences and observations from reuse and related flow data from the UEC Planning Area in FY2022 are as follows:

- Of the District's total permanent resident population, 5.6% resided in the UEC Planning Area.
- The total effluent reused was 34.6% (8.58 mgd of 24.82 mgd).
- Landscape Irrigation accounted for 8.39 mgd (90.3% of the total reuse).
- Supplemental water used (0.70 mgd) was not significant.
- Approximately 68.7% (17.04 mgd of 24.82 mgd) of the total effluent was disposed of, with 16.97 mgd being disposed of via deep well injection.
- Although the population of St. Lucie County is over two times that of Martin County, both counties reused approximately the same volume of reclaimed water (4.6 mgd).

- Fort Pierce Utilities Authority has begun constructing a mainland water reclamation facility to replace the existing Island WWTF. The new facility will initially provide 3 mgd of reclaimed water to the neighboring Treasure Coast Energy Center plant starting in 2025.
- The 2021 Upper East Coast Water Supply Plan Update (SFWMD 2021a) indicated that four utilities have proposed project expansions of their reclaimed water production capacity totaling 17.20 mgd. This would increase the reclaimed water production capacity in the UEC Planning Area from approximately 40 mgd to 57 mgd by 2045. Several utilities also proposed reclaimed water distribution expansion projects.\*

\* A full list of proposed reclaimed water projects is available in Chapter 8 of the 2021 Upper East Coast Water Supply Plan Update (SFWMD 2021a).

### Reuse and Related Flows by County: Upper East Coast

Reuse and related flows by county, supporting some of the notable occurrences and observations stated previously in this section, are included in **Tables 21 to 24**.

Table 21. Reuse and related flows and the percentage of reused effluent by county in the UEC Planning Area.

County	Total Effluent (mgd)	Supplemental (mgd)	Disposals (mgd)	Total Reuse <sup>a</sup> (mgd)	Reused Effluent <sup>b</sup> (mgd)	% Reused Effluent <sup>c</sup>
Martin	7.61	0.09	3.38	4.63	4.54	59.7%
St. Lucie	17.21	0.61	13.66	4.65	4.04	23.5%
<b>UEC Planning Area</b>	<b>24.82</b>	<b>0.70</b>	<b>17.04</b>	<b>9.28</b>	<b>8.58</b>	<b>34.6%</b>

mgd = million gallons per day; UEC = Upper East Coast.

<sup>a</sup> Total reuse is beneficially reused reclaimed water inclusive of supplemental water.

<sup>b</sup> Reused Effluent = Total Reuse – Supplemental Water.

<sup>c</sup> % Reused Effluent = (Total Reuse – Supplemental Water) / Total Effluent.

Table 22. Reuse by category and county in the UEC Planning Area.

County	Agriculture Irrigation (mgd)	Landscape Irrigation (mgd)	Groundwater Recharge (mgd)	Wetlands Recharge (mgd)	At Treatment Plant (mgd)	Industrial & Other <sup>a</sup> (mgd)	Total Reuse <sup>b</sup> (mgd)
Martin	0.29	4.00	0.23	0.00	0.01	0.10	4.63
St. Lucie	0.00	4.39	0.20	0.00	0.06	0.00	4.65
<b>UEC Planning Area</b>	<b>0.29</b>	<b>8.39</b>	<b>0.43</b>	<b>0.00</b>	<b>0.07</b>	<b>0.10</b>	<b>9.28</b>

mgd = million gallons per day; UEC = Upper East Coast.

<sup>a</sup> Other can include, but may not be limited to, activities such as toilet flushing and dust suppression.

<sup>b</sup> Total reuse is beneficially reused reclaimed water inclusive of supplemental water.

Table 23. Supplemental water by source and county in the UEC Planning Area.

County	Surface Water (mgd)	Stormwater (mgd)	Groundwater (mgd)	Drinking Water (mgd)	Membrane Concentrate (mgd)	Supplemental Total (mgd)
Martin	0.00	0.00	0.09	0.00	0.00	0.09
St. Lucie	0.02	0.58	0.01	0.00	0.00	0.61
<b>UEC Planning Area</b>	<b>0.02</b>	<b>0.58</b>	<b>0.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.70</b>

mgd = million gallons per day; UEC = Upper East Coast.

\* Other can include, but may not be limited to, activities such as toilet flushing and dust suppression.

Table 24. Effluent disposal by county in the UEC Planning Area.

County	Ocean Discharge (mgd)	Coastal or Estuarine (mgd)	Surface Water (mgd)	Deep Well Injection (mgd)	Shallow Well Injection (mgd)	Other <sup>a</sup> (mgd)	Total Disposal (mgd)	% Effluent Disposed <sup>b</sup>
Martin	0.00	0.00	0.00	3.38	0.00	0.00	3.38	44.4%
St. Lucie	0.02	0.00	0.00	13.60	0.00	0.05	13.66	79.4%
<b>UEC Planning Area</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>16.97</b>	<b>0.00</b>	<b>0.05</b>	<b>17.04</b>	<b>68.7%</b>

mgd = million gallons per day; UEC = Upper East Coast.

<sup>a</sup> Other can include, but may not be limited to, activities such as toilet flushing and dust suppression.

<sup>b</sup> % Effluent Disposed = Total Disposal / Total Effluent.

### Reuse System Interconnections in the Upper East Coast

As stated in **Section 1**, reuse system interconnections exist where two or more reclaimed water systems or treatment plants are interconnected. These types of interconnections add flexibility, efficiency, and reliability of reclaimed water service. Existing system interconnections in the UEC Planning Area are shown in **Figure 15**.

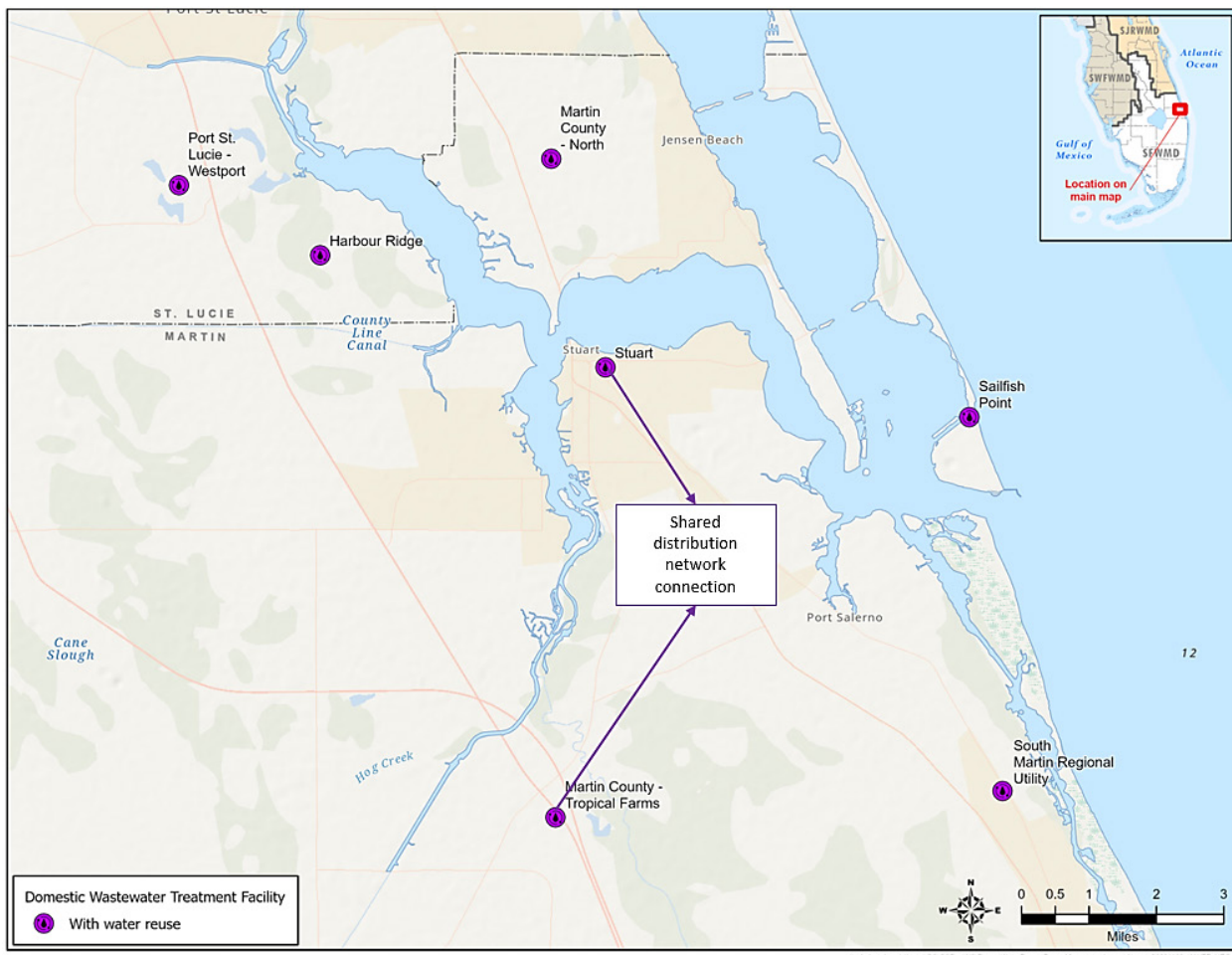


Figure 15. Reuse system interconnections in the UEC Planning Area. Arrows show direction of interconnection flow.

## Reuse and Related Flows in the Upper Kissimmee Basin

### **Regional Overview: Upper Kissimmee Basin**

The UKB Planning Area includes portions of Orange and Osceola counties (split with the St. Johns River Water Management District [SJRWMD]), and portions of Polk County (split with the SWFWMD). This planning area's growth began after reuse was firmly established in Florida. Therefore, the UKB area facilities reuse nearly all wastewater generated.

The UKB contained 17 WWTFs permitted to treat  $\geq 0.1$  mgd of wastewater, which treated a total of 99.80 mgd of wastewater (total effluent) in FY2022. Total reuse in the planning area was 99.99 mgd, including 2.08 mgd of supplemental water. Only 0.37 mgd or 0.4% of the total effluent was disposed. Landscape Irrigation accounted for 63.52 mgd (or 63.5% of the total reuse). When discounting supplemental water, approximately 97.92 mgd (or 98.1% of the total effluent) was reused. **Figure 16** shows the breakdown of total reuse for the UKB Planning Area.

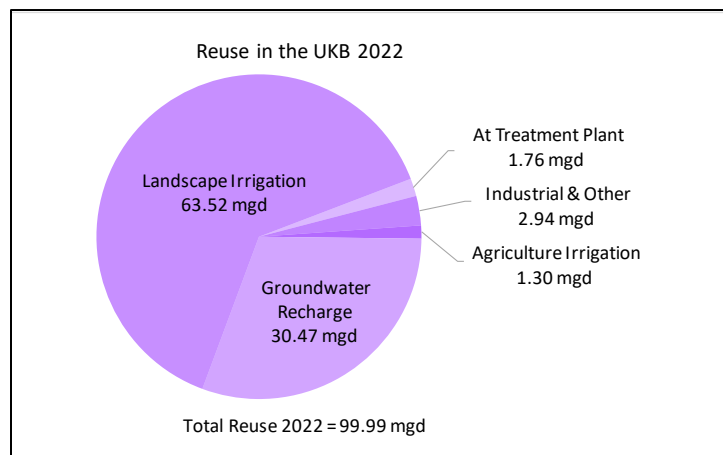


Figure 16. Total reuse by category for the UKB Planning Area.

The UKB Planning Area is within the boundary of the Central Florida Water Initiative (CFWI), which contains some of the fastest growing areas in Florida. The CFWI is a collaborative water supply planning effort among the state's three largest water management districts (SJRWMD, SFWMD, and SWFWMD), the FDEP, and several other state agencies. These agencies along with additional stakeholder groups are working to plan and implement water resource and water supply development and management strategies to protect, conserve, and restore water resources in the area. Per the most recent *2020 Central Florida Water Initiative Regional Water Supply Plan: Planning Document* (CFWI 2020), strong growth is expected through 2040.

### **Summary and Project Information**

Notable occurrences and observations from reuse and related flow data from the UKB Planning Area in FY2022 are as follows:

- Of the District's total permanent resident population, 9.6 % resided in the UKB Planning Area.
- The UKB Planning Area reused more of its effluent (98.1%) than any other planning area.

- At 99.99 mgd of its total reuse, the UKB Planning Area was one of the two largest (the LEC Planning Area being second) volumetric providers of reclaimed water in the District (total reuse in the LEC Planning Area was 100.68 mgd). However, the population of the UKB Planning Area is approximately one-eighth that of the LEC Planning Area.
- Landscape Irrigation accounted for almost two-thirds of all reclaimed water in the UKB Planning Area (63.52 mgd of 99.99 mgd total reuse), with approximately another one-third (30.47 mgd) used for Groundwater Recharge.
- Supplemental water use, at 2.08 mgd, was not significant.
- The Toho Water Authority absorbed the St. Cloud WWTF and service area in October of 2022.
- The Toho Water Authority absorbed the Sunbridge WWTF and service area in November of 2023.
- The *2020 Central Florida Water Initiative Regional Water Supply Plan: Planning Document* (CFWI 2020) included only one proposed reclaimed water distribution project. Since then, the Toho Water Authority submitted an application to the SFWMD’s Cooperative Funding Program for FY2024 to utilize the storage volume created by the Judge Farms Reservoir to produce 6.0 mgd of alternative water supply to augment its reclaimed water system.\*

\* A full list of proposed reclaimed water projects will be available in the upcoming *2025 Central Florida Water Initiative Regional Water Supply Plan: Planning Document* if proposed projects exist by that time.

### **Reuse and Related Flows by County: Upper Kissimmee Basin**

Reuse and related flows by county, supporting some of the notable occurrences and observations stated previously in this section, are included in **Tables 25 to 28**.

Table 25. Reuse and related flows and the percentage of reused effluent by county in the UKB Planning Area.

County	Total Effluent (mgd)	Supplemental (mgd)	Disposals (mgd)	Total Reuse <sup>a</sup> (mgd)	Reused Effluent <sup>b</sup> (mgd)	% Reused Effluent <sup>c</sup>
Orange	65.76	1.60	0.00	65.46	63.86	97.1%
Osceola	31.75	0.48	0.11	34.44	33.96	100.0%
Polk	2.29	0.00	0.26	0.10	0.10	4.2%
<b>UKB Planning Area</b>	<b>99.80</b>	<b>2.08</b>	<b>0.37</b>	<b>99.99</b>	<b>97.92</b>	<b>98.1%</b>

mgd = million gallons per day; UKB = Upper Kissimmee Basin.

<sup>a</sup> Total reuse is beneficially reused reclaimed water inclusive of supplemental water.

<sup>b</sup> Reused Effluent = Total Reuse – Supplemental Water.

<sup>c</sup> % Reused Effluent = (Total Reuse – Supplemental Water) / Total Effluent.

Table 26. Reuse by category and county in the UKB Planning Area.

County	Agriculture Irrigation (mgd)	Landscape Irrigation (mgd)	Groundwater Recharge (mgd)	Wetlands Recharge (mgd)	At Treatment Plant (mgd)	Industrial & Other <sup>a</sup> (mgd)	Total Reuse <sup>b</sup> (mgd)
Orange	0.49	39.97	22.46	0.00	1.76	0.77	65.46
Osceola	0.72	23.54	8.01	0.00	0.00	2.17	34.44
Polk	0.10	0.00	0.00	0.00	0.00	0.00	0.10
<b>UKB Planning Area</b>	<b>1.30</b>	<b>63.52</b>	<b>30.47</b>	<b>0.00</b>	<b>1.76</b>	<b>2.94</b>	<b>99.99</b>

mgd = million gallons per day; UKB = Upper Kissimmee Basin.

<sup>a</sup> Other can include, but may not be limited to, activities such as toilet flushing and dust suppression.

<sup>b</sup> Total reuse is beneficially reused reclaimed water inclusive of supplemental water.

Table 27. Supplemental Water by source and county in the UKB Planning Area.

County	Surface Water (mgd)	Stormwater (mgd)	Groundwater (mgd)	Drinking Water (mgd)	Membrane Concentrate (mgd)	Supplemental Total (mgd)
Orange	0.00	0.00	1.60	0.00	0.00	1.60
Osceola	0.24	0.00	0.24	0.00	0.00	0.48
Polk	0.00	0.00	0.00	0.00	0.00	0.00
<b>UKB Planning Area</b>	<b>0.24</b>	<b>0.00</b>	<b>1.84</b>	<b>0.00</b>	<b>0.00</b>	<b>2.08</b>

mgd = million gallons per day; UKB = Upper Kissimmee Basin.

Table 28. Effluent disposal by county in the UKB Planning Area.

County	Ocean Discharge (mgd)	Coastal or Estuarine (mgd)	Surface Water (mgd)	Deep Well Injection (mgd)	Shallow Well Injection (mgd)	Other <sup>a</sup> (mgd)	Total Disposal (mgd)	% Effluent Disposed <sup>b</sup>
Orange	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
Osceola	0.00	0.00	0.00	0.11	0.00	0.00	0.11	0.3%
Polk	0.00	0.00	0.26	0.00	0.00	0.00	0.26	11.4%
<b>UKB Planning Area</b>	<b>0.00</b>	<b>0.00</b>	<b>0.26</b>	<b>0.11</b>	<b>0.00</b>	<b>0.00</b>	<b>0.37</b>	<b>0.4%</b>

mgd = million gallons per day; UKB = Upper Kissimmee Basin.

<sup>a</sup> Other can include, but may not be limited to, activities such as toilet flushing and dust suppression.

<sup>b</sup> % Effluent Disposed = Total Disposal / Total Effluent.

### ***Reuse System Interconnections in the Upper Kissimmee Basin***

As stated in **Section 1**, reuse system interconnections exist where two or more reclaimed water systems or treatment plants are interconnected. These types of interconnections add flexibility, efficiency, and reliability of reclaimed water service. Existing system interconnections in the UKB Planning Area are shown in **Figure 17**.

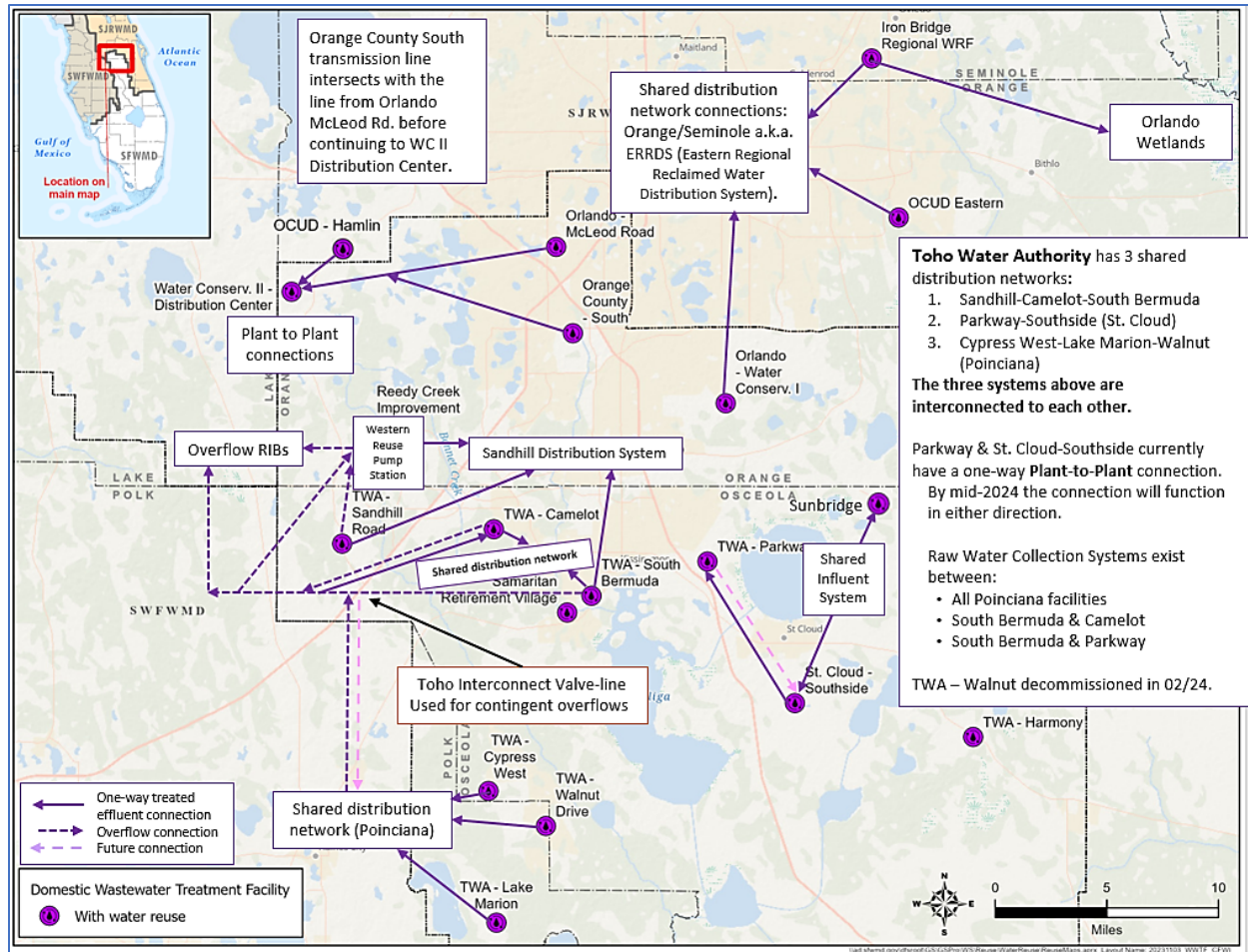


Figure 17. Reuse system interconnections in the UKB Planning Area. Arrows show direction of interconnection flow.

## 5. CONCLUSIONS AND TAKEAWAY POINTS

- Population growth, regulatory limitations on the use of freshwater resources, and fewer permissible effluent disposal methods will continue to drive the use of alternative water sources, including reclaimed water, to meet future demands and more sustainably manage treated wastewater.
- WWTF interconnections and MRZs are two approaches to water reuse implementation that can increase the use, efficiency, and reliability of reclaimed water systems. Water reuse implementation is also promoted via the SFWMD’s water use permit application process.
- Challenges to increasing water reuse implementation in Florida include construction costs associated with reclaimed water infrastructure, especially in more urbanized areas, and the uncertainty of future regulations regarding reuse water quality, especially for direct potable reuse.
- FDEP rulemaking to support potable reuse is under way and has the potential to provide Florida with a new water source. Once rules are ratified by the state, it is expected more pilot and full-scale potable reuse projects will be pursued.



- Tertiary treatment of reclaimed water is necessary to achieve AWT standards. While AWT processes are effective at removing residual nutrients and unwanted agents from wastewater, achieving these standards is often costly, especially for some utilities with limited space and/or finances, and can produce significant greenhouse gas emissions. Furthermore, it is possible AWT may be more broadly implemented for the removal of a greater number of chemical constituents if required, per the FDEP’s anticipated rule revisions.
- The UKB and the LEC planning areas currently reuse the greatest volumes of treated wastewater, though the LEC Planning Area reuses the smallest percentage of its effluent (while the UKB Planning Area reuses the greatest percentage).
- Districtwide 892.12 mgd of wastewater was treated in FY2022.
- Districtwide total reuse water use was 296.94 mgd. When discounting for supplemental water, 29.8% of all wastewater was reused in FY2022.
- Landscape Irrigation represents the greatest portion of the District’s reuse profile (66.7%; 197.92 mgd), followed by Groundwater Recharge (14.0%; 41.52 mgd), At Treatment Plant (9.8%; 29.04 mgd), Industrial and Other (8.0%; 23.75 mgd), and Wetlands Recharge (<1%; 1.47 mgd).
- Districtwide supplemental water used was 31.34 mgd, with 73.8% of all supplemental water flow occurring in the LWC Planning Area.
- The total disposal Districtwide was 633.83 mgd, with the LEC Planning Area accounting for 92.2% of that total (584.25 mgd). The implementation of the OOL should reduce the total disposal in the LEC Planning Area by 168.00 mgd by 2026.

## 6. REFERENCES

- CFWI. 2020. *2020 Central Florida Water Initiative Regional Water Supply Plan: Planning Document*. Available online at <http://cfwiwater.com>.
- FDEP. 2023a. *Annual Report on Facilities Requiring Elimination of Discharges to Surface Waters*. Florida Department of Environmental Protection, Tallahassee, FL. December 2023.
- FDEP. 2023b. *OCULUS Electronic Document Management System*. Florida Department of Environmental Protection, Tallahassee, FL. Available online at <https://depdms.dep.state.fl.us/Oculus/servlet/login>.
- FDEP. 2023c. *2022 Reuse Inventory*. Florida Department of Environmental Protection, Tallahassee, FL. November 2023.
- SFWMD. 2021a. *2021 Upper East Coast Water Supply Plan Update*. South Florida Water Management District, West Palm Beach, FL. November 2021.
- SFWMD. 2021b. *2021–2024 Support Document for Water Supply Plan Updates*. South Florida Water Management District, West Palm Beach, FL. November 2021.
- SFWMD. 2022a. *Applicant’s Handbook for Water Use Permit Applications within the South Florida Water Management District*. South Florida Water Management District, West Palm Beach, FL. June 2022.

SFWMD. 2022b. *2022 Lower West Coast Water Supply Plan Update*. South Florida Water Management District, West Palm Beach, FL. December 2022.

WaterReuse Association. 2020. *Framework for the Implementation of Potable Reuse in Florida*. Prepared for the Florida Potable Reuse Commission. WaterReuse Association, Alexandria, VA. January 2020.

## APPENDIX A: FLORIDA STATUTES AND FLORIDA ADMINISTRATIVE CODE REFERENCES

Table A-1. Florida Statutes referenced in this document.

<b>Florida Statutes</b>	
163.01	Intergovernmental Programs (Florida Interlocal Cooperation Act of 1969)
373	Natural Resources, Conservation, Reclamation, and Use
373.019	Natural Resources, Conservation, Reclamation, and Use (Definitions)
373.223	Natural Resources, Conservation, Reclamation, and Use (Conditions for a permit)
373.250	Natural Resources, Conservation, Reclamation, and Use (Reuse of reclaimed water)
403	Environmental Control
403.064	Environmental Control (Reuse of reclaimed water)
403.086	Environmental Control (Sewage disposal facilities; advanced and secondary waste treatment)
403.086(10)	Environmental Control (Sewage disposal facilities; advanced and secondary waste treatment) (Ocean Outfalls)

Table A-2. Florida Administrative Codes referenced in this document.

<b>Florida Administrative Codes</b>	
62-40	Water Resource Implementation Rule
62-600.200	Domestic Wastewater Facilities (Definitions)
62-600.440	Domestic Wastewater Facilities (Disinfection requirements)
62-600.440(5)	Domestic Wastewater Facilities (Disinfection requirements) (Basic disinfection)
62-600.440(6)	Domestic Wastewater Facilities (Disinfection requirements) (High-level disinfection)
62-610	Reuse of Reclaimed Water and Land Application
62-610.800	Reuse of Reclaimed Water and Land Application (Classification of projects as "Reuse" or "Disposal")
62-550	Drinking Water Standard, Monitoring, and Reporting
62-555	Permitting, Construction, Operation, and Maintenance of Public Water Systems
62-565	Untitled (chapter currently under development to focus on rules governing potable reuse)