

Osceola County Comprehensive Plan

Sanitary Sewer Element Data & Analysis

SANITARY SEWER ELEMENT DATA & ANALYSIS



OSCEOLA COUNTY COMPREHENSIVE PLAN 2025

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TABLE OF CONTENTS

A. INTRODUCTION..... 4

 1. Sanitary Sewer System 4

 2. Regulatory Requirements..... 4

B. SANITARY SEWER SERVICES INVENTORY 5

 1. Governmental Wastewater Utilities 5

 a. Toho Water Authority 5

 b. City of St. Cloud 9

 c. Reedy Creek Facilities 9

 2. Non-Central Wastewater Treatment Facilities..... 13

C. ANALYSIS OF FUTURE SANITARY SEWER NEEDS 15

 1. Analysis of Major Public Sanitary Sewer Facilities 15

 2. Future Sanitary Sewer Planning Efforts 15

D. CONCLUSION 17

INDEX OF TABLES

Table 5-1: Toho Water Authority Capacities and Methods of Treatment 18
Table 5-2: Toho Water Authority Projected Sanitary Sewer Demand and Capacity 18

Table 5-3: City of St. Cloud Wastewater Treatment Plant 19
Table 5-4: City of St. Cloud Projected Sanitary Sewer Demand..... 19
Table 5-5: Non-Central Public Sanitary Sewer Systems 20

INDEX OF MAPS

Map-Wastewater Service Areas.....21

Map -Toho Water Authority Wastewater System.....22

Map -City of St. Cloud Wastewater System.....23

CHAPTER FIVE

SANITARY SEWER ELEMENT (Section 163. 3177(6) (c), F.S. & Rule 9J-5.011, F.A.C.)

A. Introduction

Sanitary sewer services are provided to the residents of the unincorporated County through either publicly operated central wastewater utilities or non-central wastewater treatment facilities, such as private package treatment plants and on-site sewage treatment and disposal systems (OSTDS).

1. Sanitary Sewer System

A sanitary sewer treatment system involves a collection, treatment, and distribution system. Wastewater collected through central collection systems, or sanitary sewer lines, from a residence or business are directed to wastewater treatment plants. During the wastewater treatment phase, wastewater receives primary, secondary, and advanced treatment. Primary treatment involves the separating of solids from the wastewater through filter screens and/or settling tanks. In secondary treatment, the wastewater is mixed with bacteria that consume waste materials; aeration is used to add oxygen to the water to increase bacterial growth. Finally, in advanced treatment, filtration occurs, and disease-causing organisms are removed through disinfection. Effluent, the term for treated wastewater, is then typically discharged through central reuse systems that provide reuse water for residential and commercial irrigation uses or used for replenishment of the aquifer in recharge areas. Solids from the wastewater treatment process are disposed of in landfills or used in "land spreading" where the sludge is distributed on agricultural lands to enrich soils and act as fertilizer.

2. Regulatory Requirements

The regulatory framework, which governs wastewater systems, occurs on the federal, state, and local levels. The U.S. Environmental Protection Agency (EPA) is responsible for implementing federal regulations, including the Federal Water Pollution Control Act (PL92-500). This Act is the controlling legislation regarding sanitary sewer service. The Act established area wide waste treatment and management programs to ensure the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Under Section 201 of the PL92-500, grants are available to local governments to construct facilities to treat "point sources" of pollution, which may include inadequate treatment of wastewater and improper disposal of effluent into surface waters.

At the state level, the Florida Department of Environmental Protection (FDEP) is the

primary agency responsible for implementing and monitoring wastewater treatment under PL92-500. In addition, FDEP has adopted rules for the treatment of wastewater under Chapter 62-600, Florida Administrative Code (F.A.C.). These rules apply to facilities, which treat flows exceeding 5,000 gallons per day (GPD) for domestic establishments, 3,000 GPD for food service establishments, and where the sewage contains industrial or toxic or hazardous chemical wastes.

The Florida Department of Health (FDOH) regulates OSTDS installation within the state. The FDOH refers to requirements found under Section 381.0065, F.S., and Rule 64-E6, F.A.C. The FDOH works cooperatively with the County through the Osceola County Health Department in the inspection and permitting of OSTDS.

B. SANITARY SEWER SERVICES INVENTORY

The County currently has two types of sanitary sewer services available: governmental utility services provided by Toho Water Authority (TWA), the City of St Cloud, and the Reedy Creek Improvement District (RCID) that services large residential and commercial developments; and non-central wastewater treatment facilities, (privately-owned package treatment plants, and OSTDS) which serve specific developments and a variety of small developments, such as residential dwelling units, mobile home parks and small commercial sites.

1. Governmental Wastewater Utilities

Toho Water Authority, the City of St. Cloud, and the Reedy Creek Improvement District provide governmental wastewater facilities. The Wastewater Service Area map found on page 21 indicates the service boundaries for these utilities.

a. Toho Water Authority

Toho Water Authority currently owns, operates, and maintains a central sanitary sewer system, which provides service to both residential and non-residential users. The sanitary sewer system services not only the demand within the City's boundaries, but also within surrounding areas of unincorporated Osceola County. An agreement with the County details the terms under which the City will generally provide sanitary sewer services under the TWA.

The TWA services 45,231 residential customers and 11,142 commercial customers. TWA's operational level of service is 98% of permitted average daily flow capacity per capita.

The TWA presently has nine sanitary sewer treatment facilities in operation. These systems provide sanitary sewer service to the City of Kissimmee, the Poinciana Service Area, and to the unincorporated properties within the Urban Growth Boundary of Osceola County, excluding the St. Cloud Service Area. An interlocal agreement was established in 1987, enabling the City to provide

sanitary sewer service beyond its corporate limits to unincorporated areas of northwest Osceola County. Operation and maintenance of TWA sewer facilities is the responsibility of TWA. is found within this Data and Analysis Section. Table 5-1 provides a summary of TWA's wastewater treatment plants' permitted capacity, current average daily flow, buildout capacity (design capacity), and method of treatment. The Toho Water Authority map found on page 22 indicates the location of TWA's treatment plants and each plant's service area, as well as TWA's reuse service areas.

Osceola County's Comprehensive Plan sanitary sewer level of wastewater service standard for TWA is as follows:

- Residential-96 gallons per day per capita
- Hotel/Motel-120 gallons per day per room
- Commercial-0.1 gallons per day per gross square feet of floor area
- Public or Private Schools-10 gallons per day per student
- Operational Standard for all Land Uses-98% of permitted average daily flow capacity per day per capita

Table 5-2 details by year the projected demand, buildout capacity, and surplus capacity for each of the TWA's Water Reclamation Facilities to 2025 using the forecasted levels of service and projected future populations. The projected growth of the County and the corresponding increase in wastewater demand indicates that while the TWA's Parkway and Camelot facilities will have sufficient capacity to meet future customer demand, improvements to the South Bermuda, Sand Hill Road, Poinciana Wastewater Treatment Plant #2 and Wastewater Treatment Plant #3 will be required to meet the adopted level of service. As such, the TWA has planned for improvements to its facilities.

The TWA disposes of its treated wastewater in a number of ways. Treated wastewater is discharged to percolation ponds, absorption fields, Rapid Infiltration Basin Systems (RIBs), and reuse systems for public use. The TWA has incorporated water reuse facilities as a way to provide additional water resources and to dispose of treated wastewater in an environmentally sound manner. The South Bermuda, Parkway, Camelot, and Sand Hill Road plants produce public access reuse and will be able to provide adequate service to its customers to 2025; Harmony will be expanded and upgraded for public access reuse. As the TWA expands its wastewater treatment capacity, it will be able to increase its reuse systems. Additionally, the TWA plans to evaluate its central sanitary sewer system in the years 2010 and 2015 to assess the need for interim improvements.

1) Camelot Treatment Plant

This treatment plant is located at the south end of Scott Boulevard to the west of the City of Kissimmee. The plant was expanded and upgraded in

1996 to a Class I reliability plant. It presently has a permitted capacity and buildout capacity of 5.0 MGD. Current average daily flow to the plant is 3.306 MGD. This WWTP currently operates in good condition with no operational issues. The plant recently completed a \$6 million process upgrade. TWA anticipates the 2025 average daily flow (ADF) to Camelot Treatment Plant will be 4.1 million gallons per day (MGD). This plant is expected to provide adequate service through the year 2025.

Effluent is used for lawn and golf course irrigation. Excess effluent is discharged to the RIBs located in west Osceola County via interconnected piping with the South Bermuda WWTP or a sprayfield located south of the plant. Additionally, the plant has the option of using the Pine Island sprayfield as an alternate disposal site, which is in good operating condition.

Regarding public reuse, the Camelot Wastewater Treatment Facility is permitted for 0.8 MGD for golf course irrigation, 1.1 MGD for residential irrigation, and 2.2 MGD for public access areas. Of the total amount of reused water produced, the plant discharges 0.868 MGD to RIBs and 1.6 1.287 MGD to spray fields. Camelot also receives supplemental reuse from the South Bermuda WWTP. The reuse system has an average daily flow of 4.7 MGD for 2009.

2) Parkway Treatment Plant

This plant is located southeast of the City of Kissimmee near the intersection of U.S. 192 and CR 530. The facilities were expanded and upgraded in 1992 to a Class I reliability plant. The permitted capacity of the plant is 1.5 MGD and a buildout capacity of 2.5 MGD. Current average daily flow to the plant is 0.916 MGD. TWA staff anticipates the Parkway facilities 2025 ADF will be 1.3 MGD. This plant is expected to provide adequate service through the year 2025.

Treated effluent from the plant is distributed to residential communities and golf courses within the service area. Excess reuse is stored in a 7.5 MGD ground storage tank and on-site percolation ponds.

Regarding public reuse, the Parkway Wastewater Treatment Facility is permitted for 0.5 MGD for golf course irrigation, 0.6 MGD for residential irrigation, and 0.3 MGD to serve public access areas. In addition, 1.5 MGD is discharged to percolation ponds. The average daily flow from this reuse system in 2009 was 1.0 MGD.

3) Sand Hill Road Treatment Plant

The Sand Hill Road Treatment Plant, located at 2200 Sand Hill road, was constructed in 1990 and expanded and upgraded in 1996 to a Class I reliability facility. The permitted capacity of the plant is 6.0 MGD and a buildout capacity of 12.0 MGD. Current average daily flow to the plant is 3.484 MGD.

TWA staff anticipates the ADF to the Sand Hill Road facility will be 7.6 MGD in 2015, 9.65 MGD in 2020, and 11.71 MGD in 2025. Therefore, TWA will need to undertake improvements to expand the Sand Hill Road facility prior to 2015. TWA anticipates expanding treatment capacity at the facility in 2015 and 2025

Effluent from the plant is disposed of as reuse irrigation or at the Sand Hill Road RIB site.

Regarding public reuse, the Sand Hill Road Wastewater Treatment Facility is permitted for 0.7 MGD for golf course irrigation, 2.9 MGD for residential irrigation, and 3.5 MGD for public access areas. Two MGD are discharged to RIBs. . The plant's reuse system has an average daily flow of 3.3 MGD in 2009.

4) South Bermuda Treatment Plant

This plant is located south of the City of Kissimmee on the northwest side of Lake Tohopekaliga. The plant is a Class I reliability plant with a permitted capacity of 13.0 MGD and a buildout capacity of 21.0 MGD. Current average daily flow to the plant is 9.45 MGD. Construction of this facility was completed in early 1988. Since then several expansions have taken place to increase capacity. Additional improvements include a \$1.4 million upgrade to the U.S. 192 collection system, a \$1.0 million upgrade of the Lake Shore Pump Station force main, miscellaneous line replacement, upgrades to aging sanitary sewers, construction of a parallel force main from the airport master pump station to the South Bermuda WWTP, and a \$0.8 million bio-solids treatment expansion.

TWA staff anticipates the ADF to the South Bermuda facility will be 13.5 MGD in 2020, TWA staff has anticipated completion of a \$12 million expansion to the treatment plant and a \$1.0 million upgrade to the U.S. 17-92 force main by 2020. With these improvements, the South Bermuda facility is expected to provide adequate service through the year 2025.

Effluent from the plant is disposed of either as reused irrigation or at a Rapid Infiltration Basins (RIBs) site in western Osceola County.

Regarding public reuse, the South Bermuda Wastewater Treatment Facility is permitted for 0.6 MGD of treated wastewater for residential irrigation, 10.7 MGD to RIBs, and 3.7 MGD for industrial uses. The plant's reuse system had an average daily flow from t in 2009 of 8.8 MGD.

5) Harmony WRF

The Harmony WRF, located at 7200 E. Irlo Bronson Memorial Highway, was constructed in 2002 and is considered to be in good condition. The design capacity of the plant is 0.13 MGD. TWA anticipates expanding the capacity of the facility to 05 MGD by 2015. The facility's buildout capacity is 3.0 MGD. Current average daily flow to the plant is 0.049 MGD. The facility uses percolation ponds with a capacity of 0.18 MGD. This facility has no reuse capability at this time, but is scheduled in the next expansion. As development takes place, TWA will add capacity.

6) Wastewater Treatment Plant #1

This WWTP is located at 5299 W. Robert McLane Road and is a Class C facility. Phase I of the facility was constructed in 1973 and Phase II was completed in 1979. The plant has a design capacity of 0.500 MGD. The current average daily flow to the plant is 0.456 MGD.

Wastewater Treatment Plant #1 will be decommissioned by the end of 2010. Flows from Waterwater Treatment Plant #1 will be routed to the South Bermuda Treatment Plant.

7) Wastewater Treatment Plant #2

This WWTP is located at 1000 N. Rhododendron in Poinciana and is a Class B facility. This facility was constructed in 1988 and has a permitted capacity of 3.0 MGD. The buildout capacity for WWTP#2 is 12.0MGD. The current average daily flow to the plant is 1.869 MGD. Twenty-five lift stations and three master lift stations are connected to this facility. The plant utilizes an activated sludge and chlorine process. Treated effluent is disposed of through spray irrigation, providing reuse water to the Solivita subdivision, and discharging to one holding pond east of the plant.

TWA anticipates average daily flow will exceed permitted capacity by the end of 2010. TWA will make the improvements necessary to accommodate the anticipated flows through 2025.

8) Wastewater Treatment Plant #3

This WWTP is located at 602 S. Country Club Road in Poinciana and is a Class C facility. The facility was constructed in 1973 and has a permitted capacity of 0.850 MGD, and the current average daily flow to the plant is 0.701MGD. The buildout capacity for WWTP #3 is 10.0. Nine lift stations are connected to this facility. The plant utilizes a sequential batch reactor process, with effluent sent directly to reclaimed water customers. Effluent is disposed of through discharge to natural wetlands when necessary.

TWA anticipates average daily flow will exceed permitted capacity by the end of 2010. TWA will make the improvements necessary to accommodate the anticipated flows through 2025.

9) Wastewater Treatment Plant #5

This WWTP is located at 1001 Lake Marion Creek and is a Class B facility. This facility provides service to residences of Polk County only.

b. City of St. Cloud

The City of St. Cloud currently owns, operates, and maintains a central sanitary sewer system which provides service to both residential and non-residential users. The City sanitary sewer system services not only the demand within the City's boundaries, but also within surrounding areas of unincorporated Osceola County. The City of St. Cloud Service Area established by ordinance as provided by Chapter 180, F.S. is illustrated in Map and is also referred to as the St. Cloud Urban Service Area. St. Cloud utility services also extend to specific locations outside of this boundary including lands near Narcoosee Road north of the service area, and the Florida Turnpike Canoe Creek Service plaza located south of the service area. These areas are specifically identified by the Special Act forming the TWA in 2003. An interlocal agreement for sanitary sewer service between the City and the County has been established. This agreement with the County is titled "Sanitary Sewer and Potable Water Services in Unincorporated Osceola County." Under the terms of the agreement, the City will generally provide sanitary sewer services to those areas within the St. Cloud Urban Service Area. The St. Cloud Wastewater System Map on page 23 shows the City of St. Cloud's wastewater system. Table 5-3 provides information on the City's Southside Wastewater Treatment Plant.

The City of St. Cloud will continue to provide central sanitary sewer service to the residents of St. Cloud and the surrounding unincorporated areas of Osceola County as defined in the interlocal agreement between the City and the County.

The City completed a master plan (Reiss Engineering, updated November 2008) that includes projections for wastewater demand. The projections for wastewater demand were forecast based upon population projections within their Urban Service Area and the adopted level of service of 107 gallons per person per day. The projected growth of the City and the associated increase in wastewater demand results in a need for the aforementioned expansion between 2014 and 2017, with exceedance of the planned 6.0 MGD capacity by approximately 2020. The recent 6.0 MGD plant expansion included provisions for future expansion to 12 MGD to facilitate this 20-year planning or accommodate other unanticipated flow loads.

As of February 2010, the City system served 13,251 sewer customers. Using a ratio of 2.5 people per connection, this represents a potable water service population of approximately 33,128 persons. Of these connections, 12,492 (94%) were residential and 739 (6%) were non-residential meters. Approximately 10 percent of these customer base lives in that portion of the City Urban Service Area located outside of the City's limits. The entity responsible for the operation and maintenance of the City's central water system is the St. Cloud Public Works Department. The City of St Cloud's adopted level of service is 107 GPD per capita. The City has determined that residential uses accounted for approximately 84 GPD per capita of the City's overall sanitary sewer flow, and non-residential uses accounted for the remaining 23 GPD per capita. As per capita rate would not be a practical way of projecting potential "individual" sanitary sewer impacts from non-residential uses, the City's consultants recommended that the level of service standards adopted for potable water non-residential uses also be used for estimating individual sanitary sewer non-residential uses.

Based upon information provided by Reiss Engineering and the City of St. Cloud, Osceola County's Comprehensive Plan sanitary sewer level of wastewater service standard for the City of St. Cloud is as follows:

- Residential-84 gallons per day per capita
- Hotel/Motel-120 gallons per day per room
- Commercial-0.1 gallons per day per gross square feet of floor area
- Public or Private Schools-10 gallons per day per student

According to information provided by Reiss Engineering, it is projected the population within the City's wastewater service area will be 58,793 in 2015, 93,733 in 2020, and 114,253 in 2025. It was also projected the residential wastewater flows would rise from 2.02 MGD in 2010 to 9.6 MGD in 2025. Non-residential wastewater flow projections are projected to increase from 0.55 MGD in 2010 to 2.63 MGD in 2025.

The City of St. Cloud presently has one sanitary sewer wastewater treatment facility in operation. This facility is operated and maintained by the St. Cloud Public Works Department. In addition to the wastewater treatment facility, the

City operates a central reclaimed water system to help in reducing the amount of potable water utilized for irrigation purposes. The following is a brief description of the City's wastewater facility.

1) Lakeshore Wastewater Treatment Plant

This facility is located in the northwest corner of the City at the intersection of Lakeshore Boulevard and Columbia Avenue. The plant was recently decommissioned in 2009. The City constructed a master lift station which transfers all raw sewage to their Southside WWTF. Even though most of the treatment structures still exist, the facility has been formally decommissioned and is no longer in service.

2) Southside Wastewater Treatment Plant

The City of Cloud originally constructed a 1.60 MGD package treatment facility at this site in 1999 and placed the facility into operation in March 2000. The City recently completed the construction of a 6.0 MGD expansion at the Southside WWTP site. The new 6.0 MGD facility consist of a 2-stage MLE activated sludge treatment process, which includes filtration and high-level disinfection for producing "public access" level effluent for use in the City's reclaimed water system.

3) Effluent Disposal

The City's primary means of effluent disposal is through an unrestricted public access reclaim system. This system has a permitted capacity of 7.68 MGD. In particular, the City of Cloud currently disposes of highly treated effluent from their Southside WWTF utilizing a central reclaimed water system and dedicated spray fields. The central reclaimed water system provides public-access level water supply to residences and commercial properties to meet non-potable demands (irrigation supply).

Reclaimed Water System

- City-wide Residential and Commercial
- 27 Hole Golf Course Irrigation System

Dedicated Spray Fields

- WWTP Site
- Pine Lakes Estates
- Golf Course (27 hole)

The City has also constructed a 90 MG reservoir at the WWTP site which stores reclaimed water to effectively balance demand variations throughout the year.

c. Reedy Creek Facilities

The only other governmental entity operating central sewer systems in the County is the Reedy Creek Improvement District (RCID). The RCID has one wastewater treatment plant that serves the entire District as well as development within Orange County. All development within the District is connected to the central system. The RCID does not provide sanitary sewer services to residents of the unincorporated County. The provision of sanitary sewer services within the RCID is addressed in the **Reedy Creek Improvement District Comprehensive Plan**.

2. Non-Central Wastewater Treatment Facilities

a. Package Treatment Plants

As of January 2003, there were 38 package treatment plants located throughout Osceola County. This figure is based on a listing from the FDEP. A package treatment facility is a small treatment system with capacities up to one million GPD. Most plants in Osceola County average about 50,000 gallons per day (GPD). Effluent is usually chlorinated and distributed to polishing or percolation ponds. Some of the larger package treatment plants use the treated effluent for irrigation purposes on golf courses and public grounds. Table 5-5 provides the name, location, design capacity, average operating capacity, number of persons served, land use, and level of service for each non-central public package treatment system.

Package treatment plants will continue to be permitted in Osceola County where public central wastewater facilities are unavailable or where OSTDS are incompatible to soil types. However, these plants must be designed to a quality level that will allow for the future connection to a publicly owned central sewer system. The County will address the location of package treatment plants on a case-by-case basis. For non-central public sewer systems, wastewater disposal may be expressed in terms of minimum estimated flow guidelines used by the FDEP for reviewing sewage facility applications. These guidelines, which consider land use and defined service areas, are used to assure the provision of minimum levels of service.

b. OSTDS (Septic Tanks)

OSTDS are located throughout Osceola County. These facilities offer relatively inexpensive wastewater treatment to the rural areas of the County. Several factors influence the distribution and placement of OSTDS; one restriction is the type of soils used for the drainfields.

Of the 47 soils types listed in the United States Department of Agriculture Soils Conservation Service publication "Soil Survey of Osceola County, Florida," 41,

(or 87 percent) are indicative of severe restrictions for OSTDS. In general, severe restrictions apply to soils with high water tables, which prevent satisfactory percolation of effluent. Sandy soils, which make up six percent of the soil types in Osceola County, provide the needed percolation for OSTDS use. However, FDOH requires soil replacement in areas with unsuitable soils to ensure proper filtration. In these cases, the unsuitable soil is replaced with suitable soils. Some areas of the County may be required to install mound systems due to the seasonal high water tables and there are separation requirements for individual potable water wells and OSTDS, which are outlined in Rule 64E-6.016, F.A.C.

The County relies on the U.S. Department of Agriculture Soil Textural Classification System for guidance in the analysis of locations for OSTDS. At the state level, the FDOH, which is the state’s environmental health agency, sites and permits OSTDS. Thus, Osceola County relies on federal regulations and state rules, including Rule 64E-6.016, F.A.C, for guidance in its soils analysis and field inspections. Rule 64E-6.016, F.A.C., identifies soils by physical characteristics, such as general appearance, size, and texture.

In addition, FDOH relies on a color chart to identify soils. This list of criteria assists the FDOH in determining the types of soils in an area, how much soil will be required to increase the potential of the soil to treat sanitary sewer, and what types of replacement soil will be required for an OSTDS to operate properly. FDOH requires a soils analysis with every permit. Analysis of soils is important for another reason; the soils present on a site determine the square footage of the drainfield.

In addition to a soils analysis and visual soil identification, FDOH analyzes potential OSTDS sites by using the U.S. Department of Agriculture Soil Textural Classification System soils data. According to this soils classification data, Osceola County includes all 47-soil types due to its varied topography. These soils range from excessively drained Candler sands in the northwest portion on the Lake Wales Ridge to Samsula muck, which are poorly drained, in the southeast area of the County. Most of the soils within the County are poorly draining soils that would not support OSTDS without replacement soils to elevate OSTDS absorption fields above the seasonal high water table. The soil types that cover the greatest area of the County are the following:

Soil types	Soil Characteristics	Soil Location	Potential
Smyrna fine sand (42)	Poorly drained, Nearly Level; 0-2 percent slope; Water table of less than 10 inches for one to four months and between depths of 10 to 40 inches for more than six months in most years	Broad flat areas in the flatwoods	Medium; Adequate water control measures are needed; Mounding needed for OSTDS absorption fields
Myakka fine sand (22)	Poorly drained, Nearly Level; 0-2 percent slope; Water table of less than 10 inches for one to four months in most years and a depth of more than 40 inches during very dry seasons	Broad areas in the flatwoods	Medium; Adequate water control measures are needed; Mounding needed for OSTDS absorption fields
Immokalee fine sand	Poorly drained, Nearly Level; 0-2 percent slope; Water table of less than 10 inches for two months	Broad flatwoods areas	Medium; Adequate water control measures are

Soil types	Soil Characteristics	Soil Location	Potential
(16)	in most years and within a depth of 10 to 40 inches for eight months or more in most years		needed; Mounding needed for OSTDS absorption fields
Basinger fine sand depression (6)	Poorly drained, Nearly Level; 0-2 percent slope; Water stands on the surface for 6 to 12 months	Shallow depressions and poorly defined drainageways in the flatwoods	Low; Adequate water control measures are needed; Mounding needed for OSTDS absorption fields; Fill materials must be added
Basinger fine sand (5)	Poorly drained, Nearly Level; 0-2 percent slope; Soil has a water table of less than 10 inches for two to six months during most years	Low, broad flats and sloughs in the flatwoods	Medium; Adequate water control measures are needed; Mounding needed for OSTDS absorption fields

Source: United States Department of Agriculture Soil Conservation Service

The Osceola County Health Department does not have a comprehensive data set that indicates the precise location of OSTDS. Thus, the County is unable to create a scientific analysis based on actual locations of OSTDS and soil types. Therefore, the County must continue to coordinate with FDOH to approve OSTDS on a case-by-case basis. In this way, the County will ensure proper setbacks and soil improvements prior to the permitting of OSTDS.

C. ANALYSIS OF FUTURE SANITARY SEWER NEEDS

The following is an analysis of current facilities and a discussion of future County needs for sanitary sewer facilities and services:

1. Analysis of Major Public Sanitary Sewer Facilities

Table 5-2 details by year the projected demand, buildout capacity, and surplus capacity for each of the TWA's Waste Water Treatment Plants (WWTP) to 2025. The projected growth of the TWA service area and the corresponding increase in wastewater demand indicates that the TWA's current facilities will have sufficient capacity to meet customer demand. Improvements to existing facilities and/or construction of new wastewater facilities will be performed by TWA as needed to meet the adopted level of service.

2. Future Sanitary Sewer Planning Efforts

Osceola County is not currently involved in the collection of central sewer facilities directly to consumers. However, the County has established with the City of Kissimmee a regional utility known as Tohopekaliga Water Authority. This effort was due to a concern that since the location of sewer infrastructure is a major determinant of the location of growth, the County's participation would create the opportunity for better coordination with other infrastructure provided by the County. This would ideally result in more efficient provision of services and better accommodate Osceola County's anticipated growth.

Tohopekaliga Water Authority, which is a regional utility partnership between the County and the City of Kissimmee, will affect the construction and expansion of existing central sanitary sewer facilities and services in the County. TWA is currently updating their Master Plan for 2025, to aid in planning for the future needs of the County. The County will allow developments situated outside the Urban Service Boundary to use OSTDS in acceptable soil locations. Furthermore, the use of package treatment plants will be based on a case-by-case basis. However, where they are approved, they will be required to be designed to meet standards that will facilitate their integration into public systems at such time as the public provider acquires the system.

For comprehensive planning purposes, the County shall continue to use its Future Land Use Map and Comprehensive Plan policies to guide the future location of OSTDS. Furthermore, the County shall continue to require setbacks from the safe development lines of lakes to protect water quality and to require less residential density in agricultural and rural areas where there is no access to central sanitary sewer facilities. The County shall also continue to require mandatory connection to central sanitary sewer facilities, where available, and approve fewer dwelling units outside of the Urban Growth boundary where central sanitary sewer facilities are not anticipated.

The County recognizes that the areas outside of the Urban Growth Boundary of the County are not appropriate for central sanitary sewer systems, due to growth management practices and a lack of financial resources. In addition, in rural settlements, properly maintained OSTDS are a viable option for sanitary sewer treatment. In these cases, treatment is provided in areas that have adequate acreage for proper percolation with minimal adverse impacts to natural resources. OSTDS are more appropriate for agricultural and rural areas, rather than urban areas of the County.

The County shall continue to coordinate with the FDOH to require that OSTDS meet state and local standards and that repairs are made adequately and regularly. Furthermore, the FDOH must ensure that these systems are operating properly to prevent untreated sewage from contaminating groundwater, surface water resources, or private potable water wells.

OSTDS use will remain as the primary wastewater treatment facility outside the limits of the Urban Growth Boundary. This means of wastewater disposal is functional in rural areas, and the County and FDOH will continue to monitor soil types and locations for proper OSTDS sites. Meanwhile, the County will continue to work with the cities and utility companies to promote the use of central sanitary services in the Urban Growth Boundary where urban development patterns are anticipated.

D. CONCLUSION

As Osceola County continues to grow, the demand for wastewater services will increase. It is important that the County continue to coordinate with the governmental utility providers, the major private utility providers and the FDOH Department of Health to ensure adequate methods of wastewater service and disposal for the citizens of the County.

The Osceola County Comprehensive Plan, effective as of July 14, 2008, is based upon the high estimates of the BEBR. The State Department of Community Affairs authorized Osceola County to use BEBR high population estimates to support the Comprehensive Plan. According to BEBR, Osceola County's 2025 population projection is 525,100. It is projected that 437,838 county residents will reside in the TWA sanitary sewer area and 87,262 in the St. Cloud sanitary sewer area.

Using the residential sanitary sewer level of service standard of 96 gallons per capita per day, it is projected the sanitary sewer flow to be generated in 2025 in the TWA service area would be 42.03 millions of gallons per day (MGD). TWA anticipates the ability to treat 65.5 MGD in 2025. Therefore, it appears TWA will have more than enough capacity to treat projected wastewater flows in 2025.

Using the residential sanitary sewer level of service standard of 84 gallons per capita per day, it is projected the sanitary sewer flow to be generated in 2025 in the City of St. Cloud service area would be 7.3 MGD. The City of St. Cloud anticipates the ability to treat 12.0 MGD in 2025. Therefore, it appears the City of St. Cloud will have more than enough capacity to treat projected wastewater flows in 2025.

Based upon the improvements proposed by both the Toho Water Authority and the City of St. Cloud, the County's projected growth will be able to meet the level of service standards established in the Sanitary Sewer Element of the Osceola County Comprehensive Plan.

Table 5-1: Toho Water Authority Permitted Capacities, Average Daily Flows, Buildout Capacities and Methods of Treatment

Facility	Permitted Capacity	Buildout		Method of Treatment
		Average Daily Flows	Capacity	
South Bermuda	13.0 MGD	9.45 MGD	21.0 MGD	Extended aeration/Oxidation Ditch w/ partial denitrification & filtration
Camelot	5.0 MGD	3.306 MGD	5.0 MGD	Extended aeration w/ partial denitrification & filtration
Parkway	1.5 MGD	0.916 MGD	2.5 MGD	Extended aeration/Oxidation Ditch w/ partial denitrification
Sand Hill Road	6.0 MGD	3.484 MGD	12.0 MGD	Extended aeration/Oxidation Ditch w/ partial denitrification & filtration
Poinciana WWTP #2	3.0 MGD	1.869 MGD	12.0 MGD	Modified Ludzack Ettinger Process
Poinciana WWTP #3	0.850 MGD	0.701 MGD	10.0 MGD	Sequencing Batch Reactor
Harmony	0.13 MGD	0.049 MGD	3.0 MGD	Activated sludge process
Totals	29.48 MGD	19.78 MGD	65.5 MGD	

Source: Toho Water Authority, 2010

Note: MGD=Millions of Gallons per Day
Poinciana WWTP#1 is being decommissioned in 2010 and is not included in Table 5-1. Flows will be diverted to the South Bermuda Facility.
Poinciana WWTP#5 serves Polk County residents only and is not included in Table 5-1.

Table 5-2: Toho Water Authority Projected Sanitary Sewer Demand and Buildout Capacity in Millions of Gallons Per Day

FACILITY	YEAR			
	2010	2015	2020	2025
South Bermuda				
Demand	11.5	12.4	13.5	14.4
Buildout Capacity	21.0	21.0	21.0	21.0
Surplus	9.5	8.6	7.5	6.6
Camelot				
Demand	3.8	3.8	3.9	4.1
Buildout Capacity	5.0	5.0	5.0	5.0
Surplus	1.2	1.2	1.1	0.9
Parkway				
Demand	1.1	1.1	1.2	1.3
Buildout Capacity	2.5	2.5	2.5	2.5
Surplus	1.4	1.4	1.4	1.3
Sand Hill Road				
Demand	5.54	7.6	9.65	11.71
Buildout Capacity	12.0	12.0	12.0	12.0
Surplus	6.46	13.4	2.35	0.29
Poinciana WWTP #2				
Demand	4.9	5.5	5.7	5.7

Buildout Capacity	12.0	12.0	12.0	12.0
Surplus	7.1	6.5	6.3	6.3
Poinciana WWTP #3				
Demand	0.9	1.0	1.0	1.0
Buildout Capacity	10.0	10.0	10.0	10.0
Surplus	9.1	9.0	9.0	9.0

Source: Toho Water Authority, 2010

Note: The Harmony Facility is not included in Table 5-2 because demand projections are currently not available.
Poinciana WWTP#1 is not included in Table 5-2 due to the facility being decommissioned in 2010. Flows will be diverted to the South Bermuda Facility.
Poinciana WWTP#5 serves Polk County residents only and is not included in Table 5-2.

Table 5-3: City of St. Cloud Wastewater Treatment Plant

Water Treatment Plant	Location	Current Demand (MGD)	Maximum Design Capacity (MGD)
Southside WWTP	South end of Michigan Ave.	2.6 MGD	12.0 MGD

Source: City of St. Cloud Public Works, 2010

Note: MGD=Millions of Gallons Per Day

Table 5-4: City of St. Cloud Projected Sanitary Sewer Demand

Year	Projected Demand (MDG)	System Capacity (MGD)	Surplus Capacity (MGD)
2010	2.6 MGD	6.0 MGD	3.4 MGD
2015	5.2MGD	6.0 MGD	0.8 MGD
2020	7.8 MGD	9.0 MGD	1.2 MGD
2025	9.3. MGD	12.0 MGD	2.7 MGD

Source: City of St. Cloud Public Works, 2010

Table 5-5: Non-Central Public Sanitary Sewer Systems

	Location	Design Capacity MGD	Average Capacity MGD	People Served	Projected 2010*	Projected 2020*	Current LOS**	
Residential								
	Cypress Cove	C	0.090	0.038	850	2368	3470	45
	Good Samaritan	C	0.205	0.130	1900	5292	7756	68
	Pleasant Hill MHP	C	0.030	0.014	265	738	1081	53
	Ramada Camp Inn	C	0.015	0.002	115	16	21	17
	Sharp's Mobile Home	C	0.013	0.005	179	173	163	28
	Sugar Mill Mobile Home	SC	0.070	0.015	292	320	341	51
	Whispering Pines	C	0.090	0.008	113	126	122	71
	Wonderland MHP	C	0.010	0.006	110	222	671	55
Commercial								
	Aloha Travel	C	0.007		4	254	272	11
	Brookwood / Parkside	C	0.010	0.005	101	203	610	50
	Canoe Creek Campground	C	0.153	0.024	300	390	471	80
	Cypress Cove	C	0.090	0.038	850	2368	3470	48
	Great Oaks	C	0.024	0.016	133	268	810	120
	Hawaiian Village	C	0.050	0.014	300	475	654	47
	Holiday Inn	C	0.040	0.008	473	3594	350	517
	Key Stop Inn	C	0.057	0.004	120	290	741	33
	KOA Campground	C	0.035	0.020	74	973	925	27
	Lake Marian Marina	C	0.065	0.0003	0	0	0	0
	Mill Creek RV	K	0.020	0.006	244	236	222	25
	Orange Grove Camp	C	0.035	0.025	540	522	5517	46
	Orlando Hyatt	C	0.400	0	2400	3129	2975	0
	Orlando Regency	C	0.050	0.038	565	4008	4478	67
	Ponderosa Park	C	0.020	0.007	360	348	328	0
	Port-O-Call Camp	C	0.060	0.040	1250	8879	9909	8
	Ramada Camp Inn	C	0.015	0.002	0	0	0	0
	Shelter Cove	C	0.040	0.110	300	527	496	366
	Siesta Lago	C	0.100	0.073	1225	2153	2483	60
	Snow White	C	0.200	0	400	386	4465	0
	Stucky's	C	0.005	0.0014	75	53	48	19
	Twin Lakes Camp	C	0.015	0	400	703	810	38
Public								
	Canoe Creek Service Plaza	C	0.050	0.024	5300	6883	8317	5

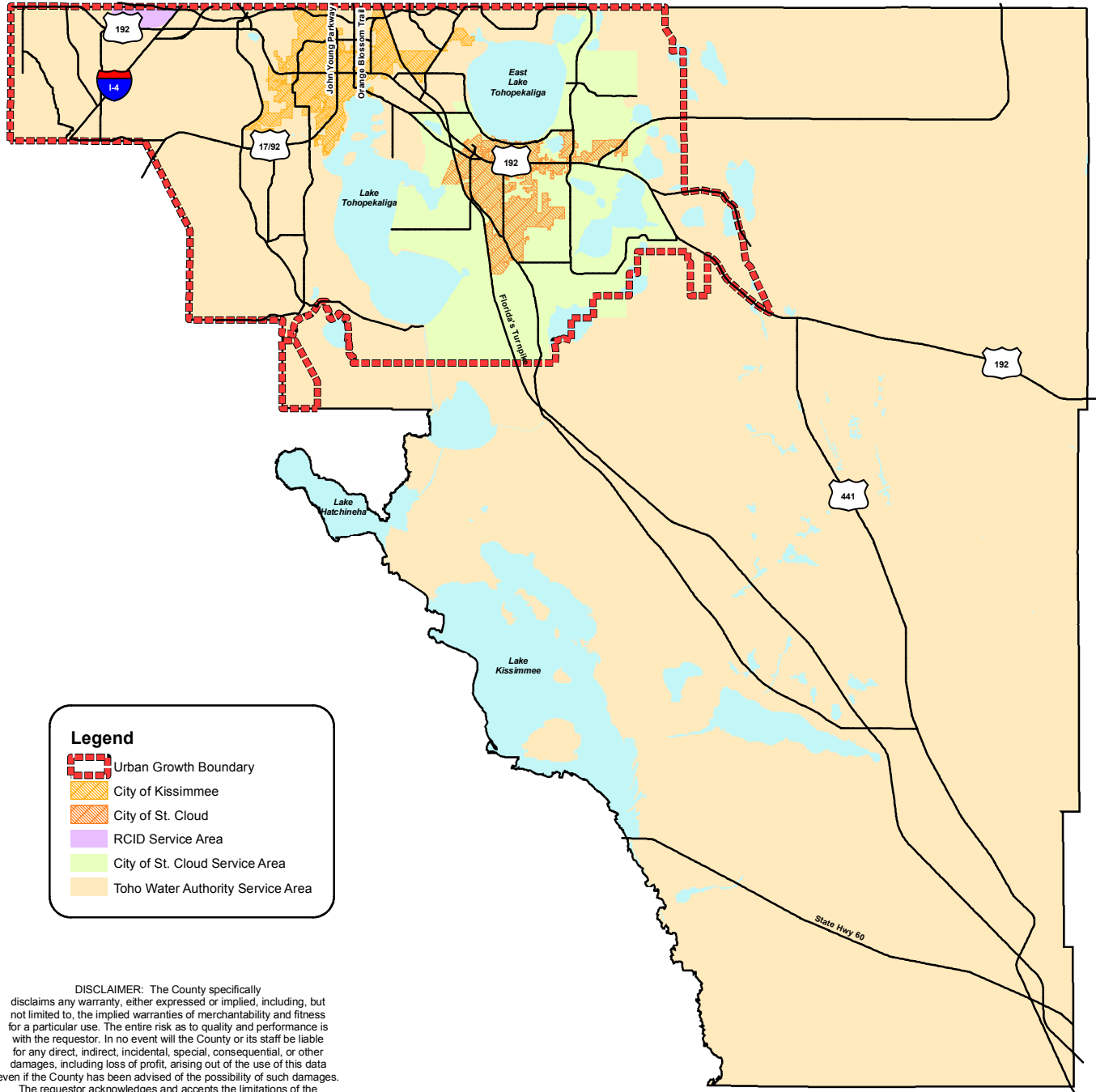
C-County K-City of Kissimmee SC-City of St. Cloud U-Unknown LOS-Level of Service

* Ascertaining the population increase/decrease in the TAZ for listed facilities and applying the changes to the base year populations derived projections for the number of people served in the year 2010 and 2020.

** Dividing the average operating capacity by the current number of people served derived the current LOS for each facility.

Source: Department of Environmental Protection Sanitary Sewer Quick Look Report –
Department of Environmental Protection Orlando District, Sanitary Sewer Facilities = Monthly Reports – 2001
Request Information from FDEP

Wastewater Service Areas



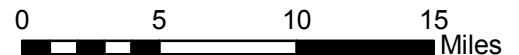
Legend

- Urban Growth Boundary
- City of Kissimmee
- City of St. Cloud
- RCID Service Area
- City of St. Cloud Service Area
- Toho Water Authority Service Area

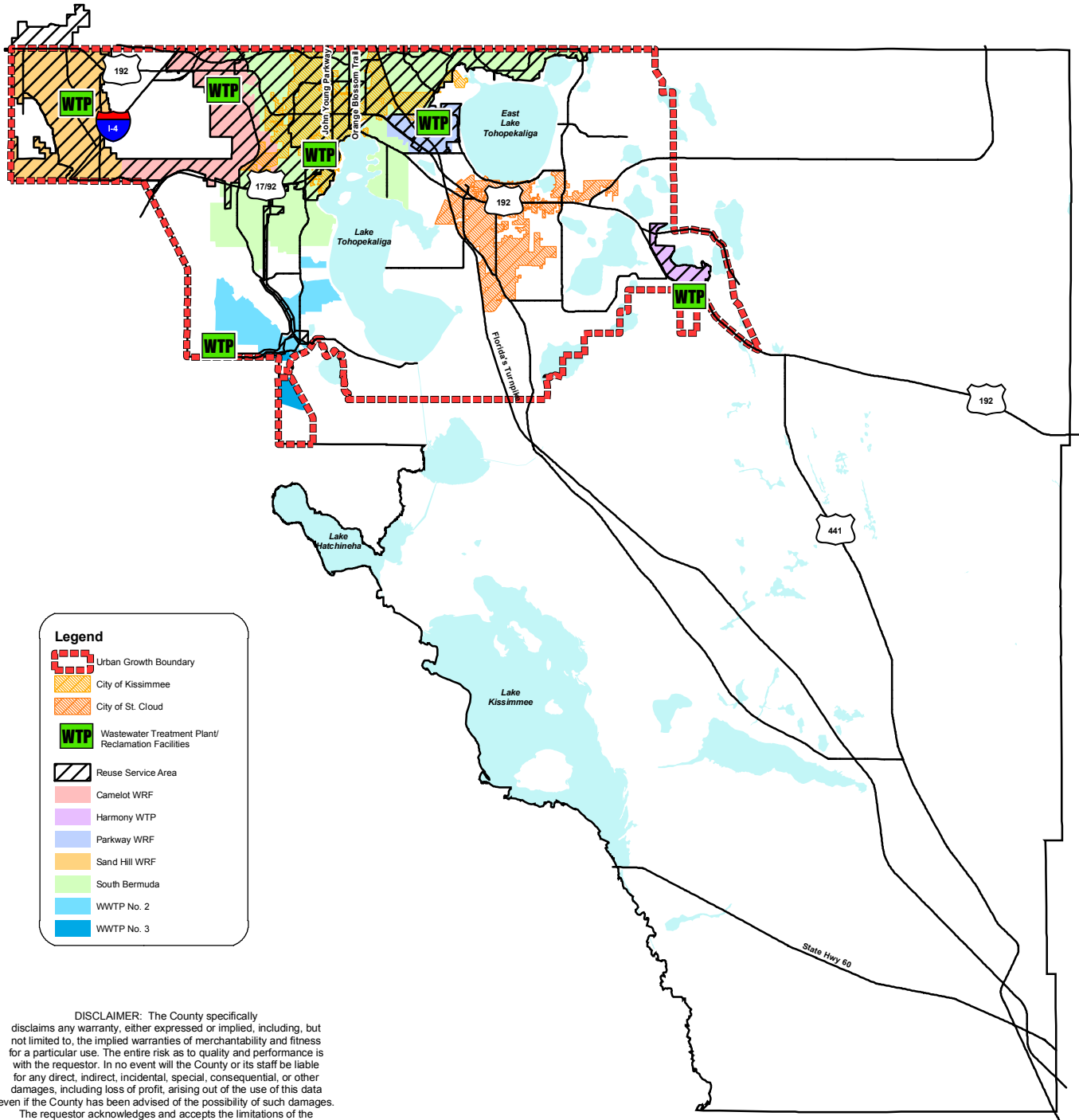
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 Service Area Data provided by the City of St. Cloud
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Toho Water Authority Wastewater System



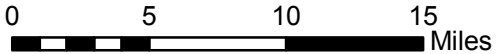
Legend

- Urban Growth Boundary
- City of Kissimmee
- City of St. Cloud
- Wastewater Treatment Plant/ Reclamation Facilities
- Reuse Service Area
- Camelot WRF
- Harmony WTP
- Parkway WRF
- Sand Hill WRF
- South Bermuda
- WWTP No. 2
- WWTP No. 3

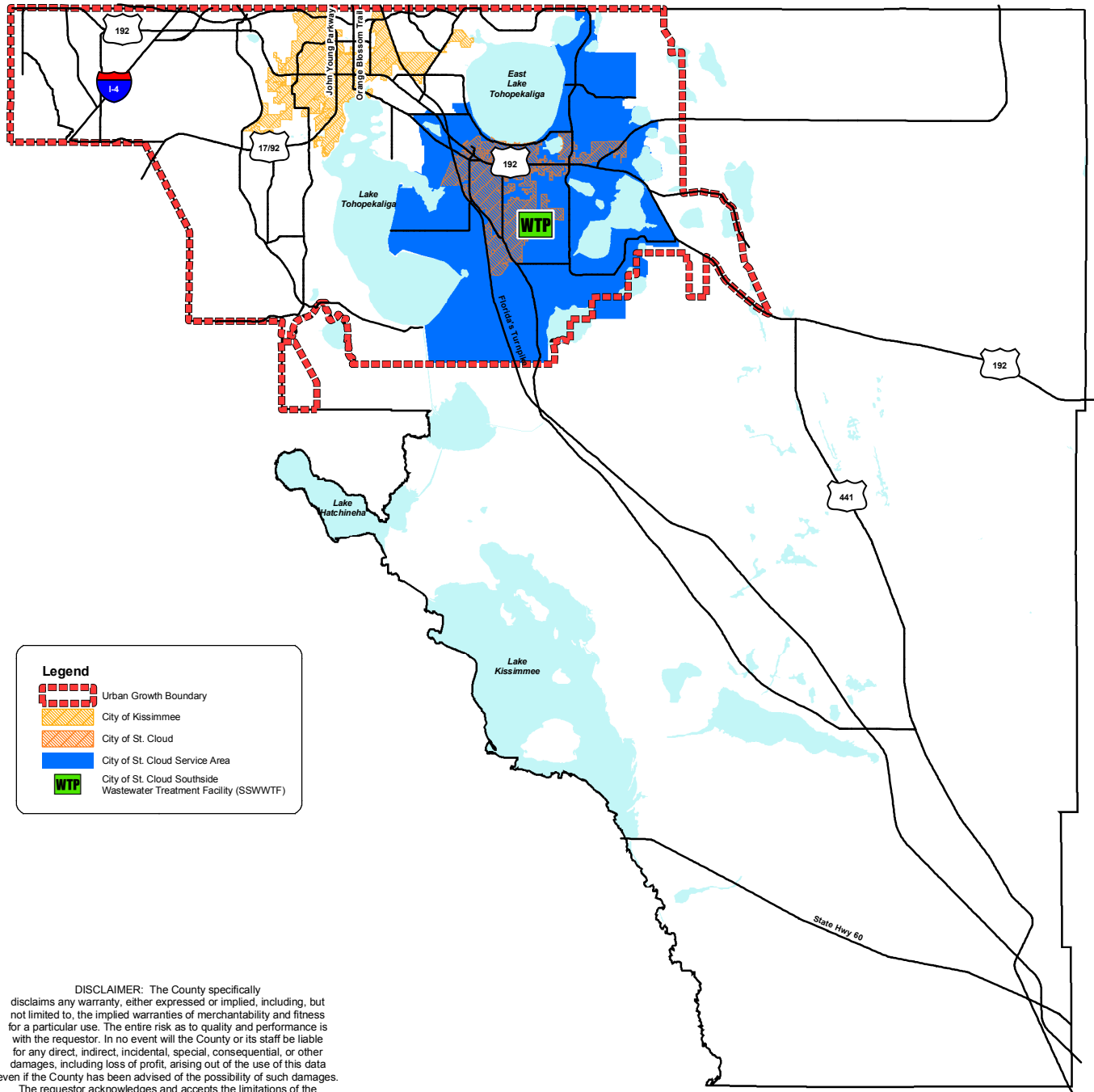
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City of St. Cloud Wastewater System



Legend

- Urban Growth Boundary
- City of Kissimmee
- City of St. Cloud
- City of St. Cloud Service Area
- City of St. Cloud Southside Wastewater Treatment Facility (SSWTF)

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