



City of Pompano Beach, Florida

Comprehensive Plan Sanitary Sewer Subelement

Adopted January 26, 2010
Ordinance 210 - 19

Prepared by:

Development Services Department
City of Pompano Beach, Florida



City of Pompano Beach, Florida

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**CITY OF POMPANO BEACH, FLORIDA
COMPREHENSIVE PLAN
JANUARY 2010**

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I. INTRODUCTION

Sanitary Sewer is one of the four (4) sub-elements that comprise the Infrastructure Element of the City of Pompano Beach's Comprehensive Plan. The City's Planning Department was responsible for preparing this updated Element. Walter H. Keller, Inc. provided assistance in the mapping and format. The format of the Element varies from the former document in that the City previously adopted the entire document including the Goals, Objectives and Policies and the data and analysis.

The Sanitary Sewer sub-element contains the following sections: Introduction; Goals, Objectives and Policies; and Existing Conditions.

This document incorporates an entirely new data and analysis section reflecting approximately a 25% increase in City area. Underlines and strike-thru's are provided in the Goals, Objectives and Policies. The new data and analysis, however, fully replaces the former data and analysis without strike-thru's and underlines.

II. GOALS, OBJECTIVES AND POLICIES

Goal

06.00.00A Sanitary Sewer service shall be provided and maintained in an efficient and cost effective manner that will insure public health, safety and quality of life, while protecting the environment.

Objective City Service Area

06.01.00A The City will provide sanitary sewer service to the remaining unserved developed areas of the City's Utility Service Area.

Policies

06.01.01A Improvements in areas already developed but which are not presently served by sanitary sewers and in the Pompano Canal Water Body Identification (WBID) shall be high priority capital projects.

06.01.02A Where sanitary sewer service is required concurrent with private development, it shall be the responsibility of the developer to provide these systems (except in unique State or Federal grant situation).

06.01.03A Whenever possible, the City shall attempt to supplement sanitary sewer improvements with funding from County, State and Federal sources.

06.01.04A The City shall require that all new commercial and industrial development be serviced by centralized wastewater systems.

06.01.05A Comply with all operations and reporting regulations.

06.01.06A Follow recommended maintenance industry standards and construct required improvements to assure proper operating capabilities as in Capacity Management

and Operation Maintenance (CMOM) as recommended in the approved Sanitary Sewer Master Plan.

06.01.07A City of Pompano Beach will continue to provide and maintain sanitary sewer services to section of the Town of Lauderdale by the Sea to ensure public health, safety and quality of life per the current agreement.

Objective Level of Service

06.02.00A The following level of service standards, which shall be the minimum levels of service standards for the providers of sanitary sewer services within the city limits of the City of Pompano Beach.

Pompano Beach: 15.71 million gallons per day in Design Capacity 12.667 million gallons per day in 2008

Broward County: 84.000 million gallons per day in Design Capacity 72.500 million gallons per day in 2008

Areas served by Septic Tanks N/A

Policies

06.02.01A The City shall continue to monitor Broward County Utilities a provider of sanitary sewer services on an annual basis in order to ascertain that the established levels of service are maintained.

06.02.02A Capital improvement projects undertaken to maintain the established levels of service will be implemented in accordance with the schedule provided in the Capital Improvement Element of the Comprehensive Plan.

06.02.03A To renegotiate the Large User Agreement with Broward County to increase the capacity to 17.0 mgd and to review the capacity for adequacy every five years as part of the Wastewater Master Plan update.

Objective Other Service Providers

06.03.00A Broward County shall provide and maintain sanitary sewer service in their service area to ensure public health, safety and quality of life.

Policies

06.03.01A Improvements in areas already developed but which are not present served by sanitary sewers and in the Pompano Canal Water Body Identification (WBID) shall be high priority capital projects.

06.03.02A Whenever possible, Broward County should attempt to supplement sanitary sewer improvements with funding from other sources, in order to keep costs low for residents and businesses.

06.03.03A Broward County should require that all new commercial and industrial development be serviced by centralized wastewater systems where financially feasible.

06.03.04A Broward County shall fulfill the annexation agreements, which required Broward County to provide sanitary sewer improvements to residents and businesses located in the annexed areas and the Broward County Utility service area.

Objective Improvement Needs

06.04.00A The City (Utilities Department) will continue to assess the sanitary sewer trunk lines and correct deficiencies in a timely manner.

Policies

- 06.04.01A The City (Utilities Department) will prepare/update a sanitary sewer master plan every five years, as needed, in order to assist with the prioritization of the Capital Improvement Plan projects.
- 06.04.02A The City's Capital Improvement Plan shall be the yearly funding document for the rehabilitation or replacement of the City's sanitary sewer facilities.
- 06.04.03A The City's Utilities Department will assess periodically the City's sanitary sewer system through a Capacity Management and Operation Maintenance (CMOM) Plan or other assessment tool, such as televised inspections or hydraulic modeling, in order to assist with the prioritization of Capital Improvements
- 06.04.04A The City's Utilities Department will continue to perform normal operating maintenance and repairs as needed to minimize emergency repairs.
- 06.04.05A The City's Utilities Department will continue to monitor and assess the condition of Lyons Park and Liberty Park sanitary sewer lines and facilities in order to determine the feasibility of implementing capital projects to relocate sanitary sewer lines presently located in the rear yard easements, or identify emerging technologies which would allow for in place rehabilitation of gravity sewer lines.
- 06.04.06A The City's Utilities Department shall manage the City's sanitary sewer system and facilities in order to minimize any impacts to the environment.
- 06.04.07A The City's Utilities Department shall minimize the inflow and infiltration into the sanitary sewer system.

- 06.04.08A The City's Utilities Department shall maintain adequate resources (staff and equipment) to respond to operational problems before they become sanitary sewer overflows, which may impact the environment,
- 06.04.09A When public power is interrupted the City's Utilities Department shall have adequate portable or stationary generators, or portable automatic by-pass pumps to maintain service to City's lift stations.
- 06.04.10A Private lift stations shall have the proper signage as required by City Ordinance.
- 06.04.11A Upon adoption of the Pompano Canal Basin Management Action Plan (BMAP/BMAP lite) (WBID 3271), the required improvements will be made to sanitary sewer system.

Objective Coordination

- 06.05.00A The City shall coordinate with Broward County Utilities, which serves customers inside the City limits and provides wastewater treatment through the Large User Agreement.

Policies

- 06.05.01A Coordinate with Broward County for the provision of wastewater services to City of Pompano Beach residents who are located in Broward County's service area.
- 06.05.02A Maintain the Large User Agreement with Broward County for the provision of wastewater treatment services
- 06.05.03A Obtain and maintain the memorandum of agreement with Broward County which allows the City to receive wastewater effluent to be processed into reuse water.

06.05.04A Maintain the agreement with the Town of Lauderdale by the Sea for the transmission of raw sewage received from the Town of Lauderdale by the Sea master lift station at Seagrape Drive be treated at Broward County Wastewater Treatment Plant.

06.05.05A Maintain the agreement with FDOT for the acceptance of raw sewage from the Florida's Turnpike's Pompano Beach service plaza.

Objective Funding

06.06.00A Continue to operate the sanitary sewer system as an enterprise fund

Policies

06.06.01A Continue the practice of hiring a consultant to do a yearly rate study on the sanitary sewer rates to insure that the rates are sufficient to support the water and sanitary sewer bonds, needed capital improvements and operating expenses for the sanitary sewer system,

06.06.02A Adjust sanitary sewer rates in accordance with the rate study.

III. EXISTING CONDITIONS

Sanitary Sewer Service Areas

The City of Pompano Beach is divided into three sanitary sewer service districts: City of Pompano Beach and two Broward County Utilities districts. The City of Pompano Beach service district covers 73% of the land area of the City of Pompano Beach. Broward County Utilities operates two wastewater districts, one to the north, which covers 25% of the City's land area, and the other to the south, which covers 2% of the City's land area. The service areas for the two Broward County sanitary sewer districts consist of additional land besides the areas inside the City of Pompano Beach.

Figure 1 - Sanitary Sewer Collection Facilities indicates the service area boundaries. Table 1 provides the type of existing land uses in each of the service areas

The City of Pompano Beach's sanitary sewer service district provides collection facilities only. All wastewater is collected and pumped to the Broward County North District Regional Wastewater Treatment Plant. The Broward County North District Regional Wastewater Treatment Plant is located at 2555 West Copans Road (within city limits of the City of Pompano Beach). The Broward County North District Regional Wastewater Treatment Plant receives wastewater from the City of Pompano Beach, the two Broward County sanitary sewer districts, as well as other municipalities.

The design capacity of the Broward County North District Regional Wastewater Treatment Facility is 84.00 million gallons per day. The 2008 average daily demand on the facility is 72.50 million gallons per day.

The City of Pompano Beach receives service from Broward County North District Regional Wastewater Treatment Plant as per the Large User Agreement as amended. The Large Users Agreement sets the City's capacity as 15.71 million gallons per day. The City of Pompano

Beach's capacity is equal to 18.70% of the Broward County's plant capacity. The City of Pompano Beach's 2008 average daily demand is 12.67 million gallons per day, which constitutes approximately 17%) of the total plant flow.

The City of Pompano Beach also serves the portion of Lauderdale by the Sea north of Commercial Boulevard.

Figure 1 - Sanitary Sewer Service Areas

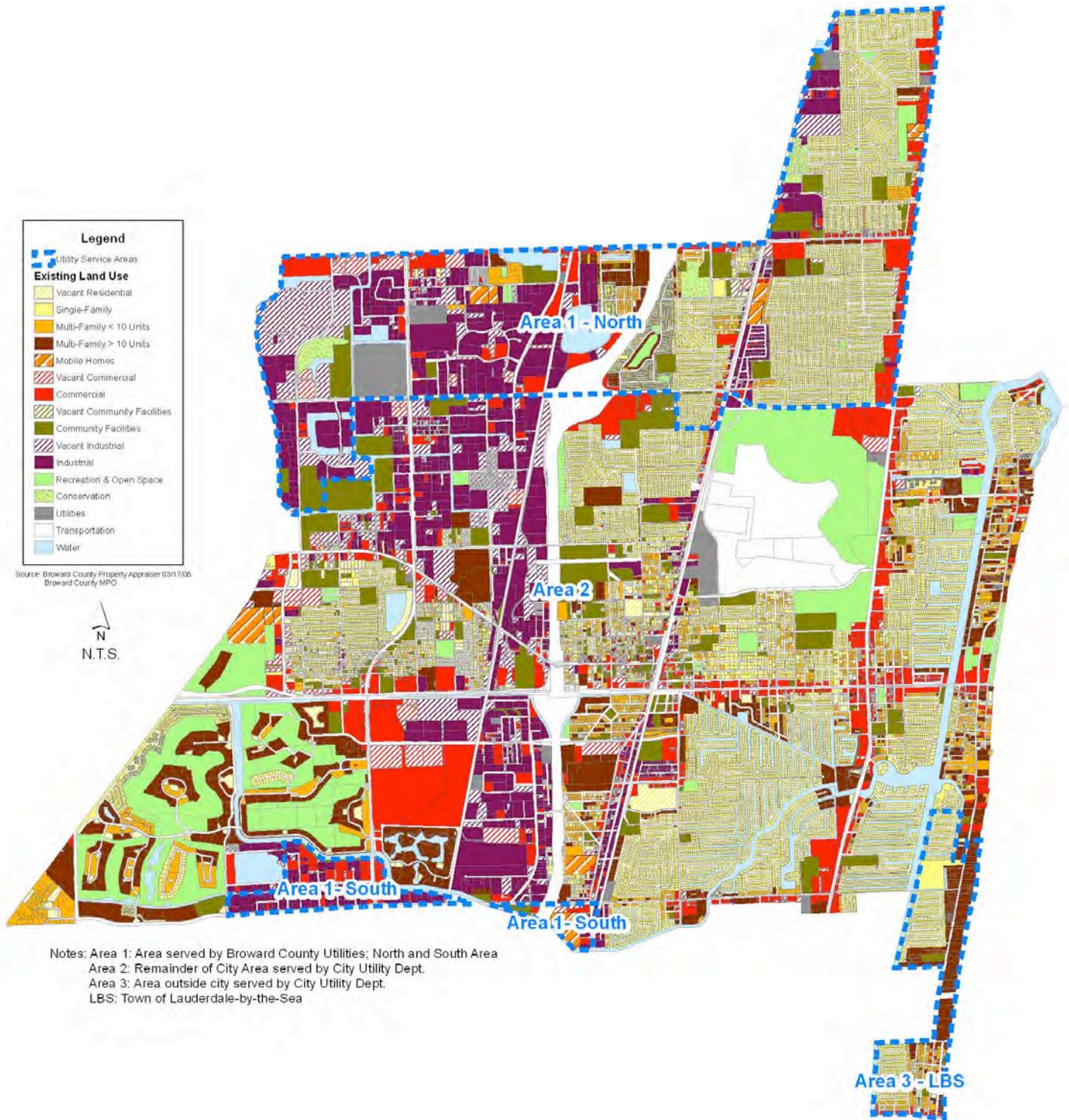


Table 1 - Existing Land Use in Utility Service Areas (in acres)

March 2005 Existing Land Use	City of Pompano Beach	Broward County		LBS
		North	South	
<u>Residential</u>				
Vacant Residential	377.7	23.2	2.0	5.0
Single-Family	1,931.4	938.0	0.0	140.7
Multi-Family < 10 Units	506.8	78.6	0.2	31.4
Multi-Family > 10 Units	992.1	86.8	0.0	125.9
Mobile Homes	57.5	39.0	23.2	0.0
Total	3,865.6	1,165.6	25.4	303.0
<u>Non-Residential</u>				
Vacant Commercial	271.3	86.1	2.6	0.3
Commercial	921.7	312.2	58.4	6.2
Vacant Community Facilities	6.2	6.3	0.0	0.0
Community Facilities	637.8	256.2	11.7	10.3
Conservation	0.0	72.7	0.0	0.0
Recreation & Open Space	1,158.2	45.0	0.0	1.0
Vacant Industrial	315.7	282.0	6.7	0.0
Industrial	999.2	704.6	119.0	0.0
Utilities	80.6	116.3	1.5	0.0
Total	4,390.7	1,881.4	199.9	17.8
<u>Transportation/Water</u>	3,273.2	951.3	67.3	87.4
Total	11,529.5	3,998.3	292.6	408.2

Source: Walter H. Keller, Inc.

Broward County Property Appraiser, March 2005

City of Pompano Beach Engineering Dept.

Notes: LBS: Town of Lauderdale-by-the-Sea, Water & Force Main Service
by City of Pompano Beach Utility Dept.

Table 2 provides the average daily demand from the City of Pompano Beach service area and the Broward County North District Regional Wastewater Treatment Facility.

Table 2 - Historic Wastewater Flows

Year	Sewage Flow Average Yearly Flow (MGD)	
	Pompano Beach Service Area	North District Broward County Service Area
2000	15.63	69.72
2001	14.69	71.24
2002	15.82	71.36
2003	16.22	70.83
2004	13.16	69.92
2005	13.84	76.23
2006	13.96	77.10
2007	13.85	76.73
2008	12.67	72.50

Source: City of Pompano Beach -
Utilities Department, 2001-2008
Broward County Utilities, 2001-2008

Septic Tank Systems

The City of Pompano Beach has a relatively small area of industrial uses, which are still served by septic tanks. This area is bounded by Dr. Martin Luther King, Jr./Hammondville Road, I-95, West Atlantic Boulevard and the Seaboard Coastline Railroad. This area developed around the State of Florida’s Farmer Market. Being as the area is unplatted, and lacks defined roads and has no existing right of way for sanitary sewer lines.

The recent addition of the extension of Andrews Avenue from south of Copans Road to West Atlantic Boulevard into this area will make the parcels of lands more accessible and valuable, which will induce redevelopment. In the redevelopment process, the property will be platted and road right of way will be dedicated, which will enable sanitary sewers to be constructed.

As the City of Pompano Beach has sanitary sewer lines along Dr. Martin Luther King, Jr./Hammondville Road and West Atlantic Boulevard, properties fronting on these two major

highways have access to sanitary sewer mains and are connected to the sanitary sewer system. Thus, it is primarily the interior properties, which operate on septic tanks. The existing industrial properties in this area consist of warehouse uses. Warehouse uses generally have minimum flows of wastewater, which septic tanks can easily handle until, sanitary sewers can be constructed.

There are some streets in the Broward County service area, which lack sanitary sewers and rely on septic tanks. As part of the annexation agreement, Broward County is installing sanitary sewer lines and connecting single family homes to the sanitary sewer system.

Sanitary Sewer Collection and Transmission System

These facilities are regulated by the Florida Department of Environmental Regulation, United States Environmental Protection Agency, and Broward County Department of Natural Resource Protection. Standards for wastewater facilities are detailed in the Chapter 62, Florida Administrative Code.

In order to improve wastewater management throughout Broward County, the City of Pompano Beach has adhered to a regional policy adopted by Broward County. Implementation of this policy caused various City-owned and privately owned wastewater treatment facilities within the Pompano Beach sewer service area to be abandoned; their respective sanitary collection systems were tied into the regional force main system. Wastewater previously treated at these facilities is now treated at the North District Regional Wastewater Treatment Facility, which began operation in 1975.

Ownership and maintenance of the sewage collection system identified on Figure S-1 within the City of Pompano Beach service area is the responsibility of the City. Broward County is responsible for ownership and maintenance of the wastewater treatment facility as well as the force main collection system in their two utility service districts.

The majority of the City's sanitary sewage collection system was built after 1962. In 1969, the City initiated a program to develop a citywide sewage collection system. The City Engineer subdivided the City's service area into 55 districts. Today sewage flow within each district is directed to one of the City's 74 sewage pump stations located throughout the City. Each of these stations then pumps sewage through a force main manifold system to the North District Regional Sewage Treatment Plant. This gravity collection system is comprised of vitrified clay pipe (VCP) and polyvinyl chloride pipe (PVC) ranging in size from six to twenty-four inches (6"-24") in diameter and reinforced concrete pipe (RCP) ranging from thirty to forty-two inches (30"-42") in diameter. The force main pipe consists of ductile iron pipe, fiberglass reinforced pipe, polyvinyl chloride pipe, high density polyethylene pipe and reinforced cement pipe.

The Sewage Transmission Section of the Pompano Beach Water and Sewer Department operates and maintains the existing gravity sewers, force mains, and manholes as well as testing, inspection and approval of new systems.

To minimize infiltration into the system, the City utilizes a three phase procedure:

1. Two Jet Vac trucks provide a high pressure water jet, which removes grease, oil and grit, which build up within the gravity system.
2. Closed circuit television equipment is pulled through each gravity sewer to locate leaks.
3. Leaks are repaired with the use of a pressurized grouting system which injects liquefied grout directly into the gravity line leak. A chemical reaction within the grout causes it to gel, thereby sealing the leak. It is important to note that these repairs are made without any excavation.
4. Line gravity sewer lines to limit inflow and infiltration.
5. Line manholes to limit inflow and infiltration.

The Sewage Transmission Section also operates and maintains the pump stations within the Pompano Beach service area. It is this section's responsibility to make daily inspections of each pump station, and keep stations clean and operable.

Table 3 - Existing Sanitary Sewer Collection System

Diameter (inches)	1995 Length (feet)	2008 Length (feet)	Difference (feet)
42	785	785	0
36	4,410	4,510	100
30	3,255	4,585	1,330
24	5,950	5,990	40
21	8,765	8,980	215
18	10,538	10,290	-248
15	16,564	17,625	1,061
12	11,914	14,625	2,711
10	34,250	42,714	8,464
8	753,077	925,922	172,845
6	0	1,369	1,369
Total	849,508	1,037,395	187,887

Source: City of Pompano Beach Engineering Dept., 2008

As Table 3, illustrates above, eight inch diameter sewer main comprises almost 90% of the sanitary sewer system both in 1995 and in 2008. Almost 92% of the increase of 187,887 linear feet of sanitary sewer main from 1995 to 2008 consists of 8 inch diameter main. The 187,887 linear feet of sanitary sewer main represents an expansion of the system of over 22% from 1995.

In 1995, the City of Pompano Beach had 66 lift stations; in 2008 that number had increased by 8 to 74. In the intervening years, the City refashioned its sanitary sewer system to eliminate excessive pumping and repumping by lift stations and added new lift stations where needed as sanitary sewer lines were extended to various areas.

Future Sanitary Collection System Improvements

The Capital Improvement Element (CIE) contains the capital improvements to the sanitary sewer system for the Fiscal Years 2008 through 2012. The CIE identifies six (6) projects, one of which

is a study. The six projects call for expenditures of \$4,047,000 in FY 2008. There are four recurring projects in fiscal years 2009 through 2012 and \$3,698,000 is budgeted for each of those fiscal years. The four projects are improvement programs, where the City allocates a fixed sum each year to maintain, improve or replace existing facilities.

Projected Future Wastewater Flows

As Table 4 indicates the service area population for sanitary sewer service remained fairly constant, while the City of Pompano Beach’s total population grew. The growth in the total City population was due to annexations, which added several large communities to the City. Cresthaven came into the City through annexation in September 2000, adding 7,741 persons. The communities of Loch Lomond/Leisureville and Pompano Highlands came into the City through annexation in September 2004 adding 7,768 and 6,505 persons respectively. The three large annexations were all served by Broward County Utilities.

Table 4 - Pompano Beach Sanitary Sewer Service Area Population

Year	Service Area Population	Total City Population
2000	79,173	78,191
2001	79,173	85,932
2002	79,541	86,300
2003	79,575	86,334
2004	80,425	87,184
2005	80,680	101,712
2006	80,071	101,103
2007	80,096	101,128
2008	79,026	100,058

Sources: City of Pompano Beach Planning Department
 2000 U.S. Census
 University of Florida, Bureau of Economic and Business Research,
 Estimates of Population from 2001 through 2008, April 1

Table 5, below, calculates the average gallons per person beginning in the year 2000. The average gallons per person per day of wastewater varied from a high of 204 in 2003 to a low of 164 in 2008. The average for the 9 year period was 182 gallons per person per day.

Table 5 - Historic Wastewater Flows - Pompano Beach Service Area

Year	Avg. Yearly Sewage Flow (MGD)	Service Population	G/P/D
2000	15.63	79,173	197
2001	14.69	79,173	185
2002	15.82	79,541	198
2003	16.22	79,575	204
2004	13.16	80,425	164
2005	13.84	80,680	176
2006	13.96	80,071	174
2007	13.85	80,096	173
2008	12.67	79,026	164

Sources: City of Pompano Beach Planning Department
 City of Pompano Beach Utilities Deptment
 2000 U.S. Census
 University of Florida, Bureau of Economic and Business Reseach,
 Estimates of Population from 2001 through 2008, April 1
 Note: G/P/D: Gallon per person per day.

Chen & Associates prepared projections of wastewater flows for the City of Pompano Beach. The projections were needed in order to analyze the need to expand the Large User Agreement with Broward County Utilities Department for the provision of adequate capacity for wastewater treatment. Chen & Associates used 179 gallons per day per person for the projection of wastewater flows, which are shown in Table 6.

The projections indicate that if the population increases as projected the City will exceed its wastewater allocation of 15.31 mgd in the very near term. (This reinforces the need to increase the Large User Agreement to 17.0 mgd). However, the historical data in Table 6 indicates that average flow per person per day is steadily decreasing, due to improvements in the collection

system, which is reducing the amount of infiltration and inflow. Future population projections, which reflect current economic conditions, as well as future wastewater flows, will determine the need to further amend the Large User Agreement in next five to seven years.

Table 6 - Projected Wastewater Flows - Pompano Beach Area

Year	Service Population	G/P/D	Projected Sewage Flow Avg. Yearly Flow (MGD)
2009	84,864	179	15,190,656
2010	86,406	179	15,466,674
2011	88,060	179	15,762,740
2012	89,714	179	16,058,806
2013	91,369	179	16,355,051
2014	93,023	179	16,651,117
2015	94,677	179	16,947,183
2016	96,295	179	17,236,805
2017	97,913	179	17,526,427
2018	99,530	179	17,815,870
2019	101,148	179	18,105,492
2020	102,766	179	18,395,114
2021	104,404	179	18,688,316
2022	106,041	179	18,981,339
2023	107,679	179	19,274,541
2024	109,316	179	19,567,564
2025	110,954	179	19,860,766

Sources: City of Pompano Beach Planning Department
Chen & Associates

Note: G/P/D: Gallon per person per day.

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