Public Works and Environmental Services Department
WATER AND WASTEWATER SERVICES - ENGINEERING
2555 West Copans Road • Pompano Beach, Florida 33369
Phone 954-831-0745 • FAX 954-831-0798/0925

GUIDELINES FOR DETERMINING ABILITY TO PROVIDE POTABLE WATER AND WASTEWATER SERVICE

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Broward County's Water and Wastewater Services (WWS) must determine its ability to provide the appropriate level of service to potential potable water and/or wastewater customers. Tables 1 and 2 contain WWS' potable water and wastewater level of service standards, respectively.

Table 1 - Potable Water Level of Service Standards

Facility	Level Of Service Standard
Raw Water Supply and Treatment Plant	Maximum Day
Distribution System	The most stringent of: (1) Peak Hour at 45 psi residual pressure, or (2) Maximum Day Plus Fire Flow at 25 psi residual pressure.

Table 2 - Wastewater Level of Service Standards

Facility	Level Of Service Standard
Treatment Plant and Effluent Disposal	Average Day
Collection System	Peak Hour

Often, the demand from a potential customer is so small that an engineering analysis is not necessary to determine if WWS can provide the appropriate level of service. For example, an engineering analysis would not be necessary to connect one single family residence or a fire hydrant to the system. Other times, either because of the amount of demand, or the location in the system, an engineering analysis is necessary.

WWS reserves the right to perform an engineering analysis when it deems the analysis necessary. The analysis will follow the guidelines contained herein.

These Guidelines are based on a combination of information from the 2002 Retail Service Water and Wastewater Master Plan, 2011 WWS Alternative Water Supply Conceptual Master Plan and a 2011 customer usage study conducted by WWS.

WWS' commitment to provide service to new customers occurs when the potential customer pays certain fees and charges.

No guideline can cover all varying circumstances, so WWS reserves the right to act in the best interest of its existing customers.

POTABLE WATER

Determining WWS' ability to serve a potential potable water customer starts with calculating average day demand for the potential customer.

Average Day Demand

Table 3 will be used to calculate average day demand, in gallons per day (gpd).

Table 3 - Potable Water Average Day Demands

Type of Use	Unit	Demand (gpd/unit)
Condominium, Apartment	each	141
Day Child Care	1000 SF of gross building area	124
Fast Food Service	1000 SF of gross building area	473

Type of Use	Unit	Demand (gpd/unit)
Gas Station (fueling only)	fuel pump	70
Hotel	rental room	94
Laundry (coin operated machines)	1000 SF of gross building area	1305
Merchandising	1000 SF of gross building area	37
Mobile Home	lot	156
Office	1000 SF of gross building area	42
Place of Worship	1000 SF of gross building area	47
Restaurant	1000 SF of gross building area	356
School	student	9
Self Service Storage	1000 SF of gross building area	9
Single Family Residential	each	199
Vehicular Repair	1000 SF of gross building area	97
Warehouse (mixed use)	1000 SF of gross building area	33
Warehouse (homogeneous, bulk storage)	1000 SF of gross building area	26

Source: 2011 Usage Study of WWS customers and
2011 Alternative Water Supply Conceptual Master Plan
Normal landscape irrigation requirements are included.
System uses and losses of 8% are included.
WWS reserves the right to develop similar values for other specific types of use not listed above.

Raw Water Supply and Water Treatment Plant

The potable water average day demand calculated above is multiplied by a factor from Table 4 to determine maximum day demand, the level of service condition for raw water supply and water treatment plants. WWS operates four independent water systems, called Districts, and each District has its own factor.

Table 4 - Potable Water Maximum Day Factors

Factor	District 1	District 2	District 3A	District 3BC
Maximum Day To Average Demand Factor	1.28	1.30	***	***

Source: Analysis of plant flow from 1998 thru 2008
Normal landscape irrigation requirements are included in these maximum day factors.
*** Raw water supply and water treatment plant supplied by the City of Hollywood.

Any analysis of available capacity must include prior commitments to serve permitted but not yet constructed developments, as well as existing customer flow. Therefore, the sum of existing customer maximum day flow, prior commitments and potential customer maximum day flow is compared to the facility's permitted capacity.

Example:	Existing customer average day flow	= 4,000,000 gpd
	Prior commitments average day flow	= 1,000,000 gpd
	Potential customer average day flow	= 500,000 gpd
	Total average day flow	= 5,500,000 gpd
	Times maximum day factor of 1.30	= 7,150,000 gpd
	Facility permitted capacity	= 8,000,000 gpd

Existing customer flow plus prior commitments plus potential customer maximum day demand equals 7,150,000 gpd, which is less than the facility's permitted capacity of 8,000,000 gpd. Therefore, WWS can provide the appropriate raw water supply and water treatment plant level of service to this potential customer.

Water Distribution System

Detailed analysis of the distribution system may be done by WWS when WWS reviews detailed engineering issues with the developer as part of WWS' developer coordination process. Distribution system issues are not considered in WWS' earlier reviews, since the nature of the distribution system changes over time as improvements are made. A potential customer must make whatever distribution system improvements are necessary to provide the required level of service in order to proceed with their project.

Before the distribution system analysis can begin, the development plan must be detailed enough to be able to use Table 3 – Potable Water Average Day Demands to calculate the potential customer's average day demand. The potential customer's average day demand will be increased by 50% for use in distribution system analysis and sizing. The increased average day demand is then multiplied by a peak factor from Table 5 to determine maximum day and peak hour demand.

Table 5 – Potable Water Peaking Factors

Factor	District 1	District 2	District 3A	District 3BC
Maximum Day To Average Demand Factor	1.28	1.30	1.37	1.46
Peak Hour To Average Demand Factor	1.73	2.27	1.58	1.86

Source: Maximum Day - Analysis of plant flow from 1998 thru 2008
Peak Hour - Master Plan Table 4-27

The distribution system must be able to provide fire protection as well as water for consumptive uses. Table 6 is WWS' fire protection goals in gallons per minute (gpm).

Table 6 - Fire Protection Goals

Type of Structure	Goal (gpm)
Single Family Residential	1000
Multi-Family Residential	2000
Mobile Home	2000
Small Commercial	2500
Medium Commercial	3000
School	3500
Large Commercial	3500

WWS recognizes that these goals are general in nature and will use a specific fire protection requirement determined by the Fire Marshal or a licensed fire protection specialist, if available. However, in any case, WWS will not be responsible for providing fire protection in excess of 3500 gpm. In setting a top end goal of 3500 gpm, WWS recognizes that individual developments may elect to provide more than 3500 gpm through privately owned and maintained on-site facilities.

Any analysis of available capacity must include prior commitments to serve as well as existing customer flow. There is no "permitted capacity" for a distribution system. Determining if the distribution system can provide the appropriate level of service is accomplished by analyzing the distribution system in each of two loading conditions:

Loading Condition 1. The distribution system is loaded with peak hour demands of existing customers, prior commitments and the potential customer. Under these loading conditions the residual pressure anywhere in the system cannot be less than 45 psi.

Loading Condition 2. The distribution system is loaded with maximum day demands of existing customers, prior commitments and the potential customer; and the potential customer's fire protection demand. Under these loading conditions the residual pressure anywhere in the system cannot be less than 25 psi.

When doing the above analysis, WWS will include representative potential customer on-site piping. In doing so, WWS will determine the minimum size for on-site piping.

Further, the distribution system will be analyzed in two configurations: existing system and future system.

If the distribution system (including the potential customer's on-site piping) meets the minimum residual pressure for each of the two loading conditions, in both the existing and future configuration, then the system can provide the required level of service. If the system cannot provide the required level of service, improvements are necessary to allow the potential customer's project to proceed.

WASTEWATER

Determining WWS' ability to serve a potential wastewater customer starts with calculating average day demand for the potential customer.

Average Day Demand

Table 7 will be used to calculate average day demand, in gallons per day (gpd).

Table 7 – Wastewater Average Day Demands

Type of Use	Unit	Demand (gpd/unit)
Condominium, Apartment	Each	100
Day Child Care	1000 SF of gross building area	101
Fast Food Service	1000 SF of gross building area	385
Gas Station (fueling only)	fuel pump	57
Hotel	rental room	77
Laundry (coin operated machines)	1000 SF of gross building area	1063
Merchandising	1000 SF of gross building area	30
Mobile Home	Lot	111
Office	1000 SF of gross building area	34
Place of Worship	1000 SF of gross building area	38
Restaurant	1000 SF of gross building area	290
School	Student	7
Self Service Storage	1000 SF of gross building area	7
Single Family Residential	Each	142
Vehicular Repair	1000 SF of gross building area	79
Warehouse (mixed use)	1000 SF of gross building area	27
Warehouse (homogeneous, bulk storage)	1000 SF of gross building area	21

Source: Table 3, adjusted for average irrigation usage (30% for residential and 20% for commercial) and system uses and losses
Infiltration/ inflow of 10% is included.
WWS reserves the right to develop similar values for other specific types of use not listed above.

Wastewater Treatment Plant and Effluent Disposal

The wastewater average day demand calculated above is used for the level of service condition for wastewater treatment plant and effluent disposal.

Any analysis of available capacity must include prior commitments to serve permitted but not yet constructed developments, as well as existing customer flow. Therefore, the sum of existing customer average day flow, prior commitments and potential customer average

day demand is compared to the facility's permitted capacity.

Example:

Existing customer average day flow	= 4,000,000 gpd
Prior commitments average day flow	= 1,000,000 gpd
Potential customer average day flow	= 500,000 gpd
Total average day flow	= 5,500,000 gpd
Facility permitted capacity	= 6,000,000 gpd

Existing customer average day flow plus prior commitments plus potential customer average day demand equals 5,500,000 gpd, which is less than the facility's permitted capacity of 6,000,000 gpd. Therefore, WWS can provide the appropriate wastewater treatment and effluent disposal level of service to this potential customer.

Wastewater Collection System

Detailed analysis of the collection system may be done by WWS when WWS reviews detailed engineering issues with the developer as part of WWS' developer coordination process. Collection system issues are not considered in WWS' earlier reviews, since the nature of the collection system changes over time as improvements are made. A potential customer must make whatever collection system improvements are necessary to provide the required level of service in order to proceed with their project.

Before the collection system analysis can begin, the development plan must be detailed enough to be able to use Table 7 – Wastewater Average Day Demands to calculate the potential customer's average day demand. The potential customer's average day demand will be increased by 50% for use in collection system analysis and sizing.

The increased average day demand is then multiplied by a factor from Table 8 to determine peak demand.

Table 8 – Wastewater Peaking Factors

Number of ERU	Factor
1 to 250	4.2
251 to 600	4.0
601 to 1200	3.8
1201 and above	3.5

Any analysis of available capacity must include prior commitments to serve as well as existing customer flow. There is no "permitted capacity" for a collection system. Determining if the collection system can provide the appropriate level of service is accomplished by analyzing the collection system in a peak loading condition. That is, the

collection system is loaded with the peak demand of existing customers, prior commitments and the potential customer. To accomplish this analysis, WWS will construct a steady state model that approximates the affected portion of the collection system. The model will be based on pipe roughness factors selected by WWS and peak demand flows. Under the peak demand loading condition:

1. All gravity sewers must be able to pass the wastewater without exceeding 90% of full pipe capacity;
2. All force mains must be able to pass the wastewater at a velocity less than 5 feet per second;
3. All pump stations must be able pump the wastewater with an average pump run time of less than 8 hours per day (when pumping non-peak flows) and without the use of the station's standby pump; and
4. Existing pump station pump discharge flow can not be lowered by more than 10%.

Further, the collection system will be analyzed in two configurations: existing system and future system.

If the collection system meets the loading condition criteria in both the existing and future configurations, then the system can provide the required level of service. If the system cannot provide the required level of service, improvements are necessary to allow the potential customer's project to proceed. Improvements may include additional pumping capacity at existing pump stations, additional force main capacity, additional gravity sewer capacity or some combination thereof. In determining the necessary improvements, WWS will not increase pumping capacity in an existing pump station by more that one standard horsepower size, for example, 5 HP can be increased to 7.5 HP; 10 HP can be increased to 15 HP. These horsepower changes can not result in a requirement to change the wetwell size and can not result in a requirement to change the pump station electrical service from 230 volt to 460 volt. If more than 30% of the pump stations (or one station, whichever is greater) in the model require horsepower changes, WWS will require piping improvements that reduce the need to change pump station horsepower to 30% or less of the pump stations in the model(or one station, whichever is greater).