

CHAPTER 7: WATER SUPPLY FACILITIES PLAN

Capital Improvements Element

INTRODUCTION

The City of Milton owns and operates and is sole provider of a water supply system (withdrawal, treatment, and distribution) that supplies the potable water needs of the residents of this franchise area in the Central portion of the County. The City of Milton is solely responsible for the planning, financing, construction, and operation of the facilities that will supply water within its franchise area. The system currently serves approximately 20,000 persons. The City of Milton Water System's franchise area is shown on Map MWD-1. The current service area does not include those portions of the franchise area which are sparsely populated. These areas lie primarily in the northeastern and northwestern sections of the franchise area.

Figure 7.1:
City of Milton Water Franchise Area, 2012



City of Milton, Department of Planning and Development, 2012

All potable water supplied by the City of Milton is done so through the use of six (6) wells; these wells withdraw potable water from the Sand-and-Gravel Aquifer. The Northwest Florida Water Management District (NFWFMD) through standard and special conditions in each System's Consumptive Use Permit (CUP) regulates the water system. The City of Milton's CUP number is #19842715 was issued on October 22, 2009. The CUP is scheduled to expire on November 1, 2014. As such, the City will collaborate with the NFWFMD during the coming months to identify the source of water required for the identified need. The City of Milton will need to renew the CUP before the expiration date.

A. MILTON WATER SYSTEM

The City of Milton water system has six elevated water storage tanks with a combined capacity of 1,700,000 gallons. Two pipeline interconnections with the Point Baker Water System exist for emergency flow – a 6" pipeline on Tanglewood Drive and a 4" pipeline on Willard Norris Road.

The Included map indicates the most current water system service area information available. There is no indication that there are areas that receive service which are not depicted on the maps. The City of Milton has been successful in placing facilities that will best serve the system's users.

Table MWD-1 identifies the estimated service populations for the foreseeable future. The population projections estimate that the system will grow at an annual rate of approximately 2.1%, which is the projected County growth rate. These projections are based on the University of Florida, Shimberg Center for Affordable Housing at the University of Florida and Florida Department of Environmental Protection 2013 Public Water System data.

**Table 7.1:
Estimated Population of City of Milton Water System Area**

	2010	2015	2020	2025
Santa Rosa County	146,386	162,017	177,715	192,713
City of Milton Water System	19,600	20,017	20,405	20,750

Shimberg Center, FDEP

The City of Milton is authorized through its CUP an average daily rate of 2.530 MGD, a maximum daily rate of 4.34 MGD and monthly rate of 86.4 MGD. Table MWD-2 illustrates the current CUP levels provided from the NFWFMD for the water system. Withdrawals for the individual facilities are detailed as shown in Table MWD-3 below. However, the total combined amount of water withdrawn by all facilities listed is not allowed to exceed the amounts identified below.

**Table 7.2:
Permitted Withdrawal Information**

Ground Water Use	Authorized	Present
Average Day (GPD)	2,530,000	1,690,425
Maximum Day (GPD)	4,340,000	2,640,000
Maximum Month (GAL)	86,400,000	63,777,000

NWFWMD CUP # 19842715

The potable water supply system currently consists of six (6) wells, which tap the sand and gravel aquifer to supply water to the system. The wells range in capacity from 500 GPM to 1,000 GPM and range in total depth from 150 to 338 feet. The actual measured total capacity is 4,600 GPM or 6.624 MGD. The water system has a current maximum facility storage capacity of 1,700,000 MGD. Table MWD-3 shows the construction details and pumping data for the existing wells.

**Table 7.3:
Well Supply Source Information**

Well ID #	Florida Unique ID	Location	Diameter (Inches)	Total Depth (Feet)	Actual Capacity (GPM)	Permitted Max. Daily Withdraw (MGD)	Operational Status
1. (Firehouse)	AAA5223	Rose & Bruner Sts.	18	188	900	1.296	Active
2. (City Hall)	AAA5224	Dixon St.	18	188	500	0.720	Active
3. (Byrom St.)	AAA5225	Byrom & Grace Sts.	18	252	800	1.152	Active
4. (Berryhill)	AAA5227	Berryhill Rd. & Fairview St.	16	150	600	0.864	Active
5. (Hospital)	AAA5226	Berryhill Rd.	18	338	1,000	1.440	Active
6. (Appaloosa)	AAA5228	Dogwood St. & Appaloosa St.	24	342	800	1.152	Active
7. Roeville	TBD	TBD	18	TBD	600-800*	TBD	Proposed*
8. Whisper Creek	TBD	TBD	TBD	TBD	800*	TBD	Proposed*
Total					6,100*	6.624*	

NWFWMD CUP #19842715, City of Milton Operational Report 2012

*Each well is equipped with auxiliary power to ensure water is maintained for the system.

1. Distribution System

The potable water distribution system consists of in excess of 750,000/ 145 feet/miles of mains sized 2", 4", 6", and 12" in diameter. All 6 inch mains and larger have fire hydrants spaced at approximately 1,000 feet. There is in excess of 6,800 meters in the City of Milton Water System. See Map MWD-1.

2. Capacity Details

Table MWD-4 illustrates the projected demand, facility capacity, and permitted conditions for the City of Milton Water System. The water system has a current maximum facility capacity of 6.624 MGD (City of Milton Water System). The Average Daily Demand is expected to increase at a steady rate due to projected increases in consumer population. The results predict that there will be sufficient facility capacity for the upcoming planning period to 2025. The plan to have the proposed well #7 online by 2020 will result in an increase in facility capacity by as much as 1.44 MGD, therefore there will be sufficient facility capacity for the upcoming planning period.

The projected facility capacity available after the Average Daily Demand is 4.25 MGD in 2010, 3.86 MGD, 2015, 3.40 MGD in 2020, and 2.87 MGD in 2025. The City of Milton Water Department is current projected to have sufficient facility capacity. This facility capacity will ensure that future land use decisions will be based upon the availability of adequate water supplies and public facilities and services.

Currently, the NFWFMD has permitted the CUP to allow withdrawal from the Sand-and-Gravel Aquifer at the Average Daily Rate (ADR) of 2,530,000 GPD. The Average Daily Demand is projected to increase due to the overall increase in population. The resulting Average Daily Demand is projected to be 2.76 MGD in 2015, 3.22 MGD in 2020, and 3.75 MGD in 2025 for the population served. When the rate of Average Daily Demand is compared against the permitted Average Daily Rate of 2.53 MGD the water system is expected to have a shortage of permitted daily usage occurring between now and 2015. The projected surplus/deficit of the permitted ADR will be <0.23> MGD in 2015, <0.69> MGD in 2020, and <1.22> MGD in 2025. The continual increase in ADR permitted deficit identifies a situation where the permitted ADR for the water system should be increased by the NFWFMD. The City of Milton Water System will continue to work with NFWFMD to ensure the permitted ADR continues to address the Average Daily Demand.

Table 7.4:
City of Milton Projected Water System Capacity and Demand

	2015	2020	2025
Population Served¹	20017	20405	20750
Ave. Daily Demand (MGD)²	2.76	3.22	3.75
Demand per Capita³ (GPD)	120.12	120.12	120.12
Available Facility Capacity (MGD)	8.064*	8.064*	8.064*

Facility Capacity Surplus (Deficit) ⁴	5.30	4.84	4.31
Permitted Amount ADR	2.530	2.530	2.530
Surplus⁵ (Deficit) ADR	0.23	0.69	1.22

NOTES: Population projections are based on an approximate 2.1% growth rate; Average Daily Demand Projections are based on estimated population and 2010 demand; Demand was calculated using 2010 actual demand and population, and the adopted LOS standard 100 gal/cap/day; Facility surplus was calculated by subtracting demand from capacity; Deficit was calculated by subtracting demand from ADR. * Available facility capacity will increase from 6.624 upon completion of well projects.

3. Storage System

As mentioned above, there are a total of six (6) elevated storage tanks in the potable water system. The tanks range in storage capacity from 100,000 gallons to 500,000 gallons.. The combined capacity of the storage tanks is 1,700,000 gallons. Table MWD-5 provides a summary of each of the storage tanks.

**Table 7.5:
City of Milton Water Storage Tank Data**

Tank Number	Location	Capacity (Thousands of Gallons)
1	Barnes St.	200
2	Roeville	100
3	Byrom St.	150
4 & 5	Berryhill Rd.	850
6	Appaloosa	300
7	Whisper Creek	TBD

City of Milton, Public Works

4. Water Conservation/Alternative Water Supply

The conflict between increasing demand for potable water, and limited supply, brings to the forefront the need for water conservation. In many cases, reductions in the demand for water can be more cost effective than increasing the supply.

The CUP provided by the NFWMD does identify several initiatives the City of Milton must undertake as required by the CUP. A copy of the NFWMD Consumptive Use Permit is attached as Appendix E. The City has asked its customers to participate in voluntary conservation measures. The City will continue to try and identify additional conservation methods.

Reclaimed Water

The use of treated wastewater for irrigation and other beneficial applications is becoming more commonplace in response to restrictions on the discharge of treated effluents to surface water bodies, and the need to preserve high quality potable water supplies.

Attachment A of the City’s Consumptive Use Permit states that the Permitted shall continue to investigate the feasibility of expanding the use of reclaimed water to non-potable water users, especially Whiting Field per the Engineering Evaluation dated March 5, 2004. The Permitted, at the time of permit modification or renewal, shall submit a copy of any further determination, an implementation schedule for sites where reuse is determined feasible, and progress made toward 100 percent reuse.

Regulations

The City of Milton does not have any ordinances regarding the promotion of water conservation efforts. All new developments are encouraged under the Comprehensive Plan and Land Development Regulations to install water conservation devices.

Planned Reuse

The City of Milton is seeking to expand the use of reclaimed water at Whiting Field and to establish a spray field in the East Milton area.

Reduction of Irrigation

The City of Milton has not instituted a policy to reduce the amount of potable water used for irrigation purposes. The City only has limited public sites that use potable water for irrigation purposes. At the time of this writing there is no plan to convert public facilities to different irrigation sources.

**Table 7.6:
City of Milton Irrigation Status**

Site/Area	Area Size (ac.)	Weekly Demand (Gallons)	Present Irrigation Source
Irrig./Escambia-Caroline St.	0.54	1,270 GPW	Potable Water
Median @ Texas Roadhouse - Dogwood	2.1	60,000 GPW	Potable Water*

Irrig. @ City Hall	4.01	33,600 GPW	Potable Water
Riverwalk-North	0.36	1,500 GPW	Potable Water
Riverwalk-South	0.61	2,500 GPW	Potable Water
Sanders St. Park	3.26	50,000 GPW	Meter*
Hindall Park	3.14	50,000 GPW	Well
Skate Park	4.77	3,000 GPW	Well
New Field Park	27.15	100,000 GPW	3 wells
6866 Caroline St. A	.1	6,000 GPW	Potable Water
Santa Rosa Caroline St	.1	2,160 GPW	Potable Water
6699 Caroline St.	.18	2,000 GPW	Potable Water
Caroline / Elmira St.	.1	5,000 GPW	Potable Water
Caroline / Elmira Fountain	.1	2,000 GPW	Potable Water

City of Milton Public Works

Conservation Efforts

The City of Milton has implemented a variety of conservation efforts. The System promotes conservation efforts by mailing out quarterly reminders included in the water bills that promote the conservation of water. The System also provides water conservation pamphlets that can be picked up at their office by the public. The City will conduct a public outreach effort to educate the public on the positive effect of xeriscaping techniques in an attempt to gain public support prior to adoption consideration

The City of Milton has instituted incremental pricing for water based upon use. Under this structure water users with minimum use levels benefit and those users with high monthly use pay increasingly higher rates thus providing a strong incentive for large users to reduce their use. A result of incremental pricing is a natural tendency to reduce the amount of water used. This action indirectly supports conservation efforts for the Water System.

Table 7.7:
City of Milton Water Department Water Utility Rates

Gallons	Inside City Limits	Outside City Limits
Residential Users (2012/13)		
Up to 3,000	\$13.70	\$17.12
All above 3,000 gallons (Per 1,000 gallons)	\$3.22	\$4.03

City of Milton Public Works

Reduction of “Unaccounted for” Water

The difference between the amount of water produced and the amount of water billed is known as “*unaccounted for*” water. Sources of unaccounted for water include un-metered water used for flushing lines, tank drainage for maintenance purposes, fire protection, main breaks, leaks, inaccurate meters, non-functioning meters, and theft. The City of Milton Water System accounts for many, but not all of these “losses”, and then makes a comparison of the amount of water billed and the amount of water produced each month to acquire a total of unaccounted for water.

In Special Condition #3, the NFWFMD Consumptive Use Permit states the City of Milton Water System “*shall continue to implement its formal water-loss accounting system and, by March 31 of each year, report the utility’s annual unaccounted-for water losses (with calculations) to the District. The accounting system shall provide for an accurate determination of the amounts of water withdrawn, the amounts of water billed to customers, and the amounts of unaccounted-for water by type (e.g. leaks, line breaks, inaccurate meters, unmetered users, line flushing, etc.)*.”

Table MWD-8 identifies the unaccounted for water on a monthly bases for the City of Milton Water System beginning in 2007. Month by month percentages are somewhat misleading due to variations in meter reading dates and production reports. For this reason, it is important to evaluate the unaccounted for water status on a quarterly or yearly basis in order to get an accurate picture of the unaccounted for water. The City is currently utilizing GPS and GIS technologies in locating all of its appurtenances and as a result will be in a position to accurately determine loss locations in coming years.

Table 7.8:
City of Milton Unaccounted for Water 2012

Month	Water Produced	Water Billed	Used by the Water System	Utility Department Water Loss	% Unaccounted for
January	46,886,000	40,807,800	6,078,200	16,790	0.04%
February	42,499,000	36,578,800	5,920,200	9,325	0.02%

March	50,607,000	41,214,900	9,392,100	8,620	0.02%
April	56,259,000	42,044,900	14,214,100	8,380	0.01%
May	63,777,000	46,102,100	17,674,900	18,470	0.03%
June	57,483,000	60,963,900	-3,480,900	36,835	0.06%
July	54,446,000	46,036,800	8,409,200	65,200	0.12%
August	49,660,000	42,807,700	6,852,300	21,335	0.04%
September	51,644,000	45,985,800	5,658,200	53,395	0.10%
October	53,353,000	41,616,700	11,736,300	26,370	0.05%
November	49,336,800	41,101,700	8,235,100	26,800	0.05%
December	46,191,000	46,672,300	-481,300	17,750	0.04%
Totals	622,141,800	531,933,400	90,208,400	309,270	.05%

City of Milton Public Works

Water Meter & Water Coupling Replacement

The City replaces water meters and water couplings on an as needed basis to ensure the accurate counting of water is achieved. The City does not have an established replacement plan for these items.

Xeriscape™ Landscaping Techniques

Xeriscape™ is a landscaping technique used to conserve water while still providing a healthy and attractive landscape. Incorporating native plants and grasses into the landscape helps to accomplish this. For the most part, the native specimens are already adapted to surviving on the amount of natural precipitation for the area. Using Xeriscape™ techniques does not totally eliminate the need for supplemental irrigation, but if applied correctly will minimize supplemental irrigation. It is becoming more common for municipalities to adopt Xeriscape™ landscaping techniques are employed on new developments.

The City of Milton Water System does not use Xeriscape™ landscaping techniques for public facilities irrigation purposes. Currently, the City of Milton Water System does not require new development to use the Xeriscape™ landscaping techniques. The City’s Planning and Development Department is actively pursuing the adoption of standards that will require their use. This will allow for less potable water to be used for irrigation purposes. The City is also recommended to use the Xeriscape™ on all public facilities.

Public Education

As stated earlier the City of Milton Water System includes quarterly water conservation reminders with utility bills and has pamphlets available for the general public. Special Condition #4 of the CUP states that the City of Milton Water System program shall specifically inform existing customers of the automatic irrigation shut-off requirement of Chapter 373.62, Florida Statutes. The Permittee shall provide a summary of the efforts undertaken in this regard at the time of permit renewal or modification. A recommendation will be for the City of Milton Water System to increase public education efforts for the conservation of water with special emphasis placed on the automatic irrigation shut-off requirement of Chapter 373.62, Florida Statutes. These public outreach efforts can be by a variety of methods to stress the importance of conservation.

Alternative Water Supply

The NFWMD Regional Water Supply Plan (RWSP) identifies the need for local communities to address alternative water supply projects. The RWSP provides a list of alternative water supply alternatives that can be undertaken by a community.

Florida Statutes defines "Alternative Water Supplies" by the following: *(1) means salt water; brackish surface and groundwater; surface water captured predominately during wet-weather flows; sources made available through the addition of new storage capacity for surface or groundwater, water that has been reclaimed after one or more public supply, municipal, industrial, commercial, or agricultural uses; the downstream augmentation of water bodies with reclaimed water; stormwater; and any other water source that is designated as nontraditional for a water supply planning region in the applicable regional water supply plan.*

In addition, the RWSP provides specific examples of alternative water supply efforts that can be undertaken by local jurisdictions.

Inland Sand and Gravel Aquifer Alternative Water Supply

The City of Milton Water System currently uses the Sand and Gravel Aquifer for its entire potable water supply needs. The sand and gravel aquifer consists of clean, fine to coarse sand and gravel but locally contains silt, silty clay, and peat beds.

Reclaimed Water

The City currently does not use reclaimed water for irrigation or potable water purposes.

Surface water

Employing the use of surface water is not a viable option due to the lack of appropriate salt-free water bodies near the City of Milton Water Department franchise area that can be used for irrigation or potable water purposes.

Riverbank Filtration

Riverbank filtration is not a viable option due to the lack of appropriate water bodies near the City of Milton Water System franchise area that can be used for irrigation or potable water purposes.

Utility Interconnections and related infrastructure improvements

The City of Milton Water System actively supports intergovernmental coordination efforts as required by the RWSP. As stated earlier, The City has two (2) pipeline interconnections with the Point Baker Water System for emergency flow.

5. Capital Improvements

The City of Milton Water System has a formal structure in identifying capital improvement projects. There are currently three water related capital improvement projects identified in the upcoming planning period (now - 2020). The Roeville water supply well, the replacement of the Berryhill well, and water line upgrades will see completion prior to 2020.

A general recommendation will be for the City of Milton Water System to continue to utilize the comprehensive planning process to assist in identifying and ranking capital improvement projects.

6. Concurrency Management

The City of Milton maintains a concurrency management as required by F.S. 163.3180(2)(A) which states *“a system shall be in place and available to serve new development no later than the issuance by the local government of a certificate of occupancy or its functional equivalent. Prior to approval of a building permit or its functional equivalent, the local government shall consult with the applicable water supplier to determine whether adequate water supplies to serve the new development will be available no later than the anticipated date of issuance by the local government of a certificate of occupancy or its functional equivalent.”*

The concurrency management system for the City of Milton states the following: *“The City Manager shall be responsible for preparation of written findings on proposed developments’ compliance with the concurrency requirement.* These findings shall be based on the following criteria:

The capacity of an existing and/or new facility is equal to or exceeds the demand for service created by the existing and/or new development.

The capacity of a new facility may be used in the compliance determination under one or more of the following scenarios:

- 1) The new facility is under construction at the time of the development order application.
- 2) The new facility is in the procurement cycle; there is a binding executed contract for construction of the facility. The use of the binding executed contract for construction applies only to the park and recreation facilities and roads. The Contract shall require the commencement of construction or provision of the facilities and services within one year of the issuance of the permit.
- 3) The new facility is guaranteed in an enforceable development agreement and is consistent with the Capital Improvements Element of the comprehensive Plan and includes the provisions of 9J-5.0055(2)(a)1.-3., F.A.C. The agreement shall guarantee that the necessary facilities and services will be in place when the impacts of the development occur.

Sufficient information shall be provided by the developer/applicant for the purpose of determining concurrency. The City Manager will be responsible for advising the developer/applicant concerning the items of information necessary for an assessment of the proposed items of information necessary for an assessment of the proposed developments' impact on services. Compliance reviews, including all appropriate county departments, will be coordinated by the City Manager and will occur simultaneously with the site plan review. Written findings shall be submitted to the Milton City Council. In no case shall a recommendation for issuance of a development order be made if the projected service demand exceeds capacity. Likewise, a determination of concurrency must be made prior to approval of an application for development order.

A development order may be issued if a determination of available capacity is made. A development order shall not be issued if the demand for service created by the existing and/or new facility exceeds capacity. Development orders may be approved in stages or phases so that facilities and services required by each phase are available consistent with adopted level of service standards.

7. Conclusion

In review the Water Supply Facilities Work Plan for the City of Milton Water System the following conclusions are made. The City of Milton Water System appears to be in a positive position to address future projected potable water demand. The System does not anticipate a significant amount of growth that will lead to an excessive increase in the demand for potable water. The Water System physical facilities are projected to have adequate capacity for the upcoming planning period to 2025.

The City of Milton Water System is projected to face a deficit in the amount of the CUP permitted ADR when compared to actual ADR water demand. The projected deficit for this issue will occur before 2015. This projected deficit will require the System to work with the NFWFMD to increase the amount of the CUP permitted ADR to address this issue.

Further recommendations will be for the City of Milton Water System to increase the promotion of conservation efforts by completing the following items. The City of Milton Water System should increase overall public outreach efforts on the benefit of potable water conservation. It is recommended the System enact regulations that require Xeriscape landscaping techniques for public facilities and new development. If financially feasible it is also recommended the City of Milton Water System evaluate the use of reclaimed or reuse water for irrigation purposes.

In conclusion, the City of Milton Water System appears to be in a positive position to meet the projected needs of the public. The water system is expected to maintain adequate physical facility capacity for the upcoming planning period.

B. GOALS, OBJECTIVES, AND POLICIES

GOAL 1: TO PROVIDE SANITARY SEWER, SOLID WASTE, DRAINAGE, STORMWATER MANAGEMENT, POTABLE WATER, AND AQUIFER PROTECTION SERVICES TO MEET THE NEEDS OF CURRENT AND FUTURE RESIDENTS OF THE CITY OF MILTON IN ACCORDANCE WITH ADOPTED LEVEL OF SERVICE STANDARDS. (Repeated here for reference)

POLICY 1.1: The following level of service standards are hereby adopted, and shall be used as the basis for determining the availability of facility capacity and the demand generated for all new development and redevelopment activity:

FACILITY	LEVEL OF SERVICE STANDARD
Sanitary Sewer Facilities	100 gallons/capita/day
Stormwater Management Facilities	Treatment of the first inch of runoff is required for sites less than 100 acres in size and treatment of the first one and one-half inches of runoff is required for sites greater than 100 acres in size, given a 100-year frequency, 24-hour duration design storm event.
Potable Water Facilities	117 gallons/capita/day

(Repeated here for reference.)

OBJECTIVE 1.1: IN ORDER TO CONSERVE ITS POTABLE WATER SOURCES THE CITY OF MILTON SHALL IMPLEMENT POLICIES 1.1.1 THROUGH 1.1.3, AND SHALL ANNUALLY REVIEW WATER CONSUMPTION FOR PROGRESS IN CONSERVATION.

POLICY 1.1.1: In order to promote water conservation, the City will require that specific practices required by Section 553.14, Florida Statutes, implementing the Water Conservation Act of 1982, will be utilized in all new buildings.

POLICY 1.1.2: The City of Milton will implement procedures for emergency water conservation in accordance with the plans of the Northwest Florida Water Management District.

POLICY 1.1.3: The City of Milton will continue to explore opportunities to conserve water including, but not limited to, the use of reclaimed water, xeriscaping, and public education on individual consumption measures.