

CITY OF BONITA SPRINGS, FLORIDA

ORDINANCE NO. 20 – 03

AN ORDINANCE OF THE CITY OF BONITA SPRINGS, FLORIDA, PROVIDING FOR ADOPTION OF A COMPREHENSIVE PLAN AMENDMENT RELATING TO THE WATER SUPPLY PLAN OF THE INFRASTRUCTURE AND CAPITAL IMPROVEMENT ELEMENTS; PROVIDING FOR INTENT; PROVIDING FOR SEVERABILITY; PROVIDING FOR AN EFFECTIVE DATE.

Whereas, the City Council of the City of Bonita Springs, Florida recognizes the need to plan for orderly growth and development; and

Whereas, Chapter 163, Florida Statutes provides for amendment to adopted Comprehensive Plan; and

Whereas, City Council for the City of Bonita Springs adopted the City of Bonita Springs Comprehensive Plan, as amended, in accordance with the Local Government Comprehensive Planning Act; and

Whereas, the Bonita Springs Comprehensive Plan provides for adoption of Plan Amendments with such frequency as may be permitted by applicable state statutes, in accordance with such administrative procedures as the City of Bonita Springs Council may adopt; and

Whereas, the South Florida Water Management District approved its Lower West Coast Regional Water Supply Plan on December 20, 2017; and

Whereas, the City is required to prepare a 10-year Water Supply Facilities Work Plan and adopt revisions to the City's Comprehensive Plan addressing the water supply requirements within 18 months of the regional plan's approval; and

Whereas, the proposed Water Supply Facilities Work Plan, attached hereto as Exhibit "A", will promote and protect public health safety and welfare and will help accomplish the goals, objectives and policies of the City Comprehensive Plan; and

Whereas, Florida Statutes §163.3181 further provides an opportunity for individuals to participate in the plan amendment public hearing process; and

Whereas, the City has received and reviewed the proposed Amendment to the City's Comprehensive Plan, and said proposed amendment being reviewed by the City's Local Planning Agency at a duly advertised meeting on January 23, 2020, and

Whereas, the City Council has agreed with the recommendations of the Local Planning Agency that the proposed amendment complies with the requirements of Chapter 163, Florida Statutes, Part II, and that the proposed amendments is consistent with the Comprehensive Plan and appropriate to the future land uses within the City; and

Whereas, the City Council of Bonita Springs adopted, pursuant to Chapter 163, Part II, Florida Statutes" after holding statutorily prescribed public hearings for the adoption of the amendment being proposed and at the February 5, 2020 hearing approved a motion to transmit said proposed amendments as more particularly set forth herein.

THE CITY OF BONITA SPRINGS HEREBY ORDAINS:

Section 1. Recitals. The forgoing recitals are hereby ratified and confirmed as being true and correct and hereby made a part of this Ordinance and adopted as legislative findings.


Section 2. Adoption. The City of Bonita Springs Comprehensive Plan is hereby amended, which amendment consists of revising the Potable Water Sub-Element of the Infrastructure Element and Capital Improvements Elements which is further described as Exhibit A, attached hereto and incorporated herein by reference.

Section 3. Severability. In the event that any portion of this Ordinance is for any reason held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct and independent provision, and such holding shall not affect the validity of the remaining portions of this Ordinance.


Section 4. Effective Date. This Ordinance shall become effective in accordance with Section 163.3184, F.S.

DULY PASSED AND ENACTED by the City Council of the City of Bonita Springs, Lee County, Florida, this 20th day of May, 2020.

AUTHENTICATION:



Mayor



City Clerk

APPROVED AS TO FORM:



City Attorney

Vote:

Quaremba	Aye	Corrie	Aye
Purdon	Aye	Gibson	Aye
Carr	Aye	Forbes	Aye
		Simmons	Aye

Date filed with City Clerk: May 26, 2020

Exhibit A

POTABLE WATER SUB-ELEMENT

Introduction

The City of Bonita Springs is not the water supplier for its residents. Of the potable water supplied by public or private facilities, Bonita Springs Utilities, Inc. (BSU) supplies approximately 96% of water needs, with Citrus Park RV Resort (Citrus Park) providing the remaining 4%. These systems provide the potable water for both residential and non-residential uses, including fire-fighting demands. Other sources of water within Bonita Springs include individual wells. At this time, data is not available regarding the number of private wells.

This is the City of Bonita Spring's update to its Water Supply Plan, which supports the intent of legislation adopted in 2005 to improve the coordination of water supply planning and local land use planning.

Data and analysis indicates that current water sources are sufficient to meet demands of future growth in Bonita Springs through 2025 and additional potable water sources during this time will not be necessary. However, water treatment facilities will require expansion in order to meet demands through 2025.

Public Potable Water Facilities Inventory

a. Operational Responsibility

BSU is responsible for approximately 96% of the City's water system service area. The remaining four percent is provided by a private facility located in Citrus Park. ~~Citrus Park is in the process of renewing their Water Use Permit (WUP) Application #130509-17 with SFWMD. Their current permit expired in 2013 and to date, the renewal permit has not been issued. As provided in SFWMD Water Use Permit (WUP) # 36-00208-W Citrus Park is permitted the use of groundwater from the Water Table Aquifer and Lower Tamiami Aquifer for a public water supply for the Citrus Park service area serving 3,450 persons in the year 2039 with an average per capita use rate of 66 gallons per day, an annual allocation of 83.11 (MG) (227,699 GPD), a total maximum monthly allocation is 10.18 million gallons (MG) and maximum monthly to average monthly pumping ratio 1.47-to-1. Withdrawals are taken from the Water Table Aquifer (WTA) and Lower Tamiami Aquifer (LTA) via three existing withdrawal facilities (wells).~~

Allocation limits for the specific sources (aquifers) are as follows: Maximum annual allocation from Lower Tamiami Aquifer shall not exceed 66.50 million gallons (MG); Maximum annual allocation from Water Table Aquifer shall not exceed 16.61 million gallons (MG); Maximum monthly allocation from Lower Tamiami Aquifer shall not exceed 8.30 million gallons (MG); Maximum monthly allocation from Water Table Aquifer shall not exceed 1.88 million gallons (MG).

~~According to the WUP application, the Citrus Park facility provides service as follows:~~

Dwelling Type	Existing		Additional Future	
	Number Units	Population	Number Units	Population
Recreational Vehicle Sites	968	1,936	0	0
Mobile Homes	562	1,124	0	0
Single Family	96	288	31	93
Total	1,626	3,348	31	92

Source: Citrus Park WUP Renewal Permit Application #130509-17

The Recreational Vehicle Sites and Mobile Homes are primarily seasonal averaging 2 persons per household, while the single family sites have a more permanent population with an average of 3 persons per household. Note that the existing and future population figures in the pending WUP renewal are higher than data reflected in the 2012 Lower West Coast Water Supply Plan Update.

b. Service Area

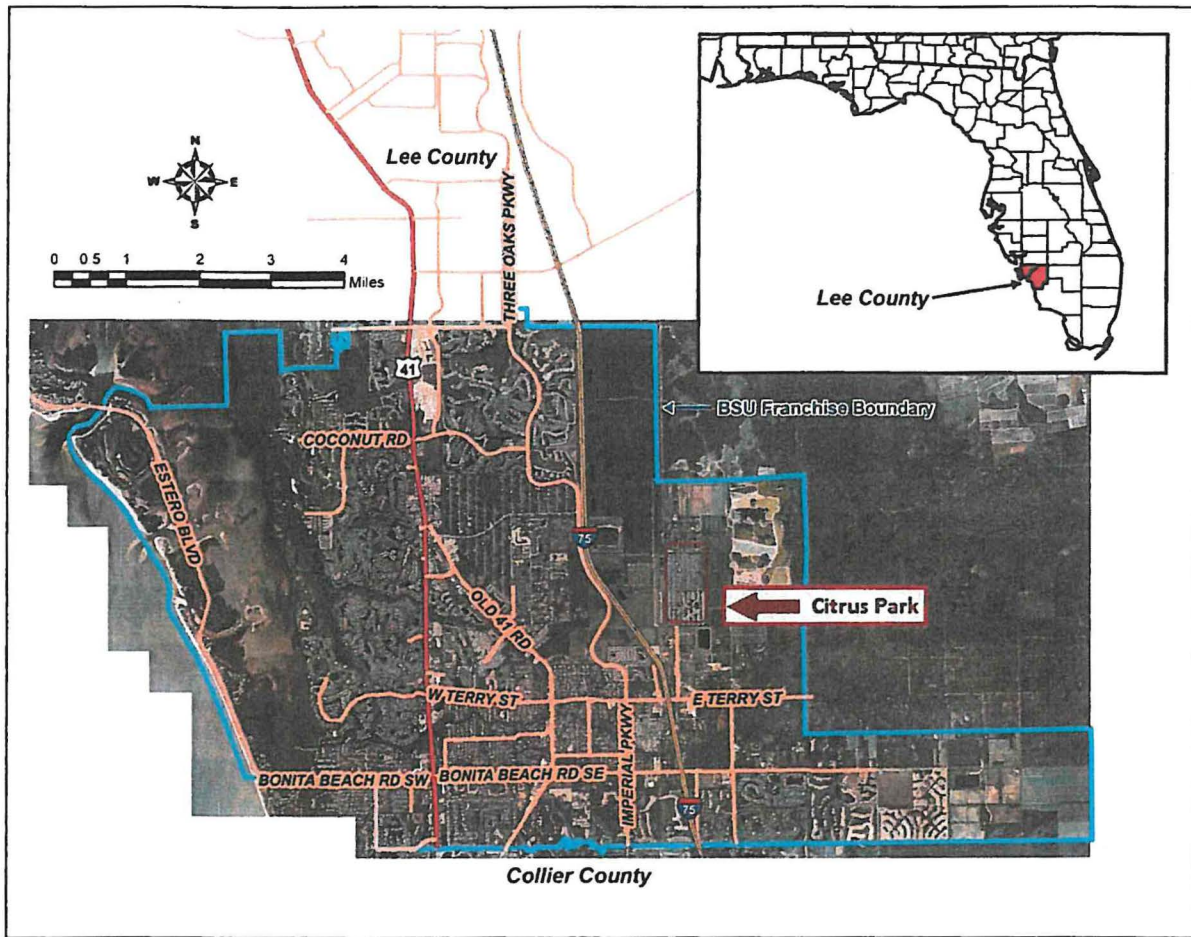
The BSU system serves primarily urbanized areas with the northern boundary generally being Williams Road and the southern boundary at the City limits along the Collier County line, the Gulf of Mexico to the west and the city limit to the east. The predominant land uses are residential, commercial, industrial, recreational, and public and semi-public uses. As of December 2013 2018, the BSU service area includes approximately 41,901 47,674 equivalent residential connections (ERC) with an average daily demand of 8.07 10.09 MGD in 20138.

Citrus Park provides water service to approximately 1,626 units with an average daily demand of .5 MGD. The Citrus Park service area has a northern boundary at Holly Lane with a southern boundary at Limerock Road, 1st Street to the west and 14th Street to the east.

Additionally, individual wells (for potable water) self-serve an undetermined number of single-family homes within the City limits.

~~Map 1-1: Service Area by Provider identifies the service area of each provider.~~

Map 1-1: Service Area by Provider



Water Treatment Plants

Table 1-1: Water Treatment Facility Locations lists the water treatment facilities and the location of the site.

BSU currently operates a lime softening plant permitted for 9 MGD and a reverse osmosis (RO) plant permitted for ~~6.52~~ 8.56 MGD on a single site located at ~~11860~~ 11900 East Terry Street. The facility allows expansion to meet additional needs consistent with permit specifications.

The Citrus Park water treatment facility is located at 25501 Trost Boulevard and ~~has a permitted capacity of 0.520 MGD.~~ Citrus Park is in the process of designing a 0.100 MGD reverse osmosis water treatment plant. ~~They anticipate that the net water plant design capacity will be reduced from the current 0.520 MGD to 0.495 MGD~~ operates at a plant treatment capacity of 0.49 million gallons (MG) per day. Approximately 80% of the groundwater is from the LTA source and 20% from the WTA source. Half of the groundwater from the LTA is treated through a reverse osmosis (RO) treatment facility (0.1 MG per day capacity) to reduce the chloride concentration. The RO

treated groundwater from the LTA (approximately 75% efficiency) is mixed with groundwater from the LTA (untreated) and WTA prior to treatment with a degassifier (to remove iron and hydrogen sulfide) to produce potable drinking water. The average distribution losses is estimated to be at approximately 8%. The Citrus Park Waste Water Treatment Facility is permitted under Florida Department of Environmental Protection Permit (FDEP) FLA-014477 and treats the wastewater with chlorination prior to discharging into the rapid infiltration basins, located 500 feet west of the wellfield, with a capacity of 0.2 MG per day, for aquifer recharge.

Provider	Location	Number of Plants
BSU	11860-11900 East Terry Street	2
Citrus Park	25501 Trost Boulevard	1
Source: BSU, CUP permits. Special Note: BSU is permitted as one plant with two processes. Source: Citrus Park WUP Renewal Permit Application # 130509-17 190515-9		

d. Water Quality

BSU treated water meets federal and state requirements for safe drinking water.

Citrus Park has also obtained proper DEP and DOH for the operation of their potable water facilities. ~~According to their 2013 Annual Water Quality Report, there were some secondary contaminants (odor and total dissolved oxygen), but no primary contaminants.~~ They are also required to meet federal and state requirements for safe drinking water.

e. Distribution System

BSU has approximately ~~445-477~~ miles of water mains varying in size from 2 inches to 48 inches as of December 2013~~8~~. All new installations are minimum 4-inches in size with a minimum 6-inch main to fire hydrants. Service lines, which connect the water main lines to individual homes, are typically a 1-inch line with a 3/4-inch meter.

f. Public Wells

BSU operates 19 freshwater wells ranging in diameters of 8 – 12 inches and depths of 80 to 115 feet and ~~8-15~~ brackish water wells ranging in diameters of 12 – 14 inches and depths of 700 to 1,120 feet.

According the ~~2019 Citrus Park WUP Renewal Permit Application #130509-17~~ #190515-9, Citrus Park operates three wells on site which withdraw from the Lower Tamiami Aquifer and Water Table Aquifer; specifically a 1 - 8" X 112' X 197 GPM Well Cased to 75 Feet (LTA), a 1- 8" X 117' X 200 GPM Well Cased to 75 Feet (LTA) and a 1 - 8" X 32' X 50 GPM Well Cased to 17 Feet (WTA). ~~Their 2013 public water supply request is for 275 MGD for twenty years.~~

g. Potable Water Storage Facilities

BSU has ~~eight~~seven existing potable water storage facilities, of which three ground storage tanks are located at the treatment facility with a combined capacity of 6.0 million gallons and the remaining four are off-site with a combined capacity of ~~7.5~~ million gallons. Total potable water storage capacity provided by BSU is 13.5 million gallons.

Table 1-2: Existing Potable Water Storage Facilities – BSU, identifies the location and capacity of existing potable water storage facilities within the Bonita Springs service area.

Table 1-2: Existing Potable Water Storage Facilities	
Provider/Location	Capacity (MG)
BSU (WTP)	6.00
BSU (Estero Boulevard)	0.50
BSU (San Carlos Estates)	1.00
BSU (Windsor Road)	2.00
BSU (Snell Lane)	2.00
BSU (Coconut Road)	2.00
Source: BSU	

h. High Service Pumps

BSU has ~~eight~~nine on site high service pumps that provide a capacity of ~~393.9~~ MGD; however, based on “out of service” criteria (resulting in the largest unit in the system not included in the projections), the capacity is reduced to ~~27.4~~33.9 MGD. Additional peak hour capacity is available at each of the off-site storage tanks.

i. Consumptive Use Permit

The SFWMD regulates withdrawal of water from the aquifer through the issuance of a Consumptive Use Permit (CUP). Table 1-3: Existing Water Treatment Plant Permitted Well Capacities identifies specific CUP criteria for each water treatment plant providing service to Bonita Springs.

Table 1-3 1-4: Existing Water Treatment Plant Permitted Well Capacities						
Location	CUP Number	Permitted Well Capacity Average Daily Demand		Permitted Well Capacity Maximum Daily Demand		Ground Storage (MG)
		GPM	MGD	GPM	MGD	
BSU-RO (8 <u>15</u> wells)	36-04062-W	9,076.39	13.07	11,111.11	16.00	13.5
BSU Lime Softening (19 wells)	36-00008-W	3,986.11	5.74	5,145.83	7.41*	
Citrus Park	36-00208-W			354.17	0.51	
Source: CUP Permits - 36-04062-W, 36-00008-W and 36-00208.						

*BSU's CUP NUMBER 36-00008-W does not set a maximum daily demand. The maximum daily demand has been replaced with a maximum monthly demand of 222.343 million gallons, allowing the plant to run at a maximum day demand equal to its rated capacity of 9.0 MGD.

Alternative Water Sources

Currently, four wastewater treatment plants serve the City of Bonita Springs. Two are BSU operated and the others are small private package plants and include Citrus Park and Hunter's Ridge. The BSU and Hunter's Ridge facilities are water reclamation facilities providing reuse water. The treatment capacity of BSU is currently 11 MGD.

BSU's two wastewater treatment plants have produced reclaim water since their construction and they are therefore called water reclamation facilities. A long term contract (30 year rolling contract) between BSU and Resource Conservation System (RCS) has been in place since the completion of BSU's first plant. Bulk reclaimed water is delivered to their partner at the plant site. Storage, distribution, and billing of reclaimed water are handled by RCS. BSU's current water reclamation capacity is 11mgd and their bulk sales contract with RCS is also up to 11 million gallons, depending on flows received. Below, please find BSU's capacity and flow and reclaimed water sold for the years ~~2000-2009~~ through ~~2013~~2018. Nearly all water received is reclaimed and sold. Therefore, all reclaimed water sold is a direct offset to potable water demand. This accounts for lower per capita potable water usage.

**TABLE 1-4, BONITA SPRINGS UTILITIES WEST WATER RECLAMATION FACILITY
EFFLUENT FLOW HISTORY, 2000-2013**

DATE	FLOW	CAP	SOLD	DATE	FLOW	CAP	SOLD	DATE	FLOW	CAP	SOLD
Jan-2000	2	4.25	1.32	Jan-2003	3	7	2.77	Jan-2006	5	7	4.44
Feb-2000	2	4.25	1.65	Feb-2003	3	7	3.47	Feb-2006	5	7	4.87
Mar-2000	3	4.25	1.65	Mar-2003	4	7	3.59	Mar-2006	5	7	4.69
Apr-2000	3	4.25	1.92	Apr-2003	4	7	4.29	Apr-2006	5	7	5.12
May-2000	2	4.25	1.62	May-2003	4	7	3.67	May-2006	4	7	4.26
Jun-2000	2	4.25	1.26	Jun-2003	3	7	3.36	Jun-2006	4	7	3.75
Jul-2000	2	4.25	1.11	Jul-2003	3	7	2.89	Jul-2006	4	7	3.63
Aug-2000	2	4.25	1.22	Aug-2003	3	7	3.04	Aug-2006	4	7	4.04
Sep-2000	2	4.25	1.18	Sep-2003	3	7	3.23	Sep-2006	4	7	3.90
Oct-2000	2	4.25	1.46	Oct-2003	3	7	3.27	Oct-2006	4	7	3.64
Nov-2000	2	4.25		Nov-2003	3	7	3.16	Nov-2006	4	7	3.05

Dec-2000	2	4.25	2.24	Dec-2003	3	7	3.25	Dec-2006	4	7	4.06
Jan-2001	3	4.25	2.29	Jan-2004	4	7	2.41	Jan-2007	4.79	7	3.63
Feb-2001	3	4.25	2.02	Feb-2004	4	7	3.95	Feb-2007	5.10	7	5.21
Mar-2001	3	4.25	1.99	Mar-2004	4	7	4.36	Mar-2007	4.90	7	4.49
Apr-2001	3	4.25	2.35	Apr-2004	5	7	4.73	Apr-2007	3.54	9	3.29
May-2001	3	4.25	2.51	May-2004	4	7	3.76	May-2007	2.32	9	2.20
Jun-2001	3	4.25	2.16	Jun-2004	3	7	3.35	Jun-2007	3.53	9	3.46
Jul-2001	3	4.25	1.47	Jul-2004	3	7	2.75	Jul-2007	3.50	9	3.36
Aug-2001	3	4.25	1.79	Aug-2004	3	7	3.04	Aug-2007	3.23	9	2.67
Sep-2001	3	4.25	2.13	Sep-2004	3	7	3.65	Sep-2007	3.36	9	3.19
Oct-2001	3	4.25	2.23	Oct-2004	4	7	3.49	Oct-2007	3.73	9	3.40
Nov-2001	3	4.25	1.86	Nov-2004	4	7	3.53	Nov-2007	3.86	9	3.62
Dec-2001	3	4.25	2.88	Dec-2004	4	7	3.61	Dec-2007	4.01	9	3.91
Jan-2002	3	7	2.55	Jan-2005	4	7	3.83	Jan-2008	4.66	9	4.55
Feb-2002	3	7	2.73	Feb-2005	4	7	4.52	Feb-2008	5.17	9	4.95
Mar-2002	3	7	3.27	Mar-2005	5	7	4.19	Mar-2008	4.93	9	4.96
Apr-2002	4	7	3.62	Apr-2005	5	7	5.11	Apr-2008	4.20	9	3.98
May-2002	3	7	3.28	May-2005	4	7	4.13	May-2008	3.31	9	3.35
Jun-2002	3	7	2.71	Jun-2005	4	7	3.38	Jun-2008	3.08	9	3.10
Jul-2002	3	7	2.76	Jul-2005	4	7	4.43	Jul-2008	3.68	9	3.06
Aug-2002	3	7	2.83	Aug-2005	4	7	1.81	Aug-2008	4.22	9	2.86
Sep-2002	3	7	2.84	Sep-2005	4	7	3.49	Sep-2008	3.98	9	3.89
Oct-2002	3	7	3.03	Oct-2005	4	7	3.35	Oct-2008	3.92	9	3.71
Nov-2002	3	7	3.04	Nov-2005	4	7	3.19	Nov-2008	4.45	11	4.01
Dec-2002	3	7	2.97	Dec-2005	4	7	4.82	Dec-2008	4.02	11	3.48

**TABLE 1-4, BONITA SPRINGS UTILITES WEST WATER RECLAMATION FACILITY
EFFLUENT FLOW HISTORY (MGD), 2000-2009 – 2013-2018 (Continued)**

DATE	FLOW	CAP	SOLD	DATE	FLOW	CAP	SOLD	DATE	FLOW	CAP	SOLD
Jan 2009	4.64	11	4.55	Jan 2011	4.45	11	4.36	Jan 2013	4.79	11	4.64
Feb 2009	4.69	11	4.71	Feb 2011	4.81	11	4.77	Feb 2013	5.15	11	4.89
Mar 2009	4.62	11	4.60	Mar 2011	4.74	11	4.85	Mar 2013	4.98	11	3.99
Apr 2009	4.10	11	4.12	Apr 2011	5.45	11	4.16	Apr 2013	4.46	11	4.27
May 2009	3.36	11	3.36	May 2011	3.18	11	3.33	May 2013	3.34	11	3.49
Jun 2009	3.04	11	3.04	Jun 2011	2.80	11	2.57	June 2013	3.53	11	3.55
Jul 2009	3.14	11	3.14	Jul 2011	3.06	11	2.78	July 2013	3.79	11	3.78
Aug 2009	3.23	11	3.23	Aug 2011	3.14	11	3.16	Aug 2013	3.56	11	3.74
Sep 2009	3.43	11	3.14	Sep 2011	3.37	11	3.27	Sept 2013	3.79	11	3.79
Oct 2009	3.66	11	3.60	Oct 2011	4.11	11	4.09	Oct 2013	3.65	11	3.56
Nov 2009	3.83	11	3.72	Nov 2011	4.42	11	4.31	Nov 2013	4.03	11	4.11
Dec 2009	4.03	11	4.04	Dec 2011	4.13	11	3.95	Dec 2013	4.04	11	4.04
Jan 2010	4.31	11	4.28	Jan 2012	4.69	11	4.52	<u>Jan 2014</u>	<u>4.82</u>	<u>11</u>	<u>4.68</u>
Feb 2010	4.40	11	4.75	Feb 2012	4.84	11	4.78	<u>Feb 2014</u>	<u>5.52</u>	<u>11</u>	<u>5.03</u>
Mar 2010	4.72	11	5.10	Mar 2012	5.02	11	4.92	<u>Mar 2014</u>	<u>5.45</u>	<u>11</u>	<u>5.21</u>
Apr 2010	4.59	11	4.90	Apr 2012	4.24	11	4.22	<u>Apr 2014</u>	<u>4.89</u>	<u>11</u>	<u>4.57</u>
May 2010	3.59	11	3.59	May 2012	3.34	11	3.34	<u>May 2014</u>	<u>3.77</u>	<u>11</u>	<u>3.57</u>
Jun 2010	3.19	11	3.19	Jun 2012	3.25	11	3.19	<u>June 2014</u>	<u>3.27</u>	<u>11</u>	<u>3.29</u>
Jul 2010	3.26	11	3.26	Jul 2012	3.30	11	3.22	<u>July 2014</u>	<u>3.57</u>	<u>11</u>	<u>3.57</u>
Aug 2010	3.51	11	2.91	Aug 2012	3.51	11	3.51	<u>Aug 2014</u>	<u>3.54</u>	<u>11</u>	<u>3.54</u>
Sep 2010	3.10	11	3.32	Sep 2012	3.20	11	3.09	<u>Sept 2014</u>	<u>3.89</u>	<u>11</u>	<u>3.69</u>
Oct 2010	3.51	11	3.57	Oct 2012	4.40	11	3.30	<u>Oct 2014</u>	<u>4.24</u>	<u>11</u>	<u>4.30</u>
Nov 2010	4.03	11	3.76	Nov 2012	4.39	11	4.26	<u>Nov 2014</u>	<u>4.47</u>	<u>11</u>	<u>4.56</u>

Dec 2010	3.91	11	3.86	Dec 2012	4.03	11	3.64	Dec 2014	4.37	11	4.54
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Source: Bonita Springs Utilities

**TABLE 1-4, BONITA SPRINGS UTILITES WEST WATER RECLAMATION FACILITY
EFFLUENT FLOW HISTORY (MGD), 2009 – 2018 (continued)**

<u>DATE</u>	<u>FLOW</u>	<u>CAP</u>	<u>SOLD</u>	<u>DATE</u>	<u>FLOW</u>	<u>CAP</u>	<u>SOLD</u>				
<u>Jan 2015</u>	<u>5.01</u>	<u>11</u>	<u>5.03</u>	<u>Jan 2017</u>	<u>5.10</u>	<u>11</u>	<u>5.08</u>				
<u>Feb 2015</u>	<u>5.29</u>	<u>11</u>	<u>5.25</u>	<u>Feb 2017</u>	<u>5.28</u>	<u>11</u>	<u>5.27</u>				
<u>Mar 2015</u>	<u>5.43</u>	<u>11</u>	<u>5.52</u>	<u>Mar 2017</u>	<u>5.28</u>	<u>11</u>	<u>5.31</u>				
<u>Apr 2015</u>	<u>4.69</u>	<u>11</u>	<u>4.60</u>	<u>Apr 2017</u>	<u>4.59</u>	<u>11</u>	<u>4.59</u>				
<u>May 2015</u>	<u>3.80</u>	<u>11</u>	<u>3.86</u>	<u>May 2017</u>	<u>3.67</u>	<u>11</u>	<u>3.62</u>				
<u>Jun 2015</u>	<u>3.62</u>	<u>11</u>	<u>3.70</u>	<u>Jun 2017</u>	<u>4.05</u>	<u>11</u>	<u>3.94</u>				
<u>Jul 2015</u>	<u>4.02</u>	<u>11</u>	<u>3.46</u>	<u>Jul 2017</u>	<u>4.15</u>	<u>11</u>	<u>3.14</u>				
<u>Aug 2015</u>	<u>4.28</u>	<u>11</u>	<u>3.39</u>	<u>Aug 2017</u>	<u>5.76</u>	<u>11</u>	<u>5.10</u>				
<u>Sep 2015</u>	<u>4.81</u>	<u>11</u>	<u>4.66</u>	<u>Sep 2017</u>	<u>5.92</u>	<u>11</u>	<u>5.67</u>				
<u>Oct 2015</u>	<u>4.92</u>	<u>11</u>	<u>4.67</u>	<u>Oct 2017</u>	<u>5.04</u>	<u>11</u>	<u>5.07</u>				
<u>Nov 2015</u>	<u>4.74</u>	<u>11</u>	<u>4.62</u>	<u>Nov 2017</u>	<u>4.77</u>	<u>11</u>	<u>4.69</u>				
<u>Dec 2015</u>	<u>4.37</u>	<u>11</u>	<u>4.28</u>	<u>Dec 2017</u>	<u>4.28</u>	<u>11</u>	<u>4.34</u>				
<u>Jan 2016</u>	<u>5.63</u>	<u>11</u>	<u>5.58</u>	<u>Jan 2018</u>	<u>4.98</u>	<u>11</u>	<u>4.94</u>				
<u>Feb 2016</u>	<u>6.02</u>	<u>11</u>	<u>4.74</u>	<u>Feb 2018</u>	<u>5.19</u>	<u>11</u>	<u>5.23</u>				
<u>Mar 2016</u>	<u>5.62</u>	<u>11</u>	<u>5.39</u>	<u>Mar 2018</u>	<u>5.45</u>	<u>11</u>	<u>5.35</u>				
<u>Apr 2016</u>	<u>4.65</u>	<u>11</u>	<u>4.56</u>	<u>Apr 2018</u>	<u>4.74</u>	<u>11</u>	<u>4.64</u>				
<u>May 2016</u>	<u>4.07</u>	<u>11</u>	<u>4.07</u>	<u>May 2018</u>	<u>4.20</u>	<u>11</u>	<u>3.93</u>				
<u>Jun 2016</u>	<u>3.95</u>	<u>11</u>	<u>3.71</u>	<u>Jun 2018</u>	<u>3.88</u>	<u>11</u>	<u>3.69</u>				
<u>Jul 2016</u>	<u>4.14</u>	<u>11</u>	<u>3.73</u>	<u>Jul 2018</u>	<u>4.12</u>	<u>11</u>	<u>3.99</u>				
<u>Aug 2016</u>	<u>4.26</u>	<u>11</u>	<u>4.01</u>	<u>Aug 2018</u>	<u>3.78</u>	<u>11</u>	<u>3.58</u>				

Sep 2016	4.61	11	4.32	Sep 2018	4.22	11	4.18				
Oct 2016	4.40	11	4.29	Oct 2018	4.29	11	4.27				
Nov 2016	4.67	11	4.41	Nov 2018	4.57	11	4.56				
Dec 2016	4.40	11	4.38	Dec 2018	4.55	11	4.54				
Source: Bonita Springs Utilities											

Conservation and Water Quality Programs

The South Florida Water Management District adopted a Comprehensive Water Conservation Program in 2008. It was designed to bring about a permanent reduction in individual water use and is organized into 1) regulatory, 2) voluntary and incentive-based, and 3) education and marketing initiatives.

While the City of Bonita Springs does not currently rely upon surface water withdrawals including withdrawals from Lake Okeechobee, the C-43 Canal or the Caloosahatchee River and Estuarine System as potable water resources, the City has taken steps to regulate current and future withdrawal, capacity and quality concerns. Such efforts would include growth management measures limiting densities and land use restrictions within specific areas of the City, especially those designated with a Destiny Reduction Groundwater Resource, Resource Protection or Conservation future land use designation; which require proposed uses not adversely affect ecological and hydrologic functions of the land. Similarly, the City has taken additional actions to enhance water quality measures within our connected surface waters, such as the Imperial River, its tributaries, and our estuarine systems, such as Estero Bay. These efforts include but are not limited to: (1) The adoption and implementation of an additional fifty percent water quality treatment by volume requirement, that is fifty percent over and above what is required by the SFWMD, for all development with the City's jurisdiction (Comprehensive Plan Policy 9.3.3); (2) The development and installation of innovative Smart Growth America awarded green infrastructure, such as our sustainable storm water treatment system within our comprehensive Downtown Improvements Project and our incorporation of Florida Green Building Coalition recognized Green and Low-Impact development incentives citywide; (3) Or the creation, installation and pending expansion of our novel Felts Avenue Bioreactor Project designed to remove nitrogen from storm water runoff. As implemented the City's bioreactor project is a low-impact development technique comprised mainly of sub-surface retention beds and pipes filled with substrate, to create an anaerobic nitrogen removing environment. Phase I of the bioreactor project has been able to effectively remove between 77- 98% of nitrate, a key species of nitrogen closely associated with manmade fertilizer, from the water filtered through the system. The ease of scalability, effectiveness and efficiency in terms of land usage and cost that phase 1 of this project demonstrated serves as a solid framework for further applications of the system citywide. The City of has also recently established a Storm Water Utility to undertake and fund further water quality improvement, as well as retention, drainage and conveyance maintenance projects and upgrades citywide.

Additionally, the City of Bonita Springs enforces a set of Mandatory Year-Round Landscape Irrigation Conservation Measures which have been in effective since 2006 that limit landscape irrigation to two days per week, with a provision for irrigation up to three days per week. Currently the City of Bonita Springs "Water Wise" Water Conservation Measures provide requirements which limit the times, days of the week and methodologies allowable for irrigation, while providing provisions for multi-family facilities, community associations and rights-of-ways. These restrictions are in addition to the irrigation, watering, planting and application standards provided by the City of Bonita Springs Landscape Code, Property Maintenance Code, and Fertilize Wise Ordinances. Such regulations and standards include, but are re not limited to: (1) The prohibition of daily irrigation between of the hours of 9:00 a.m. and 5:00 p.m., with any irrigation performed from 9:00 a.m. to 5:00 p.m. being subject to fines. (2) Limiting irrigation to two days per week, with Odd number addresses irrigating on Wednesdays and/or Saturdays and Even numbers addresses, multi-family facilities and community associations watering both even and odd addresses irrigating Thursdays and/or Sundays. (3) Limiting irrigation times to only midnight until 9 a.m. or after 5 p.m. until midnight. (3) Requiring low-volume hand watering apparatuses be fitted with an automatic shut-off device. (4) Prohibiting all restaurants within the City of Bonita Springs from serving water to any customer from any public or private well, water supply, or distribution system. (5) Requiring a rain shut-off device and soil moisture sensor to be included in irrigation systems; (6) Requiring that all irrigation systems be designed to eliminate the application of water to impervious areas, including roads, drives and other vehicle use areas. (7) Requiring irrigation systems to utilize "hydro-zone" designs to simulate natural rainfall, matching precipitation rates, avoiding overwatering and providing efficient (low volume) water usage. (8) Requiring that the selection and installation of landscaping plants and material be based upon Florida-Friendly Landscape™ and Xeriscape principles including water conservation through drought-tolerant landscaping, the use of appropriate plant materials, mulching, and the reduction of turf areas. (9) Incorporating regulations encouraging and providing for community and civic based outreach and education on Florida Yards and Neighborhoods™ landscaping techniques and practices. (10) Banning the application of fertilizer containing nitrogen and phosphorus between June 1st and September 30th. (11) Limiting fertilizer application rates to below .25 lbs. per 1000 sq. ft. per application or .50 lbs. per 1000 sq. ft. per year. (12) Require the use of spreader deflector shields when fertilizing by use of any broadcast or rotary spreaders. (13) Encourages the use of organic compost in lieu of chemical application. (14) Established a ten foot fertilized free buffer zone from the top of bank of any body of water, seawall or wetland within the city.

The SFWMD also offers two cost-share funding programs to assist local water users with development of alternative water supplies and water conservation: the Alternative Water Supply Funding Program and the Water Savings Incentive Program (WaterSIP).

According to the LWCWS Update, since 1991 the SFWMD consumptive use permitting rules have required Public Water Supply (PWS) users to provide the following:

1. Adoption of an irrigation days/hours ordinance
2. Adoption of a Florida-Friendly Landscape™ ordinance
3. Adoption of an ultralow volume fixtures ordinance
4. Adoption of a rain sensor device ordinance
5. Adoption of a water conservation-based rate structure
6. Implementation of a utility leak detection and repair program

6. Implementation of a utility leak detection and repair program
7. Implementation of a water conservation public education program
8. An analysis of reclaimed water feasibility

Water Supply Concurrency

The water use per ERC for the BSU service area is based on maximum month average daily demand (MMADD), as that is the most representative time of year when units are occupied. As presented in Table 1-5, using the annual average daily demand (AADD) does not capture a level of service (LOS) necessary to plan properly for all committed ERCs. By using the MMADD, the LOS average from 1995-2013 is 229.233. However, considering the recent upward trend, a LOS of 235 GPD per ERC is a reasonable standard for the future planning period. The proposed Maximum Daily Demand (MDD) peaking factor of 1.50 is based on the average peaking factor over the past 17-19 years.

Table 1-5 6 Historical Water Demand BSU Service Area 1995 – 2013					
Year	ERCs	AADD (MGD)	AADD LOS(1)	MMADD (MGD)	MMADD LOS(1)
1995	16,874	2.8	166	3.71	220
1996	17,399	3.3	190	3.87	222
1997	19,316	3.4	176	4.12	213
1998	20,822	3.9	187	4.50	216
1999	22,093	4.3	195	5.41	245
2000	24,945	5.07	203	5.71	229
2001	27,738	5.46	197	6.07	219
2002	29,478	5.993	203	6.75	229
2003	31,302	6.647	212	7.03	225
2004	33,002	7.367	223	9.89	300
2005	33,762	7.62	226	9.49	261
2006	38,159	9.467	248	11.74	308
2007	39,504	8.626	218	10.15	257
2008	40,137	7.479	186	8.10	202
2009	40,441	7.262	180	8.39	207
2010	40,614	6.652	164	7.25	179
2011	40,856	7.193	176	7.45	182
2012	41,105	7.67	187	8.14	198
2013	41,901	8.07	193	9.67	231
2014	42,476	8.66	204	9.89	233
2015	43,670	8.94	205	10.10	231
2016	44,329	9.31	210	10.84	244

<u>2017</u>	<u>46,177</u>	<u>9.62</u>	<u>208</u>	<u>11.27</u>	<u>244</u>
<u>2018</u>	<u>47,674</u>	<u>10.09</u>	<u>212</u>	<u>11.48</u>	<u>241</u>
		AVERAGE	<u>195202</u>		<u>229233</u>
(1) LOS = gallons per ERC per day					
Source: BSU					

Projected Water Needs and Sources

a. Population

The South Florida Water Management District requests that population projections consider the most current data found in the applicable Regional Water Supply Plan, Medium-BEBR (Bureau of Economic and Business Research), or other approved method. BEBR does not prepare medium projections for municipalities. Therefore, the City estimated its population projection by identifying the City's proportion of its population (7.42%) in relation to Lee County's total population based on BEBR 2012-2018 Estimate. For Lee County, the population increase for the water supply planning period shows an increase from 638,029 747,388 to 858,500 892,108 (approximately 34.619.4% increase). ~~Based on the 2010 Census,~~ The City of Bonita Springs is approximately 7.42% of the total population for Lee County; therefore, the City anticipates a population of approximately 60,954 64,232 in 2025 2030.

BSU must also anticipate projections, considering the area's seasonal population. This figure is difficult to predict, but can be estimated based on the maximum month average daily demand (MADD) with the assumption that each person typically utilizes 100 gallons per person per day. Using historical data, it appears this percentage is roughly 45%. This estimate has been carried into Table 1-6 and applied for the future planning period.

POPULATION COMPONENT	<u>2015</u> <u>2020</u>		<u>2020</u> <u>2025</u>		<u>2025</u> <u>2030</u>	
	Number	Percent	Number	Percent	Number	Percent
Year-round	<u>48,479</u> <u>53,812</u>	55	<u>54,918</u> <u>59,359</u>	55	<u>60,954</u> <u>64,232</u>	55
Seasonal	<u>39,665</u> <u>44,028</u>	45	<u>44,933</u> <u>48,567</u>	45	<u>49,871</u> <u>52,553</u>	45
Peak	<u>88,144</u> <u>97,840</u>	100	<u>99,851</u> <u>107,926</u>	100	<u>110,825</u> <u>116,785</u>	100
Source: BSU						

Bonita Springs Utilities Service Area serves properties within the City of Bonita Springs, except for Citrus Park, and includes areas outside of the City of Bonita Springs. The peak population figures for Bonita Springs for the years 2015 2020, 2020 2025, and 2025 2030 contained in the table above are used to arrive at the peak seasonal population of the BSU Service Area.

BSU estimates that the City of Bonita Spring comprises approximately 84.85% of the demand for potable water throughout the entire service area. ~~Therefore, the peak seasonal population of the BSU Service Area in 2015 is estimated in the following manner:~~

$\{(\text{Population of Bonita Springs}) \text{ less } (\text{population of Citrus Park} \div 0.84$

$-(88,144 - 3,366) / 0.84 = 100,926$

Using the same calculations for the years 2020, 2025 and 20252030, after rounding, results in the following population projections for the BSU Service Area in Table 1-7. Since BSU uses Equivalent Residential Units for determining demand upon the system and for establishing its LOS, ERCs for the planning periods are also shown.

Table 1-7 Population and ERC Projections BSU Service Area			
Population & ERCs	20152020	20202025	20252030
Peak Population	100,926114,929	114,809127,087	127,821137,764
ERCs ⁽¹⁾	45,46248,906	51,71654,079	57,57758,623
⁽¹⁾ An Equivalent Residential Connection (ERC) = 2.22-35 persons			
Source: BSU			

b. Potable Water Capacity Surpluses and Deficiencies

Providers of potable water for Bonita Springs currently have a surplus of water. BSU estimates its surplus capacity is 7.457.47 MGD, based on the annual-average day demand in 20132018. With the 3.274 MGD addition planned for 20202023, the surplus will increase to 8.7410.64 MGD average day demand. This will provide a surplus of water for the expected population increases through the water supply planning period (refer to Table 1-9).

c. Future Demand Capacity

The Consumptive Use Permits (CUP) limit the amount of raw water withdrawn from groundwater. Based on the CUPs for local water providers, the City of Bonita Springs will have their potable water demands met through 20252030. Table 1- 8: Projected Water Demands, BSU identifies the anticipated needs of the entire Service Area including the City of Bonita Springs, from BSU.

Table 1-8: Projected Water Demands in MGD for BSU			
Year	20152020	20202025	20252030
ERCs	45,46248,906	51,71654,079	57,57758,623
Annual Average Daily Demand (MGD) LOS of 195210	8.8710.27	10.0811.36	11.2312.31
Maximum Daily Demand (MGD) Peaking factor 1.50	13.3015.41	15.1317.03	16.8418.47
Source: BSU and City of Bonita Springs			

d. Fire Protection

The American Water Works Association provides guidelines for level of service for fire protection. BSU meets this level of service.

e. Performance and Condition of Existing Facilities

Each of BSU's water treatment plants has consistently operated in compliance with all criteria established by appropriate regulatory agencies. Furthermore, the facilities are state of the art and have been recognized by various organizations. The RO plant has potential for continued expansion to meet the needs of the City of Bonita Springs through the planning period. Table 1-9: Projected ERCs, Demand, Capacity, and Surplus Capacity for BSU, indicates the positive performance and condition of existing facilities and the capability of expansion to meet the needs of future demand.

Table 1-9							
Projected ERCs, Demand, Capacity, and Surplus Capacity							
BSU Service Area							
YEAR	ERCs	AADD (MGD)	PLANT CAPACITY (MGD)	AADD SURPLUS (MGD)	MMADD (MGD)	MMADD SURPLUS (MGD)	MAXIMUM DAILY DEMAND (MGD)
20152 020	45,46248 906	8.8710.27	45.5217.56	6.657.29	40.6811.49	4.846.07	43.3015.41
20162 021	49,94146 713	10.499.11	45.5217.56	7.076.41	11.7410.98	5.824.54	15.7313.66
20172 022	50,97547 964	10.709.35	45.5217.56	6.866.17	11.9811.27	5.584.25	16.0614.03
20182 023	52,01049 214	10.929.60	45.5221.56	10.645.92	12.2211.57	9.343.95	16.3814.40
20192 024	53,04450 465	11.149.84	45.5221.56	10.425.68	12.4711.86	9.093.66	16.7114.76
20202 025	51,71654 079	10.0811.36	48.7921.56	8.7110.20	12.1512.71	6.648.85	15.1317.03
20212 026	55,11452 888	11.5710.31	48.7921.56	9.998.48	12.9512.43	8.616.36	17.3615.47
20222 027	56,14854 060	11.7910.54	48.7921.56	9.778.25	13.1912.70	8.376.09	17.6915.81
20232 028	57,18355 233	12.0110.77	48.7921.56	9.558.02	13.4412.98	8.125.81	18.0116.16
20242 029	58,21756 405	12.2311.00	48.7921.56	9.337.79	13.6813.26	7.885.53	18.3416.50

20252	57,577.58	11.23	12.31	18.79	21.56	7.56	9.25	13.53	13.78	5.26	7.78	16.84	18.47
030	,623												
Source: BSU and City of Bonita Springs													

Future Water Sources

Permitted facility capacity of the RO Water Treatment Plant (WTP) is currently 6.528.56 MGD but the service area is expected to require a greater maximum daily water demand within the planning period. A 3.274 MGD expansion of this plant to 9.7812.56 MGD is planned for 2020 2023 and will increase total water treatment capacity to 18.7921.56 MGD.

Future Conservation Programs

According to the Lower West Coast Water Supply Plan (LWC WSP) update prepared by the South Florida Water Management District, a major source of increased demand for water has come from irrigation. Other increased water demands result from agricultural lands and increase in Public Water Supply and Domestic Self-Supply demands. BSU continues to encourage reuse of treated wastewater and has enough treatment capacity and contracted commitment for 11 MGD. Citrus Park has received permits from the Florida Department of Environmental Protection (DEP) and Lee County Department of Health (DOH) for a Reverse Osmosis Water Treatment Plant, which will increase efficiency developed a water conservation plan which includes resident, owner, renter and staff education, the creation of a home owners guide to water conservation, the inclusion of water conservation statements on all billings, and the institution of "Florida Friendly" landscape standards.

Water Supply Projects

Project Name	Water Source	Responsible Agencies	Funding Sources	Estimated Project Cost (\$M)	Estimated O&M (\$M)	Project Capacity (MGD)	Year Water Produced
<u>Diversification of Lower Tamiami Wellfield Brackish Wellfield Phase II-3 wells</u>	<u>Fresh Brackish</u>	<u>BSU</u>	<u>BSU</u>	<u>15</u>	<u>0.25</u>	<u>2.3</u>	<u>2020</u>
<u>RO WTP and Upper Floridan Wellfield Expansion Phase III</u>	<u>Brackish</u>	<u>BSU</u>		<u>25.45</u>	<u>1.00</u>	<u>3.274</u>	<u>2020</u>

Source: SFWMD LWC WSP Update and BSU