

Greensboro

2017 ▾

The Division of Water Resources (DWR) provides the data contained within this Local Water Supply Plan (LWSP) as a courtesy and service to our customers. DWR staff does not field verify data. Neither DWR, nor any other party involved in the preparation of this LWSP attests that the data is completely free of errors and omissions. Furthermore, data users are cautioned that LWSPs labeled **PROVISIONAL** have yet to be reviewed by DWR staff. Subsequent review may result in significant revision. Questions regarding the accuracy or limitations of usage of this data should be directed to the water system and/or DWR.

1. System Information

Contact Information

Water System Name:	Greensboro	PWSID:	02-41-010
Mailing Address:	PO Box 3136 Greensboro, NC 27402	Ownership:	Municipality
Contact Person:	Dell L. Harney	Title:	Water Supply Manager
Phone:	336-373-7900	Fax:	336-373-5834
Secondary Contact:	Wade Gilley	Phone:	336-373-7611
Mailing Address:	PO Box 3136 Greensboro, NC 27402	Fax:	336-412-6305

Complete

Distribution System

Line Type	Size Range (Inches)	Estimated % of lines
Cast Iron	1-48	32.18 %
Ductile Iron	1-60	62.62 %
Other	1-60	2.65 %
Polyvinyl Chloride	1-12	2.55 %

What are the estimated total miles of distribution system lines? 1,503 Miles
 How many feet of distribution lines were replaced during 2017? 24,866 Feet
 How many feet of new water mains were added during 2017? 66,355 Feet
 How many meters were replaced in 2017? 9,299
 How old are the oldest meters in this system? 15 Year(s)
 How many meters for outdoor water use, such as irrigation, are not billed for sewer services? 4,635
 What is this system's finished water storage capacity? 31.0000 Million Gallons
 Has water pressure been inadequate in any part of the system since last update? No

Programs

Does this system have a program to work or flush hydrants? Yes, Daily
 Does this system have a valve exercise program? Yes, 2 Years or More
 Does this system have a cross-connection program? Yes
 Does this system have a program to replace meters? Yes
 Does this system have a plumbing retrofit program? No
 Does this system have an active water conservation public education program? Yes
 Does this system have a leak detection program? Yes

Approximately 10% of the system valves are exercised in any given year.

Water Conservation

What type of rate structure is used? Flat/Fixed, Increasing Block
 How much reclaimed water does this system use? 0.0000 MGD For how many connections? 0
 Does this system have an interconnection with another system capable of providing water in an emergency? Yes

2. Water Use Information

Service Area

Sub-Basin(s)	% of Service Population	County(s)	% of Service Population
Haw River (02-1)	82 %	Guilford	100 %

What was the year-round population served in 2017? 287,872

Has this system acquired another system since last report? No

Water Use by Type

Type of Use	Metered Connections	Metered Average Use (MGD)	Non-Metered Connections	Non-Metered Estimated Use (MGD)
Residential	95,654	16.4350	0	0.0000
Commercial	8,931	9.4310	0	0.0000
Industrial	66	1.9890	0	0.0000
Institutional	424	0.7550	0	0.0000

How much water was used for system processes (backwash, line cleaning, flushing, etc.)? 2.8800 MGD

The water system was able to reduce distribution system flushing in 2017 by 131 million gallons by measuring water quality parameters to determine when flushing should cease. The Systems unaccounted-for water total is high for 2017 due to an unprecedented number of temperature related line breaks. (66 breaks in one week) The leakage from these breaks is not included as system processes.

Water Sales

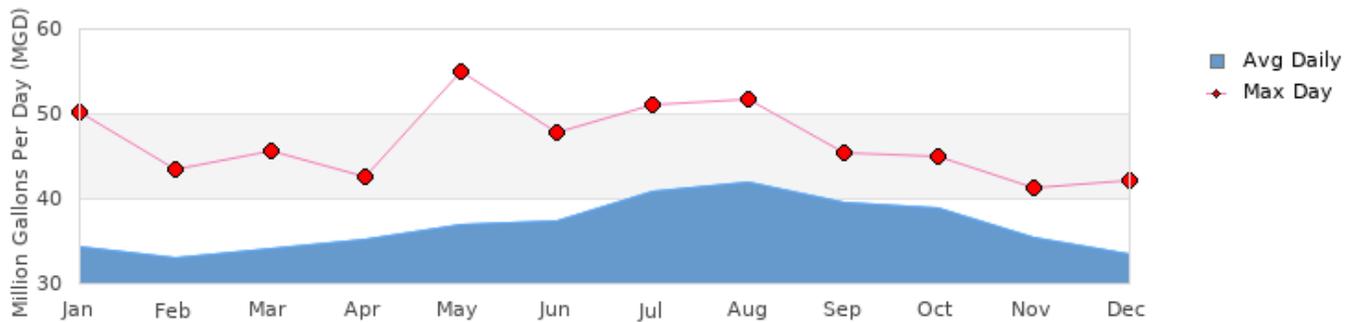
Purchaser	PWSID	Average Daily Sold (MGD)	Days Used	MGD	Contract Expiration	Recurring	Required to comply with water use restrictions?	Pipe Size(s) (Inches)	Use Type
City of Burlington	02-01-010	0.0130	365	0.0000		No	Yes	12,16	Regular
City of Jamestown	02-41-030	0.0706	365			Yes	Yes	12	Regular
City of Reidsville	02-79-020	0.0000	0	1.0000	2024	No	Yes	30	Emergency

3. Water Supply Sources

Monthly Withdrawals & Purchases

	Average Daily Use (MGD)	Max Day Use (MGD)		Average Daily Use (MGD)	Max Day Use (MGD)		Average Daily Use (MGD)	Max Day Use (MGD)
Jan	34.2530	50.1340	May	36.9620	54.8920	Sep	39.4360	45.4430
Feb	32.9180	43.4810	Jun	37.2530	47.7320	Oct	38.8860	44.9910
Mar	34.0190	45.5310	Jul	40.7280	50.9500	Nov	35.4010	41.3190
Apr	35.1860	42.4620	Aug	41.8710	51.7140	Dec	33.4900	42.1070

Greensboro's 2017 Monthly Withdrawals & Purchases



Surface Water Sources

Stream	Reservoir	Average Daily Withdrawal		Maximum Day Withdrawal (MGD)	Available Raw Water Supply		Usable On-Stream Raw Water Supply Storage (MG)
		MGD	Days Used		MGD	* Qualifier	
Brush Creek.	Lake Higgins	0.0000	0	0.0000	0.0000	SY50	792.0000
Reedy Fork Cr.	Lake Townsend	17.3600	365	22.5050	24.0000	SY50	5,385.0000
Reedy Fork Cr.Horsepen Cr.	Lake Brandt	9.0720	361	18.0000	12.0000	SY50	1,752.0000

* Qualifier: C=Contract Amount, SY20=20-year Safe Yield, SY50=50-year Safe Yield, F=20% of 7Q10 or other instream flow requirement, CUA=Capacity Use Area Permit

Surface Water Sources (continued)

Stream	Reservoir	Drainage Area (sq mi)	Metered?	Sub-Basin	County	Year Offline	Use Type
Brush Creek.	Lake Higgins	11	Yes	Haw River (02-1)	Guilford		Regular
Reedy Fork Cr.	Lake Townsend	59	Yes	Haw River (02-1)	Guilford		Regular
Reedy Fork Cr.Horsepen Cr.	Lake Brandt	35	Yes	Haw River (02-1)	Guilford		Regular

What is this system's off-stream raw water supply storage capacity? 20 Million gallons

Are surface water sources monitored? Yes, Daily

Are you required to maintain minimum flows downstream of its intake or dam? Yes

Does this system anticipate transferring surface water between river basins? Yes

Lake Townsend has a three tiered minimum release: 7cfs, 3.5cfs and 2.9cfs.

Water Purchases From Other Systems

Seller	PWSID	Average Daily Purchased (MGD)	Days Used	MGD	Contract		Required to comply with water use restrictions?	Pipe Size(s) (Inches)	Use Type
					Expiration	Recurring			
City of Burlington	02-01-010	2.0780	365	5.0000	2018	Yes	Yes	12,16	Regular
City of High Point	02-41-020	1.2800	1	0.0000		Yes	Yes	12,12	Emergency
City of Reidsville	02-79-020	1.0300	338	1.0000	2024	Yes	Yes	30	Regular
City of Winston-Salem	02-34-010	0.0000	0	3.0000		Yes	Yes	12	Emergency
Piedmont Triad Regional Water Authority	30-76-010	7.1890	365	7.8360	2057	Yes	Yes	30	Regular

PTRWA Contract amount with Greensboro is 7.836 mgd. Additional contract amount of 0.094 mgd is available for pass through to Jamestown.

Water Treatment Plants

Plant Name	Permitted Capacity (MGD)	Is Raw Water Metered?	Is Finished Water Output Metered?	Source
Lake Townsend WTP	30.0000	Yes	Yes	Haw River Basin-Reedy Fork Creek
Mitchell Water Treatment Plant	24.0000	Yes	Yes	Haw River Basin-Reedy Fork Creek

Did average daily water production exceed 80% of approved plant capacity for five consecutive days during 2017? No

If yes, was any water conservation implemented? No

Did average daily water production exceed 90% of approved plant capacity for five consecutive days during 2017? No

If yes, was any water conservation implemented?

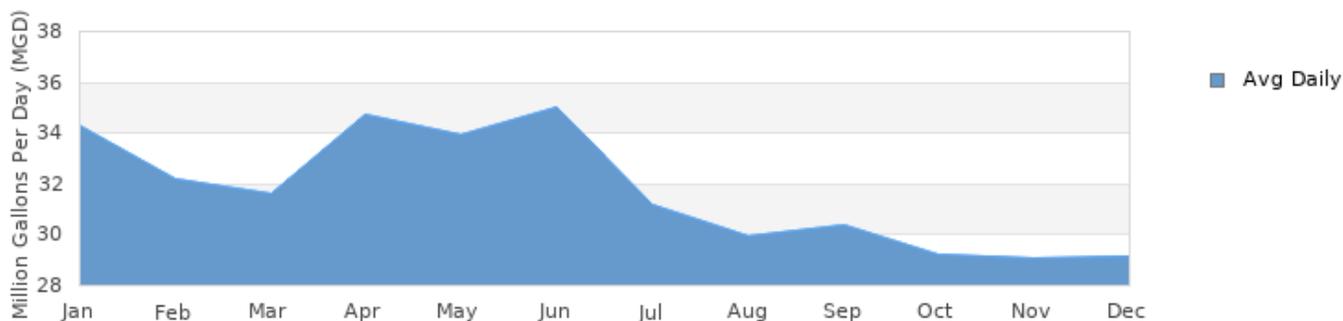
Are peak day demands expected to exceed the water treatment plant capacity in the next 10 years? No

4. Wastewater Information

Monthly Discharges

	Average Daily Discharge (MGD)		Average Daily Discharge (MGD)		Average Daily Discharge (MGD)
Jan	34.2630	May	33.9420	Sep	30.3280
Feb	32.2140	Jun	35.0140	Oct	29.1640
Mar	31.6270	Jul	31.1450	Nov	29.0220
Apr	34.7380	Aug	29.8930	Dec	29.1110

Greensboro's 2017 Monthly Discharges



How many sewer connections does this system have? 101,061

How many water service connections with septic systems does this system have? 949

Are there plans to build or expand wastewater treatment facilities in the next 10 years? Yes

Wastewater Permits

Permit Number	Permitted Capacity (MGD)	Design Capacity (MGD)	Average Annual Daily Discharge (MGD)	Maximum Day Discharge (MGD)	Receiving Stream	Receiving Basin
081671	2.8900	30.0000	0.4670	2.8100	Reedy Fork Cr.	Haw River (02-1)
NC 0024325	16.0000	16.0000	5.3160	35.9280	North Buffalo Creek	Haw River (02-1)
NC 0047384	40.0000	40.0000	25.4680	103.7960	South Buffalo Creek	Haw River (02-1)
NC 0081426	99.0000	1.5000	0.0000	0.0000	North Buffalo Creek	Haw River (02-1)
NCG590017	2.8900	32.0000	0.3910	1.8900	Reedy Fork Cr.	Haw River (02-1)

The Lake Townsend process waste discharge permit was converted from NC0081671 to General permit NCG590017 effective July 1, 2017. The North Buffalo Reclamation Facility was decommissioned in October 2017.

Wastewater Interconnections

Water System	PWSID	Type	Average Daily Amount		Contract Maximum (MGD)
			MGD	Days Used	
City of High Point	02-41-020	Discharging	0.1100	365	0.0000
Town of Jamestown	02-41-030	Discharging	0.5140	365	0.0000
City of Burlington	02-01-010	Receiving	0.1270	365	1.0000

5. Planning

Projections

	2017	2020	2030	2040	2050	2060
Year-Round Population	287,872	299,941	339,800	391,874	451,928	521,186
Seasonal Population	0	0	0	0	0	0
Residential	16.4350	18.6830	21.1650	24.4090	28.1500	32.4640
Commercial	9.4310	10.6710	12.0890	13.9420	16.0780	18.5420
Industrial	1.9890	2.2050	2.4980	2.8810	3.3220	3.8310
Institutional	0.7550	0.8750	0.9920	1.1440	1.3190	1.5210
System Process	2.8800	3.1730	3.1730	3.1730	3.1730	3.1730
Unaccounted-for	4.9833	3.1250	3.5210	4.0400	4.6380	5.3280

Future Supply Sources

Source Name	PWSID	Source Type	Additional Supply	Year Online	Year Offline	Type
City of Reidsville	02-79-020	Purchase	4.0000	2040		Regular
Piedmont Triad Regional Water Authority	30-76-010	Purchase	4.9000	2030		Regular
Piedmont Triad Regional Water Authority	30-76-010	Purchase	6.3700	2040		Regular

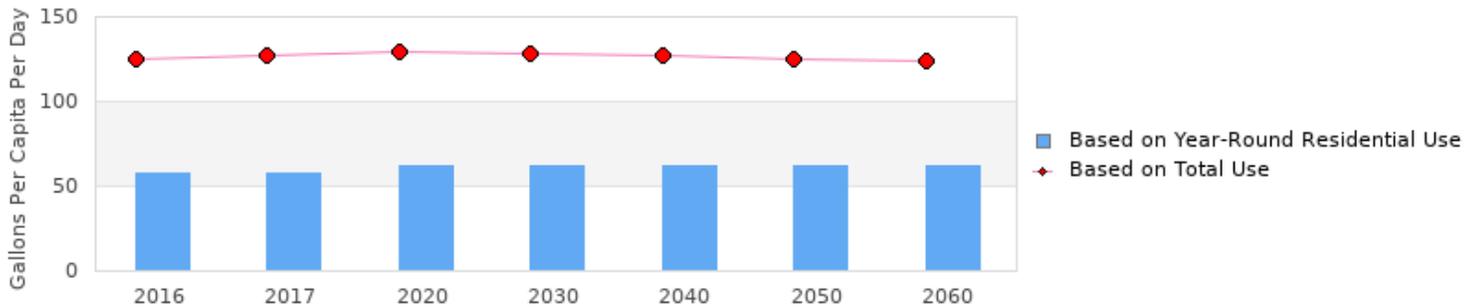
Piedmont Triad Regional Water Authority	30-76-010	Purchase	4.9100	2050	Regular
Piedmont Triad Regional Water Authority	30-76-010	Purchase	1.4900	2018	Regular

PTRWA total final allocation will be 25.5 mgd. Exact dates are not fixed for the Randleman Lake treatment plant expansions so dates for future sources have been added for planning purposes.

Demand v/s Percent of Supply

	2017	2020	2030	2040	2050	2060
Surface Water Supply	36.0000	36.0000	36.0000	36.0000	36.0000	36.0000
Ground Water Supply	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Purchases	13.8360	13.8660	13.8660	13.8660	13.8660	13.8660
Future Supplies		1.4900	6.3900	16.7600	21.6700	21.6700
Total Available Supply (MGD)	49.8360	51.3560	56.2560	66.6260	71.5360	71.5360
Service Area Demand	36.4733	38.7320	43.4380	49.5890	56.6800	64.8590
Sales	0.0836	0.0836	0.0836	0.0836	0.0836	0.0836
Future Sales		0.0000	0.0000	0.0000	0.0000	0.0000
Total Demand (MGD)	36.5569	38.8156	43.5216	49.6726	56.7636	64.9426
Demand as Percent of Supply	73%	76%	77%	75%	79%	91%

Greensboro's Projected Gallons Per Capita Per Day (GPCD) Over Time



The purpose of the above chart is to show a general indication of how the long-term per capita water demand changes over time. The per capita water demand may actually be different than indicated due to seasonal populations and the accuracy of data submitted. Water systems that have calculated long-term per capita water demand based on a methodology that produces different results may submit their information in the notes field.

Your long-term water demand is **57** gallons per capita per day. What demand management practices do you plan to implement to reduce the per capita water demand (i.e. conduct regular water audits, implement a plumbing retrofit program, employ practices such as rainwater harvesting or reclaimed water)? If these practices are covered elsewhere in your plan, indicate where the practices are discussed here.

Are there other demand management practices you will implement to reduce your future supply needs? **Demand management practices include tiered water restrictions that go into effect in times of drought or low lake level. These practices are approved through our governing body.**

What supplies other than the ones listed in future supplies are being considered to meet your future supply needs? **Current supplies meet future needs through the 2050 planning year.**

How does the water system intend to implement the demand management and supply planning components above? **The water system will continue to negotiate interlocal agreements in order to secure future water supply needs. Ongoing and future public outreach and educational initiatives will be implemented to help minimize any demand side increases.**

Additional Information

Has this system participated in regional water supply or water use planning? **Yes, The City of Greensboro participates in regional water supply planning through partnership with surrounding communities and water authorities. These include Piedmont Triad Regional Water Authority, Burlington, Reidsville, High Point and Winston Salem.**

What major water supply reports or studies were used for planning? **Water quality and quantity study to support Randleman Lake. The City of Greensboro has recently awarded a contract to perform a comprehensive capacity development plan for our water supply and reclamation systems.**

Please describe any other needs or issues regarding your water supply sources, any water system deficiencies or needed improvements (storage, treatment, etc.) or your ability to meet present and future water needs. Include both quantity and quality considerations, as well as financial, technical, managerial, permitting, and compliance issues:

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