

# Appendix A: South Area Water Survey

Survey Summary

Survey Results

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Social Media Postings

## Appendix A

### South Area Water Survey

As part of Brookfield's MVP effort, a survey targeting residents and other water users located in the portion of town south of the Quaboag River was conducted to help gauge the need and desire for expansion of municipal water service to that area to help mitigate the effects of climate change.

#### Need for the Survey

The Town of Brookfield operates a municipal water system that serves several hundred clients in the town center and vicinity in the northern end of town. Brookfield's leaders have for several years wanted to examine options for extending water service to portions of the southern part of town, including three mobile home parks with mostly senior citizen residents. Water service in this area is reliant on private or shared wells. Numerous calls were received from homeowners in this area during the 2016 drought reporting dry wells and requesting assistance, and the mobile home parks have historically had problems with their water systems. In addition, without municipal water the southern part of town lacks access to fire hydrants. With climate change increasing drought, wildfire and related risks to outlying areas like southern Brookfield, the Town requested to complement its MVP planning process by conducting outreach to this area in the form of a public survey to residents to obtain information about their need and desire to connect to Town water.

#### Development & Distribution

With oversight from Brookfield's MVP Core Team, Water Department and Water Commission, CMRPC's MVP staff developed the survey during October, 2018. Surveys conducted by other communities in Massachusetts looking to expand water or sewer service and elsewhere were researched to inform its development. The final survey has 24 questions covering topics such as: type of well user; household demographics; type and number of wells serving the respondents' home/business; age and depth of wells; access to backup power to run pumps; general problems with well water, if any (including water chemistry); drought-related problems with well water, if any; type and amount of well usage; and interest in (and ability to pay for) connecting to municipal water. A copy of the survey is provided elsewhere in this appendix.

The survey was distributed as an insert in the December, 2018 issue of the *Brookfield Citizen*, a free citizen-run monthly newspaper that is mailed to all residents and businesses. Working with the newspaper and the post office, the survey was targeted to only those addresses south of the Quaboag River (appx. 800), including residents of the mobile home parks. Prior to its distribution in the *Citizen* the survey was publicized on the Town's website, on its official Facebook page, and at televised meetings of the Board of Selectmen. Survey responses were

collected online, at two physical locations (the Town Hall and the Merrick Public Library), and by mail. Responses were requested by early January and results were compiled in mid-January.

### Survey Results

Responses were received from 61 households and businesses south of the Quaboag River. Respondents are largely residential (95%) but few (3%) are from the mobile home parks, which represent about a quarter of the area's households.

More than 93% of respondents have a single, private well. At least 80% of wells were installed 10 or more years ago, while 37% were installed 20 or more years ago. Almost 69% of respondents have bedrock artesian wells, though many respondents (22%) are unsure of their well type. More than 8% of respondents report having very shallow wells of less than 50 feet depth, while many (22%) report middle-depth wells (51-200 feet) and fairly deep wells of 200-500 feet (25%). 10% report very deep wells more than 500 feet deep, while a large minority (35%) are unsure.

More than 65% of well users report using their well(s) for non-potable uses such as agriculture and landscaping. More than half (54%) report having a backup generator to provide power for well water pumps in the event of a power outage. Many respondents report issues with iron (39%), manganese (14%) or other substances in their well water. Many respondents report problems from the 2016-17 drought, including water discoloration (47%), low water pressure (40%) and/or a total lack of water at times (13%). In normal use about 13% of respondents report low pressure, though most respondents are pleased with their current well water. 63% are mostly or very satisfied. 32% are moderately satisfied, while 5% are mostly not satisfied.

Disregarding cost, some 33% of respondents are very interested in connecting to Town water, while an equal number are not at all interested in doing so. 18% are somewhere in between, while another 16% would need more information. When asked if they would pay to connect to Town water, the results are broadly similar but the percentage requiring more information increases to 21%, while those very interested in connecting fall to 23%. When asked how much they would be willing to pay to connect to and use Town water, responses decline from 37% at \$0 to \$20 per month to 2% at \$50+ per month. 23% are not sure. More than half of respondents (57%) would be willing to pay \$30 or less per month.

In general, results of the survey are inconclusive, with roughly equal numbers for and against water system expansion. However, based on the responses, the reluctance of most respondents to pay more than \$30/month total for water service and construction betterment costs represents a substantial challenge. An unscientific review of per-home costs in other communities that have completed major system expansions finds that betterment costs alone (not including water use fees or any costs for construction of lateral connections) are typically

in the \$15 to \$50 per month range, depending on various factors (topography, geology, housing type and density, etc.). Full results of the survey are provided elsewhere in this appendix.

#### Mobile Home Parks

One important data gap is the limited response from the three mobile home parks: Nanatomqua, Wagon Wheel, and Brookfield Meadows. These communities are the most densely populated sections of southern Brookfield and they could potentially be served by Town water more efficiently than outlying of farms and single-family homes. This would eliminate the need for the parks to operate their own separate water systems, which has proved challenging for them at times, including a total loss of water service for a few days at one park this year. A few survey responses were received from mobile home residents, but the park operators themselves declined to fully participate in the survey or MVP workshop despite numerous contacts from the Brookfield Water Commission and MVP provider team. We recommend continue efforts to engage the park operators as part of a future engineer-led process to quantify the scope and costs of potential system expansion south of the river.

#### Integration with MVP Workshop

Results of the water survey were discussed at the MVP Core Team's February, 2019 meeting and at subsequent Water Commission meetings. At the MVP workshop in April, 2019 a summary of the results was provided to all attendees and detailed results were presented and discussed as part of the natural hazards presentation prior to the group exercise. Workshop participants used the survey results to inform their group discussions of Brookfield's changing hazards and strategies to adapt to them.

# Brookfield MVP

## South Area Water Survey - Summary

Using funds provided via Brookfield's MVP Planning Grant, a survey was distributed to households and businesses located south of the Quaboag River in December 2018, and made available on the Town's website. The 24-question survey asked residents to provide details about their existing well system(s), describe ongoing and past issues impacting their well system(s), and to what degree they might support connecting this area of Brookfield to the Town water system. Sixty-one responses to the survey were received and analyzed as a component of this project. A summary of responses collected is included below:

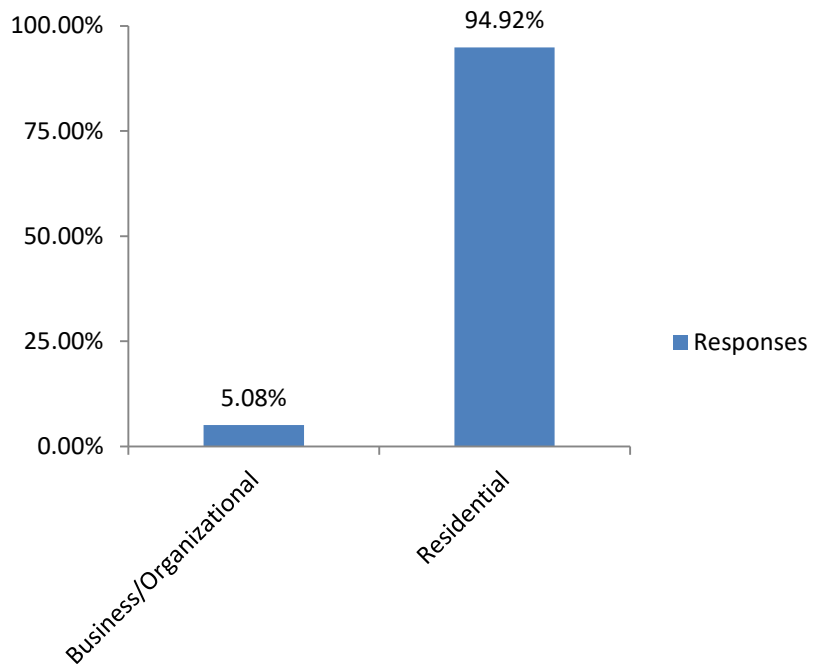
- Majority (94%) of respondents use their wells for residential purposes, and all respondents indicated living in single-family homes.
- Majority of respondents (93%) have a primary well that serves only one home.
- Majority of respondents (96.67%) do not live in a mobile-home community.
- Respondents tended to have wells installed 10-20 years ago (43%) or more than 20 years ago (36%).
- Majority of respondents (91%) indicated having only one well located on their property.
- Majority of respondents (68%) indicated that their primary well is a bedrock/deep artesian well.
- Approximately one third (32%) of respondents reported making maintenance upgrades or repairs to their well or related equipment within the last five years.
- Slightly over half of respondents (54%) noted having a backup generator to supply power to their well pump in event of a power failure. 42% reported not having backup power, and slightly over 3% were unsure.
- Majority of respondents (87%) reported having adequate water pressure on a day-to-day basis.
- Top impacts related to water chemistry reported included: iron (39%), manganese (13%), bad odor (12%), and bad taste (10%).
- During the drought of 2015-16, 47% responded they had discolored water, 40% had low pressure, and 13% had no water at all sometimes
- Overall residents reported being satisfied with their current water supply (41% very satisfied, 5% generally unsatisfied, with the rest somewhere in between)
- When asked to disregard costs associated with connecting their property to town water supply respondents indicated a mixed response. Approximately one third (32%) indicated no interest, one third (32%) indicated being very interested, and the remaining third reported being somewhat neutral or that they would like more information.
- When asked what dollar range reflects the maximum amount they would be willing to pay for municipal water service respondents replied:
  - \$0-\$20/month (37.5%)
  - \$21-\$30/month (19.64%)
  - \$31-\$40/month (10.71%)
  - \$41-\$50/month (7.14%)
  - \$50 or more/month (1.79%)
  - Unsure (23.21%)

# South Area Water Survey Results

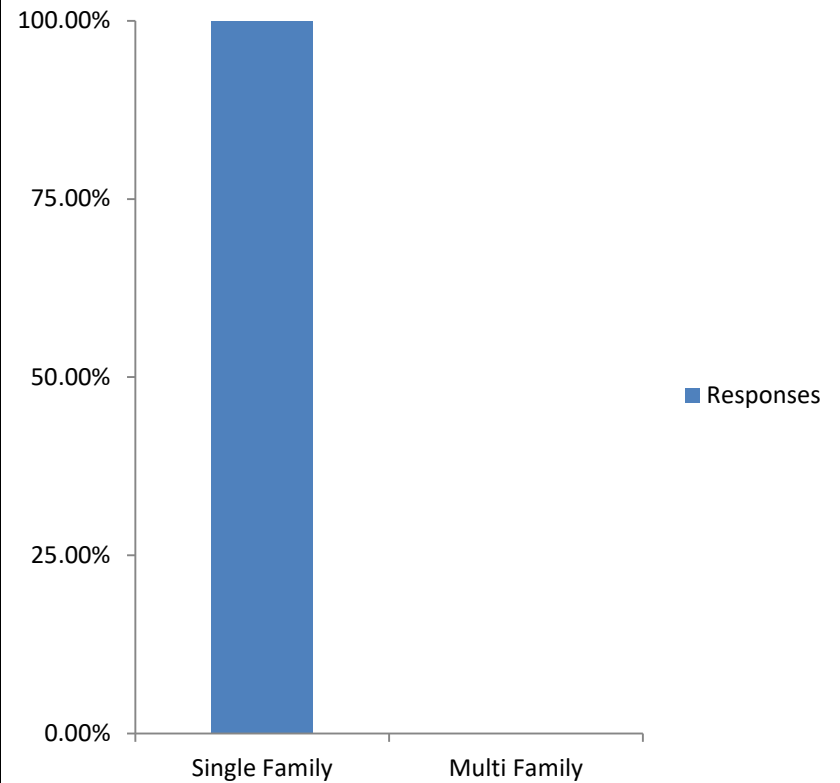
## Highlights:

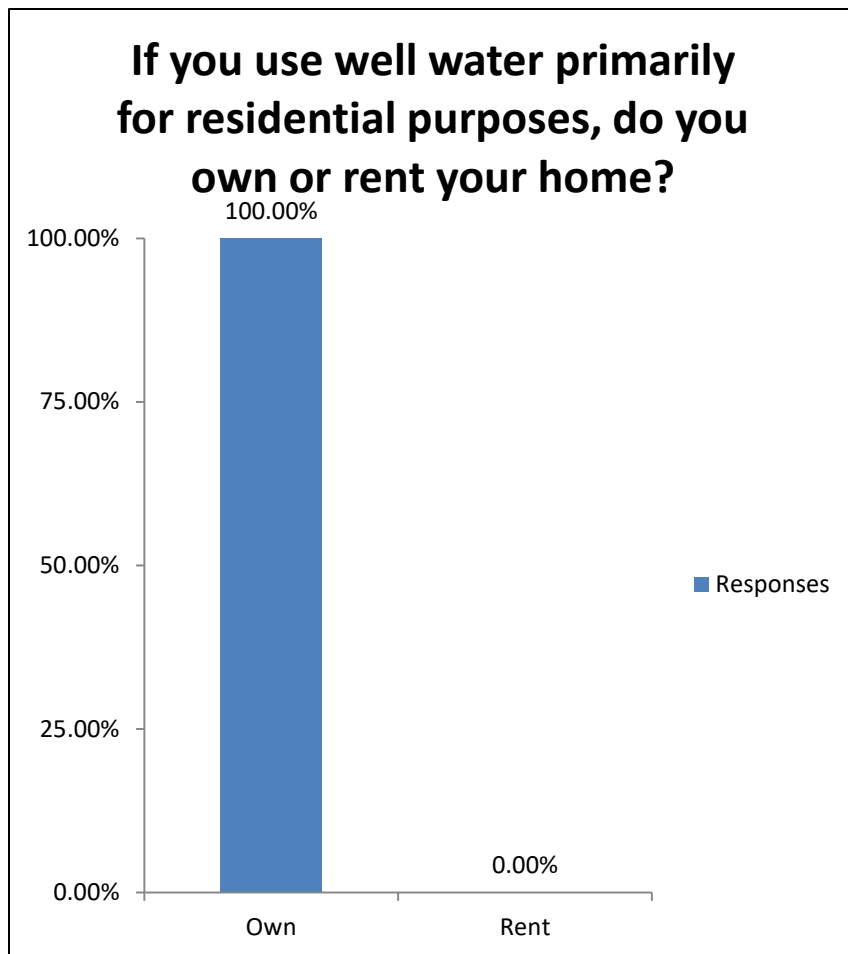
- 61 total respondents
- 100% own their property
- 93% have a private well
- 40% very satisfied with current water supply
- Iron is main issue impacting water chemistry (39%)
- 1/3 of respondents have no interest in connecting property to the Brookfield Town water supply
- 1/3 of respondents are very interested in connecting property to the Brookfield Town water supply

### Are you primarily a residential well-water user or a business/organizational well-water user?



### Please describe the type of home you live in

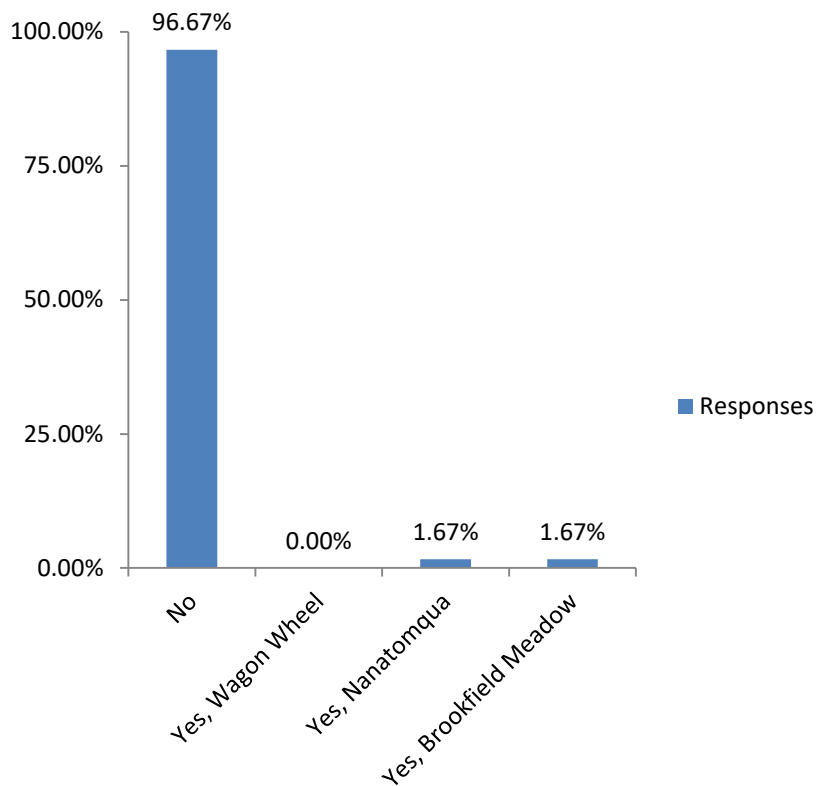




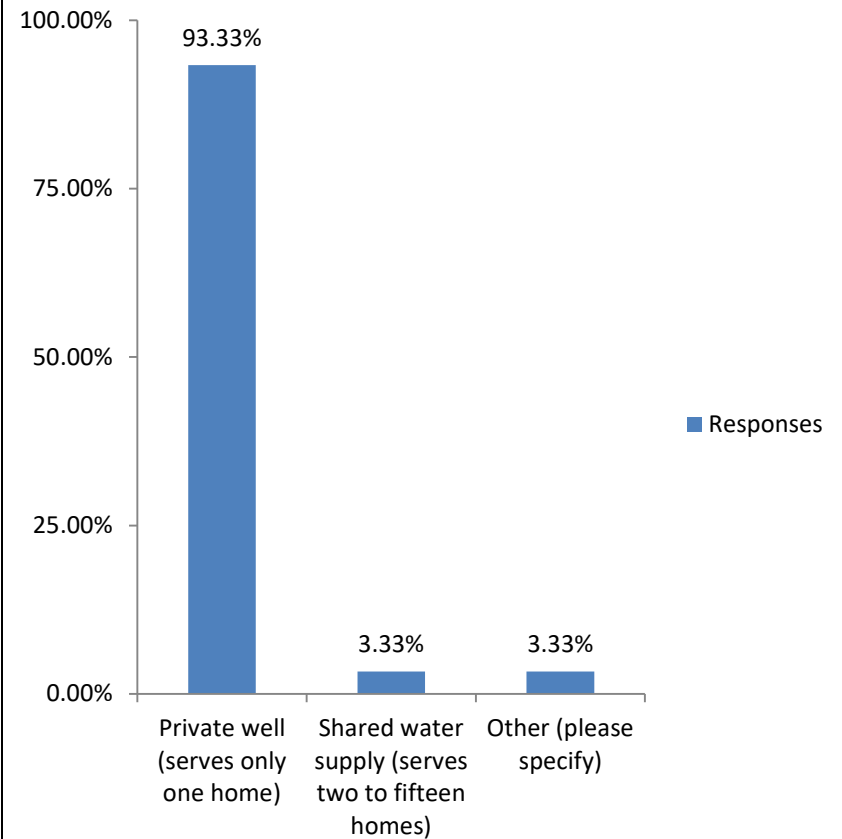
- 1 respondent: owns structure, rents land



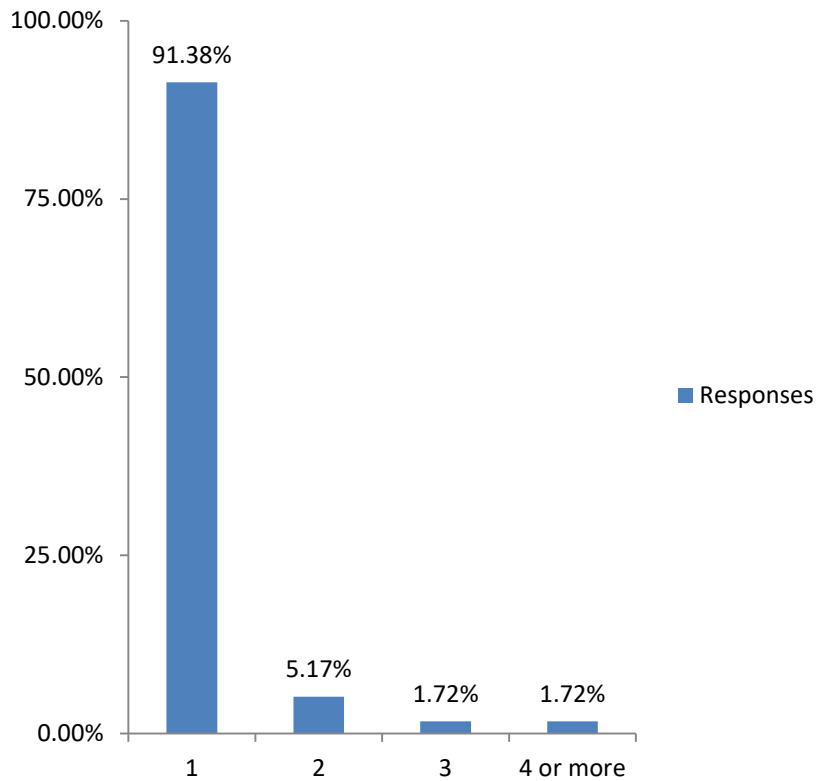
### Are you a resident of one of the local mobile home communities?



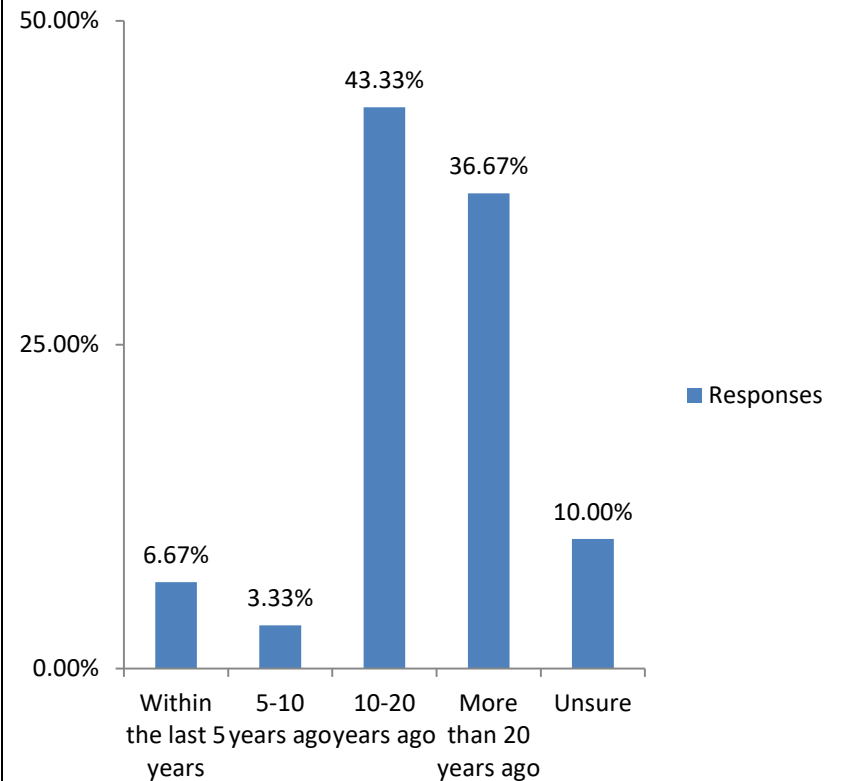
### Is your primary well a ...?



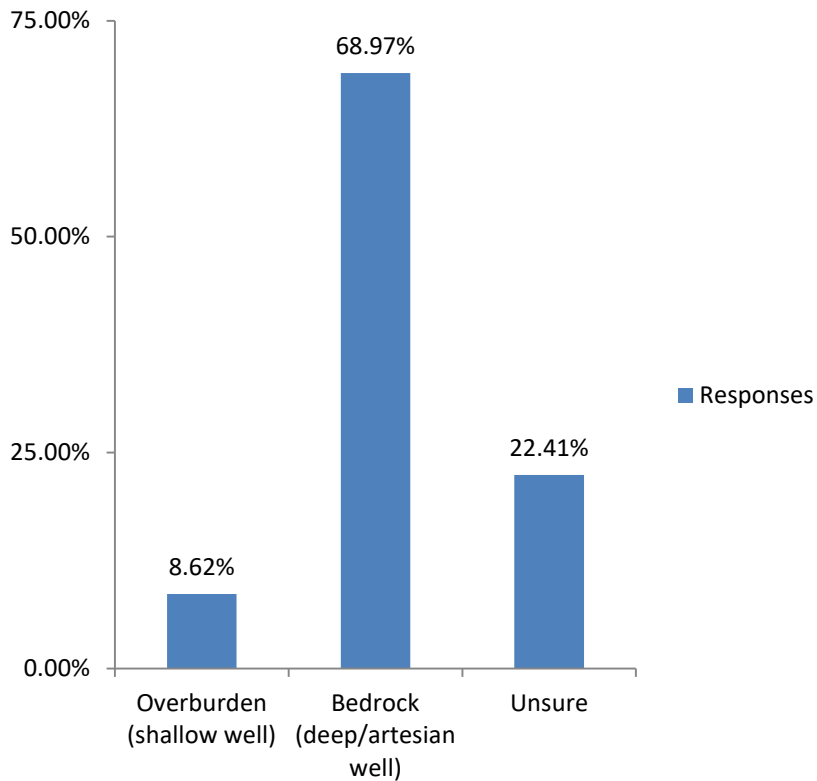
### How many wells supply water to your home or property?



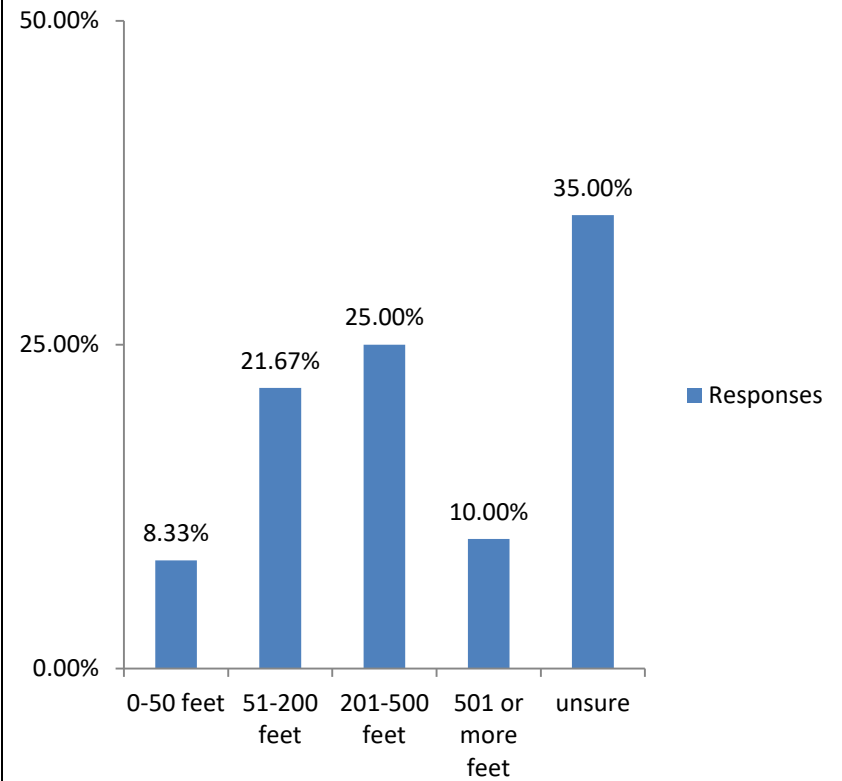
### When was your primary well installed?



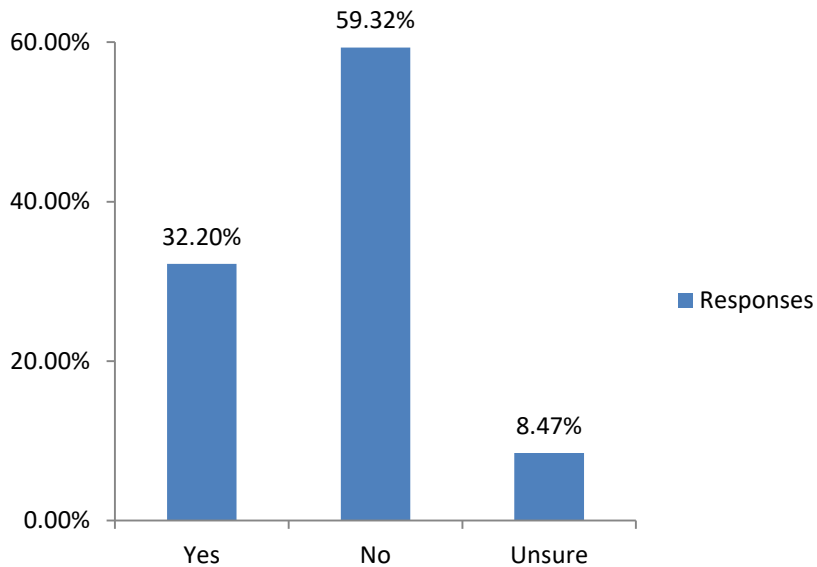
### Please describe your primary well type:



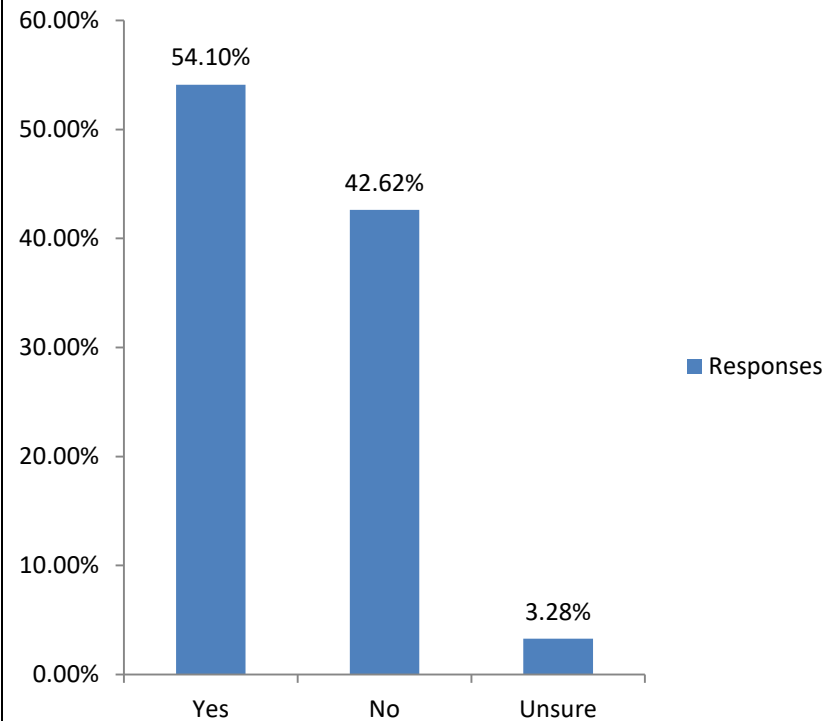
### What is your primary well's depth?



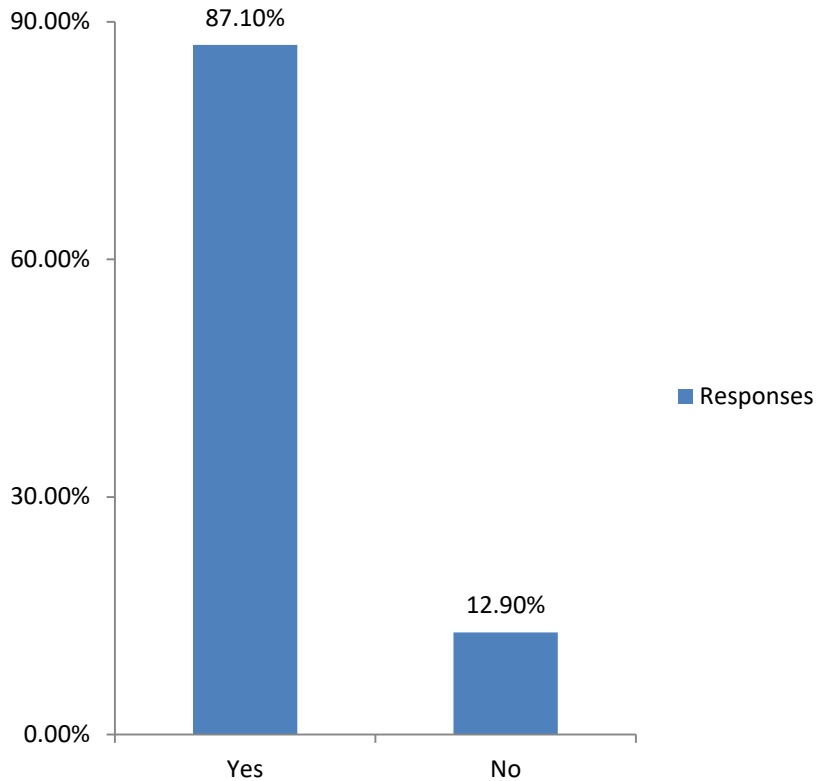
**Have maintenance upgrades or repairs been made in in the last five years to one or more of the wells or related equipment that serves your residence or business?**



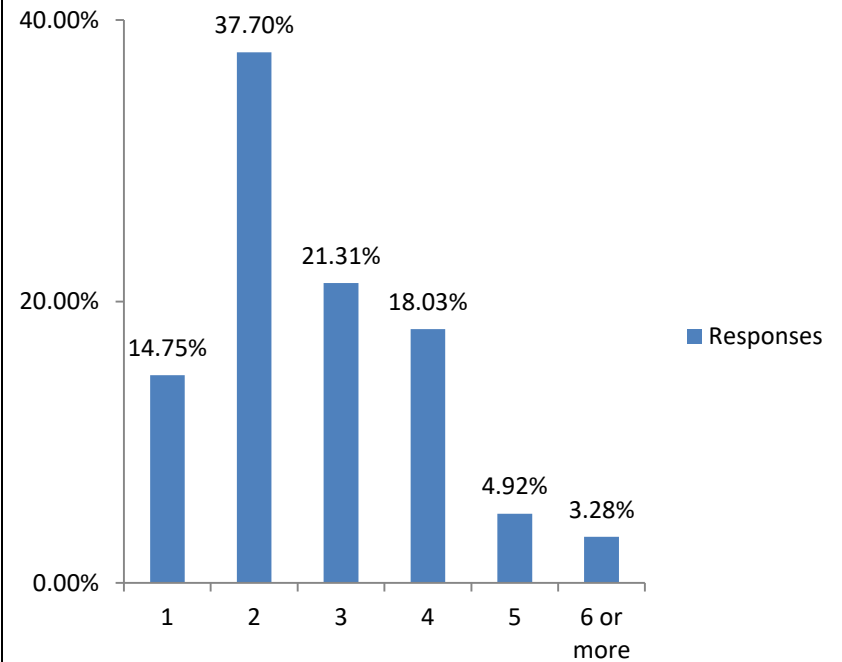
**Do you have a backup generator to power your well pump in event of a power failure?**



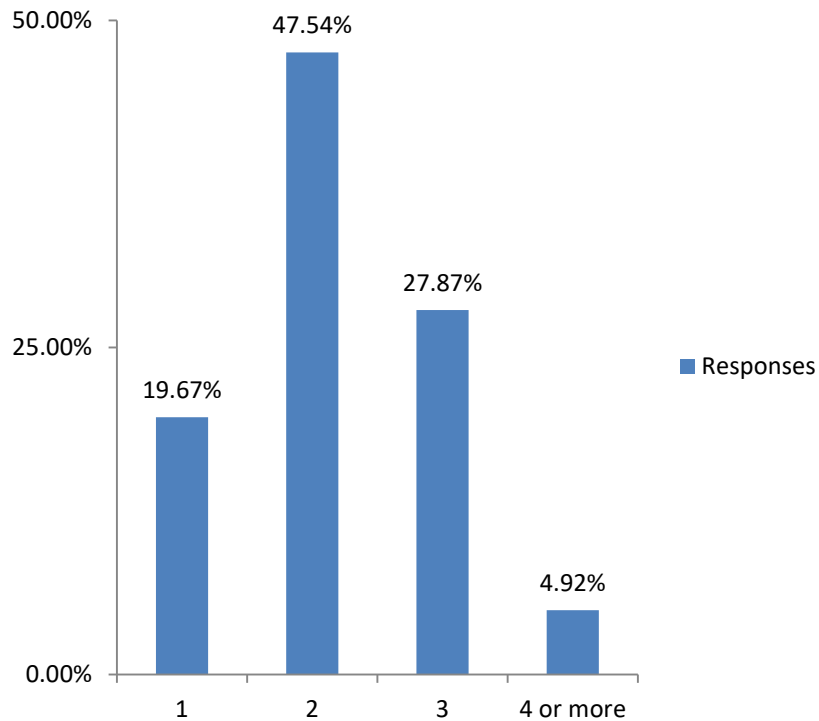
### Is your water pressure generally adequate on a day-to-day basis?



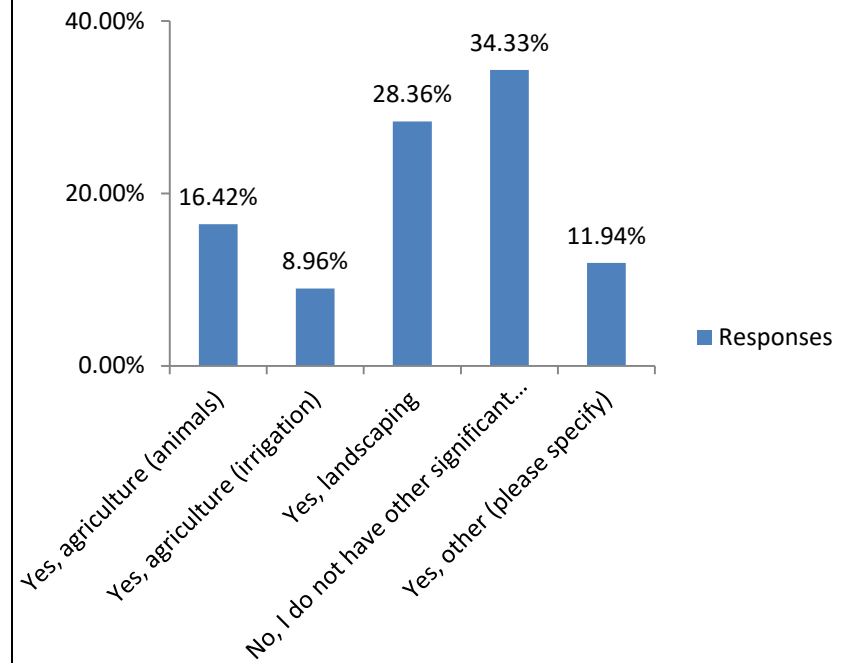
### If you are primarily a residential well-water user, how many people are there in your household?



### How many bathrooms are located in the home or other facility served by your well?

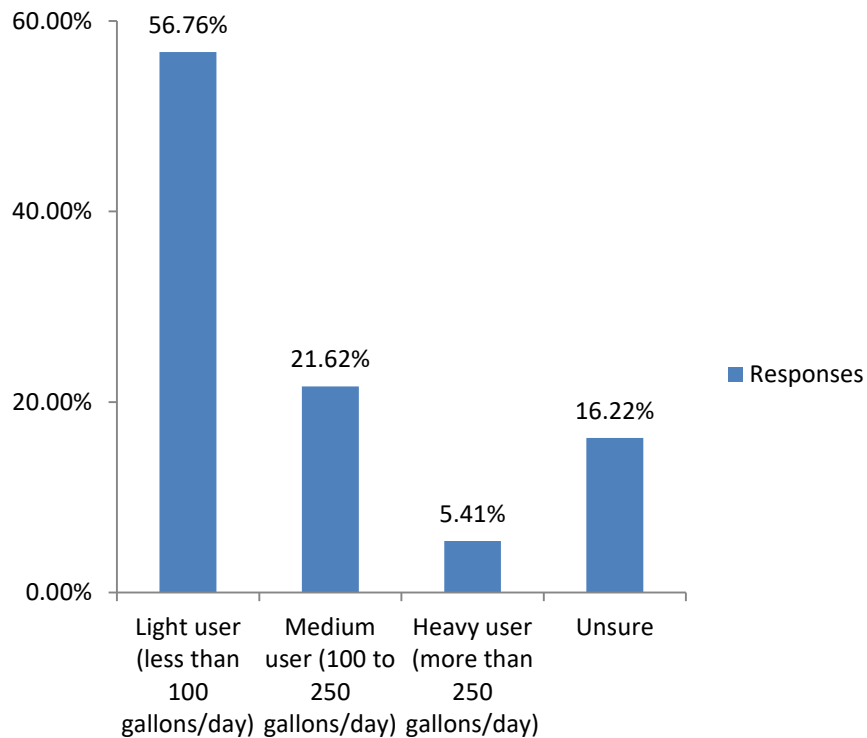


### If you are primarily a residential well-water user, do you also use your well for any of the following uses?

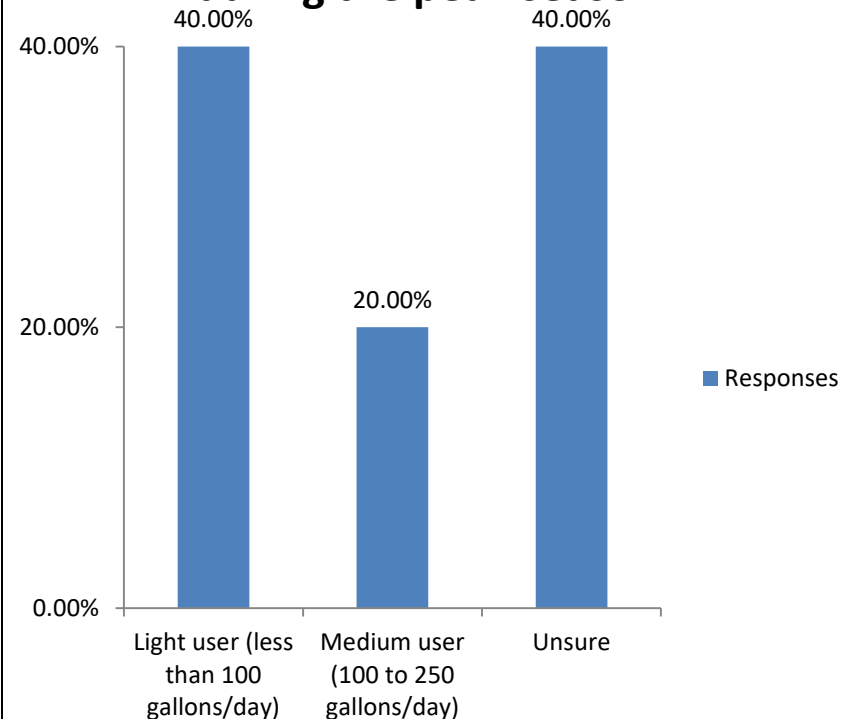


Other: Pool (2x), gardening (2x), showers<sub>9</sub>

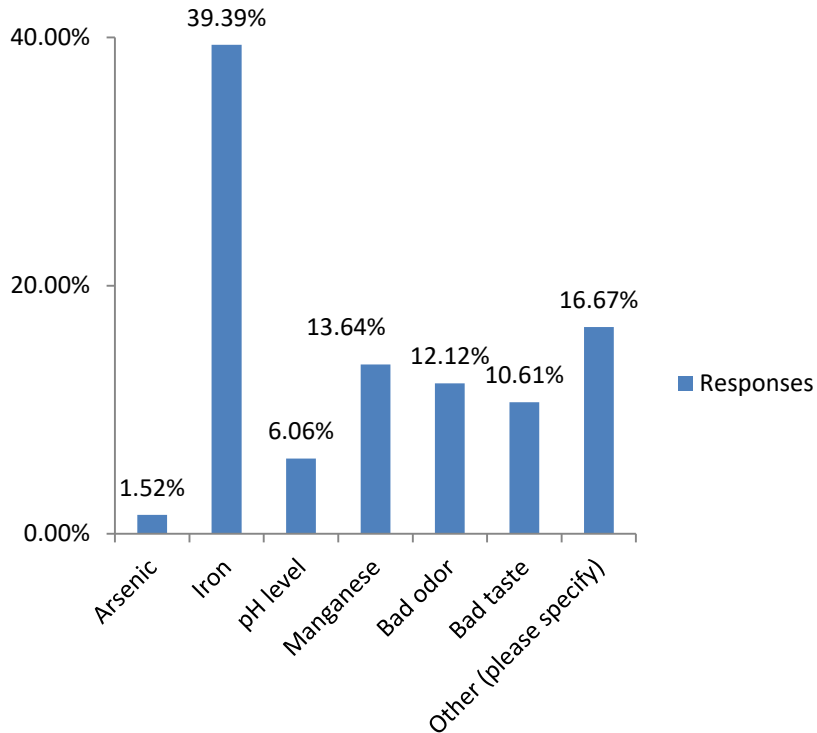
**If you answered “yes” to question #16, please describe your level of non-residential water use during the peak season:**



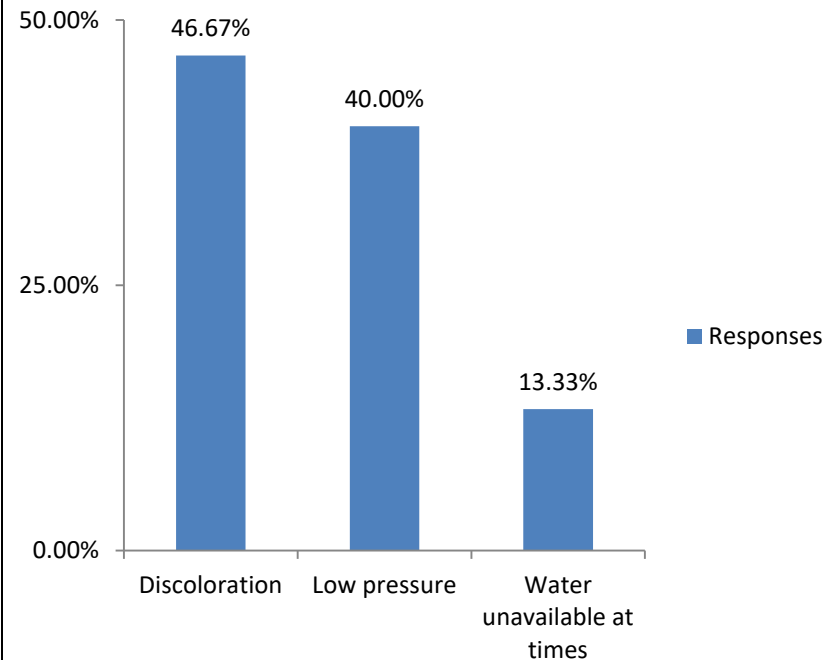
**If you are primarily a business/organizational well-water user, please describe your level of non-residential water use during the peak season:**



### Do you have any of the following issues related to water chemistry impact your water quality?



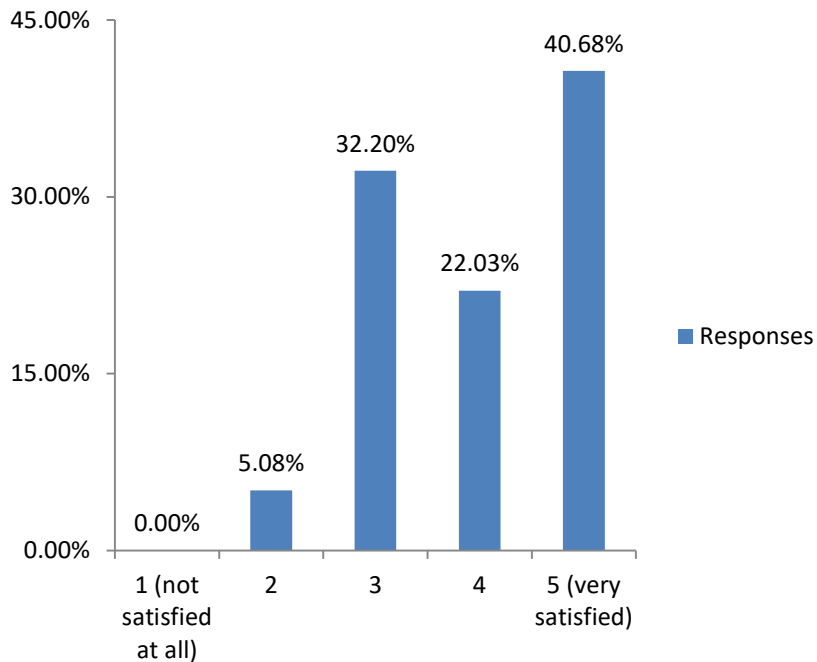
### During the 2015-2016 drought did you experience any of the following impacts on your well water?



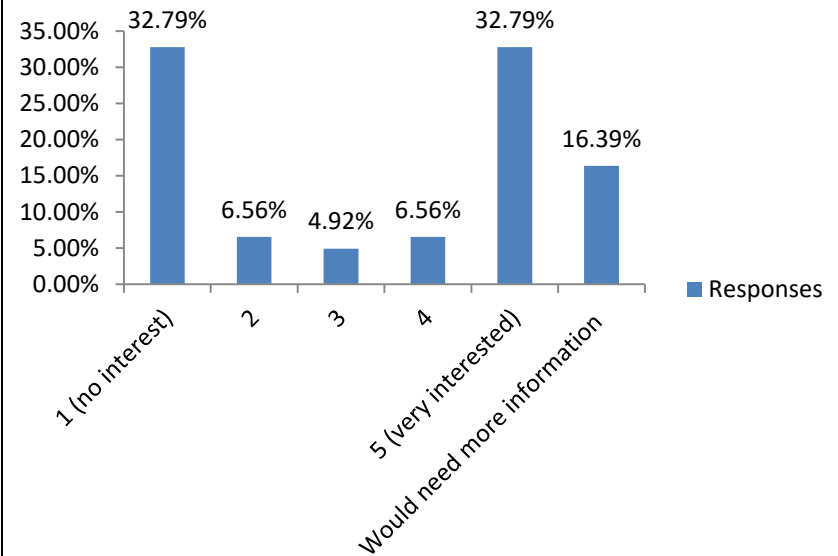
Note, only 15 responses for this question. 46 skipped. Indicates either no problem or did not live in Town at that time.



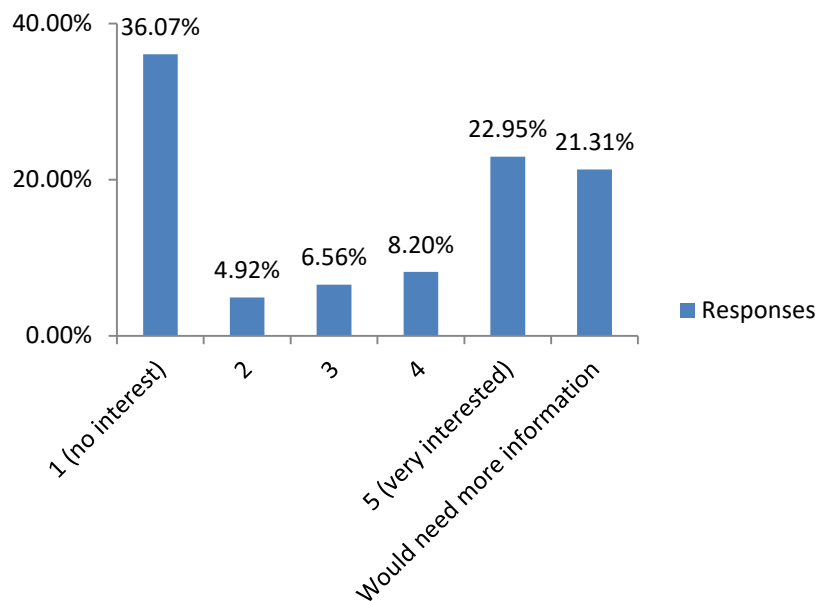
**Please rank your overall satisfaction with your current water supply. (1= not satisfied at all; 5= very satisfied):**



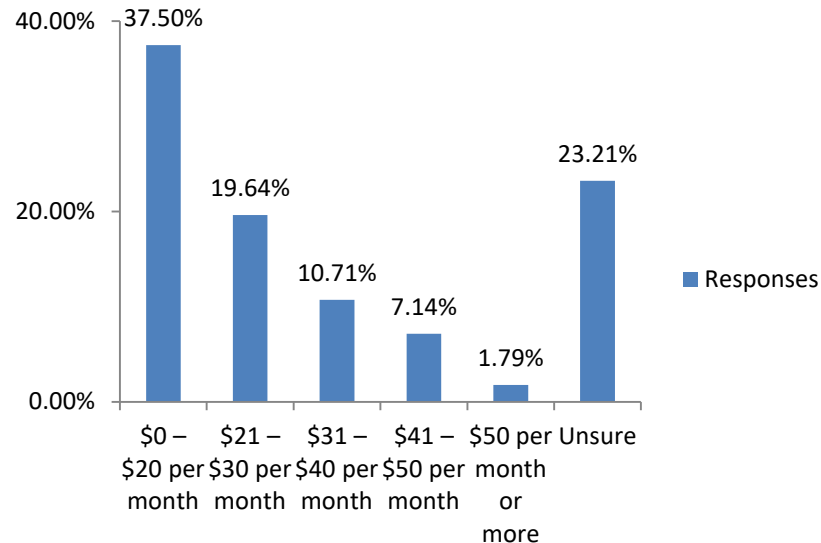
**Disregarding cost, please describe your level of interest in connecting your property to the Brookfield Town water supply. (1 = no interest; 5 = very interested):**



**Please describe your overall willingness to pay to connect and receive municipal water service. (1 = no interest; 5 = very interested):**



**What dollar range best reflects the maximum amount you would be willing and able to pay, including usage fees and any long-term betterment costs, for municipal water service?**



# TOWN OF BROOKFIELD – SOUTH AREA WATER SURVEY

December 2018



Dear Southern Brookfield Resident or Business Operator:

With support from a state Municipal Vulnerability Preparedness (or MVP) grant and the Central Massachusetts Regional Planning Commission, the **Town of Brookfield** is exploring the long-term possibility of extending municipal water service to serve all or some neighborhoods south of the Quaboag River that currently rely on private well water. As an early step in its research, the Town asks that all households and businesses in that portion of the community **complete the attached survey** to tell us more about your existing well service, water usage, and thoughts about possible expansion of the Town's water system. Please respond no later than **January 4, 2019**.

Municipal water service can provide a number of benefits not available through private wells:

- Access to clean water sourced from an aquifer that is relatively resilient to drought
- Water that's available even when the power goes out, without the need for your own generator
- Professional management of your water supply, including regular testing and treatment in compliance with federal and state standards
- A backup connection to the water supply in another community (West Brookfield) in case of drought or other emergency
- Water for fire hydrants that can protect your family and property and help reduce your homeowners' or renters' insurance rates
- No need to monitor your own water chemistry, maintain/replace your own pump or generator, or drill new wells (or deepen existing ones) in time of drought
- Shared costs with other users of the water system
- Superior water service at long-run costs that are roughly comparable to maintaining your own well

The average Brookfield residential water customer currently pays about \$20 per month for Town water service while lighter users pay less than \$10 per month. If the municipal system is expanded, one-time hookup costs for new residential water users in are expected to be around \$1,500, and a special assessment ("betterment") charge to residential property owners receiving new service from the system expansion can be expected to range from around \$10 to \$60 per month for 20 to 30 years, depending on the system size and property-specific factors. In comparison, costs for installation or total replacement of a residential well system typically range from \$5,000 to \$7,000, while operations, maintenance and occasional replacement of well components such as pumps are estimated at \$20 to \$40 per month for most users in the long term, depending on various factors. Residents of mobile home parks generally pay for water service as part of their rental fee – consult your park's management for details.

Completed survey responses should be returned to the Brookfield **Town Hall** or the **Merrick Public Library**, or they can be mailed to Brookfield Water Survey, c/o Central Massachusetts Regional Planning Commission, 1 Mercantile St. Suite 520, Worcester, MA 01608. Surveys may alternatively be **completed online** at [www.surveymonkey.com/r/BrookfieldSouthWater](http://www.surveymonkey.com/r/BrookfieldSouthWater) (please submit **only ONE total survey per household/business**). Individual survey responses are confidential.

PO Box holders receiving this survey for homes or businesses located **north** of the Quaboag River (in the Town Center, Route 9 or vicinity) are asked **NOT to complete or submit it**.

Sincerely,

**Brookfield Water Commission**

Donald Taft

Robert R. Barnes

Al Jones

This survey is available online at [www.surveymonkey.com/r/BrookfieldSouthWater](http://www.surveymonkey.com/r/BrookfieldSouthWater)

## BROOKFIELD – SOUTH AREA WATER SURVEY

*Thank you for taking the survey!*

1. Are you primarily a residential well-water user or a business/organizational well-water user?

☐ Business/Organizational      ☐ Residential

2. Where is your home or business located?

\_\_\_\_\_  
(Street address)

\_\_\_\_\_  
(Apt. #, if any)

3. If you answered 'residential' to question #1, please describe the type of home you live in.

☐ Single Family    ☐ Multi Family

4. If you use well water primarily for residential purposes, do you own or rent your home?

☐ Own    ☐ Rent

5. Are you a resident of one of the local mobile home communities?

☐ No    ☐ Yes, Wagon Wheel    ☐ Yes, Nanatomqua    ☐ Yes, Brookfield Meadow

**IF YOU ANSWERED "YES" TO QUESTION #4, PLEASE SKIP AHEAD TO QUESTION #12**

6. Is your primary well a ...?

☐ Private well (serves only one home)  
☐ Shared water supply (serves two to fifteen homes)  
☐ Other: \_\_\_\_\_  
☐ Unsure

7. How many wells supply water to your home or property?

☐ 1    ☐ 2    ☐ 3    ☐ 4 or more    ☐ Unsure

8. When was your primary well installed?

☐ Within the last 5 years    ☐ 5-10 years ago  
☐ 10-20 years ago    ☐ More than 20 years ago  
☐ Unsure

9. Please describe your primary well type:

☐ Overburden (shallow well)      ☐ Bedrock (deep/artesian well)  
☐ Unsure      ☐ Other \_\_\_\_\_

## BROOKFIELD – SOUTH AREA WATER SURVEY

10. What is your primary well's depth?

- ☐ 0 – 50 feet                      ☐ 201 – 500 feet  
☐ 51 – 200 feet                      ☐ 501 or more feet  
☐ Unsure

11. Have maintenance upgrades or repairs been made in in the last five years to one or more of the wells or related equipment that serves your residence or business?

- ☐ Yes   ☐ No   ☐ Unsure

12. Do you have a backup generator to power your well pump in event of a power failure?

- ☐ Yes   ☐ No   ☐ Unsure

*Did you answer "yes" to question #5? If yes, skip to here*

13. Is your water pressure generally adequate on a day-to-day basis?

- ☐ Yes   ☐ No

14. If you are primarily a residential well-water user, how many people are there in your household?

- ☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5   ☐ 6 or more

15. How many bathrooms are located in the home or other facility served by your well?

- ☐ 1   ☐ 2   ☐ 3   ☐ 4 or more

16. If you are primarily a residential well-water user, do you also use your well for any of the following uses? Please mark all that apply:

- ☐ Yes, agriculture (animals)                      ☐ Yes, landscaping                      ☐ No, I do not have other significant uses  
☐ Yes, agriculture (irrigation)                      ☐ Yes, other \_\_\_\_\_

17. If you answered "yes" to question #16, please describe your level of non-residential water use during the peak season:

- ☐ Light user (less than 100 gallons/day)                      ☐ Heavy user (more than 250 gallons/day)  
☐ Medium user (100 to 250 gallons/day)                      ☐ Unsure

18. If you are primarily a business/organizational well-water user, please describe your level of non-residential water use during the peak season:

- ☐ Light user (less than 100 gallons/day)                      ☐ Heavy user (more than 250 gallons/day)  
☐ Medium user (100 to 250 gallons/day)                      ☐ Unsure

19. Do you have any of the following issues related to water chemistry impact your water quality? Please mark all that apply:

- ☐ Arsenic                      ☐ pH level                      ☐ Bacteria                      ☐ Bad taste  
☐ Iron                      ☐ Manganese                      ☐ Bad odor                      ☐ Other \_\_\_\_\_

This survey is available online at [www.surveymonkey.com/r/BrookfieldSouthWater](http://www.surveymonkey.com/r/BrookfieldSouthWater)

## BROOKFIELD – SOUTH AREA WATER SURVEY

20. During the 2015-2016 drought did you experience any of the following impacts on your well water? Please mark all that apply:

☐ Discoloration   ☐ Low pressure   ☐ Water unavailable at times

21. Please rank your overall satisfaction with your current water supply. (1= not satisfied at all; 5= very satisfied):

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

22. Disregarding cost, please describe your level of interest in connecting your property to the Brookfield Town water supply. (1 = no interest; 5 = very interested):

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5   ☐ Would need more information

23. Please describe your overall willingness to pay to connect and receive municipal water service. (1 = no interest; 5 = very interested):

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5   ☐ Would need more information

24. What dollar range best reflects the maximum amount you would be willing and able to pay, including usage fees and any long-term betterment costs, for municipal water service?

☐ \$0 –\$20 per month   ☐ \$21 – \$30 per month   ☐ \$31 – \$40 per month  
☐ \$41 –\$50 per month   ☐ \$50 per month or more   ☐ Unsure

Completed surveys may be returned to:

- Brookfield Town Hall
- Merrick Public Library

Or they may be mailed to:

Brookfield Water Survey  
C/o Central Massachusetts Regional Planning Commission  
1 Mercantile St. Suite 520  
Worcester, MA 01608.

Surveys may alternatively be completed online at [www.surveymonkey.com/r/BrookfieldSouthWater](http://www.surveymonkey.com/r/BrookfieldSouthWater) (please submit **only ONE total survey per household/business**).

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**Town of Brookfield, MA**

November 29 at 8:12 AM · 🌐

"With support from a state Municipal Vulnerability Preparedness (or MVP) grant and the Central Massachusetts Regional Planning Commission, the Town of Brookfield is exploring the long-term possibility of extending municipal water service to serve all or some neighborhoods south of the Quaboag River that currently rely on private well water. Town asks that all households and businesses in that portion of the community complete the attached survey to tell us more about your existing well service, water usage, and thoughts about possible expansion of the Town's water system.

[www.surveymonkey.com/r/BrookfieldSouthWater](http://www.surveymonkey.com/r/BrookfieldSouthWater)"



SURVEYMONKEY.COM

### **Town of Brookfield - South Area Water Survey**

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6 Shares





# Brookfield MASSACHUSETTS

Incorporated 1673

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## Town of Brookfield Water Service Extension Survey

With support from a state Municipal Vulnerability Preparedness (or MVP) grant and the Central Massachusetts Regional Planning Commission, the Town of Brookfield is exploring the long-term possibility of extending municipal water service to serve all or some neighborhoods south of the Quaboag River that currently rely on private well water. The Town of Brookfield would ask that all households and businesses in that portion of the community complete the attached survey to tell us more about your existing well service, water usage, and thoughts about possible expansion of the Town's water system.

Click Here: [www.surveymonkey.com/r/BrookfieldSouthWater](http://www.surveymonkey.com/r/BrookfieldSouthWater)

### Brookfield Town Hall

6 Central Street, Brookfield, MA 01506

PH: (508) 867-2930

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