Appendix C
Customer Survey and Water Use Efficiency Evaluation

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Appendix C1

Customer Survey

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CH2M and Town of Cary
2017 Water Services Survey Report

Methodology

The Town of Cary's 2017 Water Services Survey was conducted for CH2M Hill from May 6th through June 12th. BKL Research administered the telephone survey to 400 residents of the Towns of Cary and Morrisville. This resulted in a ± 4.89% margin of error with a 95% confidence level. The sampling frame included households that received billing for water/sewer from the Town of Cary which also includes households located in Morrisville. The Town of Cary provided the appropriate telephone numbers from their water/sewer billing database of households. The numbers were contacted using a random selection process to ensure a representative sample. A minimum of four callbacks was attempted on each selected number. The potential respondents were screened with regards to receiving a water bill from the Town of Cary and over the age of 18. The average survey completion time was between 10 to 12 minutes. The refusal rate for the survey was 22.3%. The survey instrument is included in Appendix A.

The survey consisted of 32 core questions with related subparts to several of the questions. Respondents were asked to rate their perceptions of water supply and usage issues, satisfaction with the Town's water efficiency and information program, reasons they conserve water, and tools to encourage water efficiency. A set of questions explored Aquastar and aspects of the water bill. Another set of questions examined familiarity and participation with several Cary water saving initiatives. The respondents were asked how they prefer to receive information about water efficiency. They were asked if they had taken any actions in the past five years to reduce water use both inside and outside the home. The respondents were also asked about awareness of several Town watering ordinances. Finally, a set of questions examined effective ways to reach them in the event of a water emergency. The survey primarily utilized a 9-point scale or a yes/no response format. The survey incorporated 7 demographic questions.

Demographic Characteristics of the Sample

The demographic profiles of the sample are exhibited in Figures 1-7. The age profile of the sample is illustrated in Figure 1. A large percentage of the respondents (53.2%) fell between the ages of 36 to 55 reflecting the prevalence of home ownership for these age groups. Figure 2 shows the number of years the respondents lived in the community with the highest percentages for 2-5 years (31.5%) and

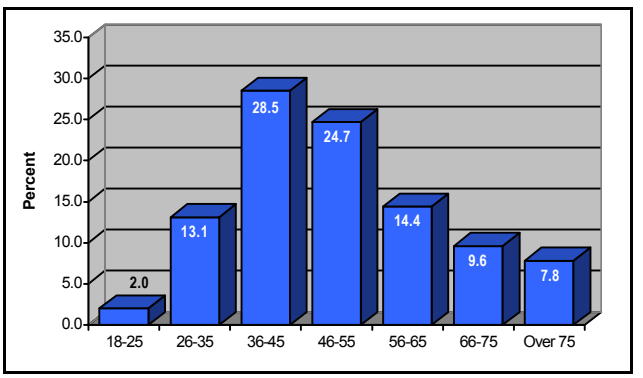

Figure 1. Sample: Age Distribution.

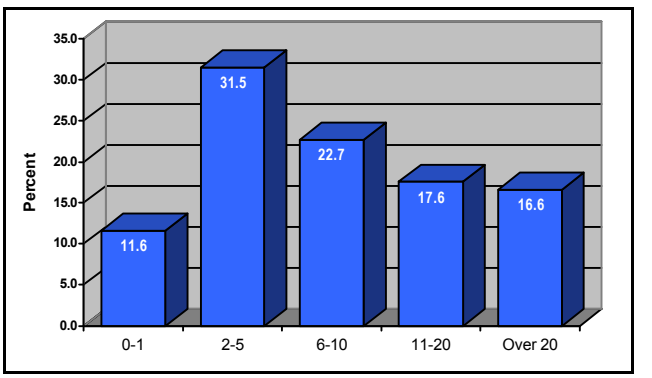

Figure 2. Sample: Years Lived in Community.

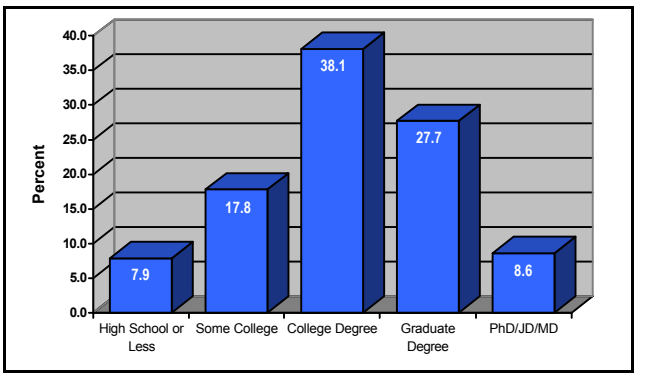

Figure 3. Sample: Educational Level.

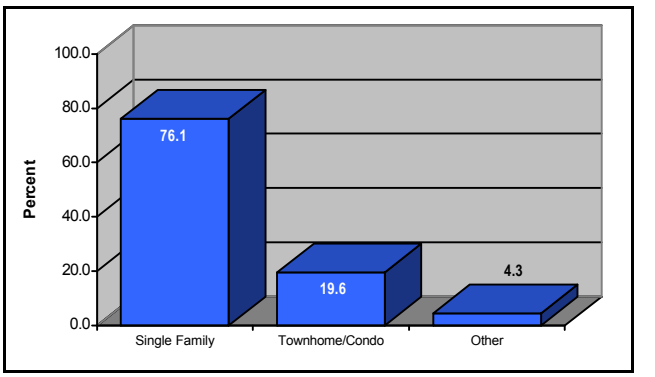

Figure 4. Sample: Household Living Situation.

6-10 years (22.7%). Figure 3 shows the sample to be a highly educated group. Most of the respondents had graduated with a college degree (74.4%) including 27.7% of those earning a graduate degree and 8.6% a PhD, JD, or MD degree. Figure 4 details the household living situation with a large majority of the respondents living in a single-family home (76.1%), while townhomes/ condominiums constituted 19.6% of the sample. The remaining 4.3% consisted of apartments, mobile homes, and duplexes. There were high levels of household income for the sample with 27.7% earning over $150,000 and 24.9% earning between $100,001-$150,000 (Figure 5). In terms of gender, 58.5% of the sample were male and 41.5% were female (Figure 6).

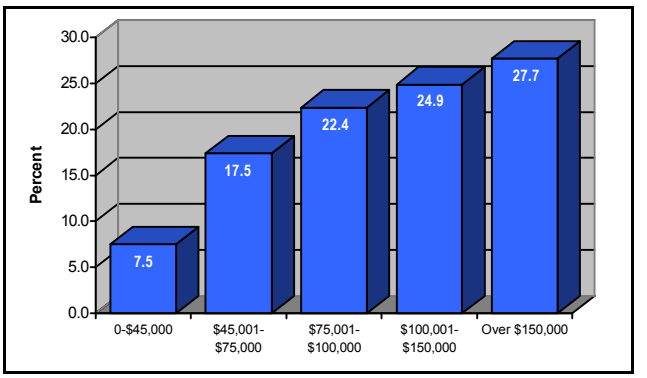

Figure 5. Sample: Income.

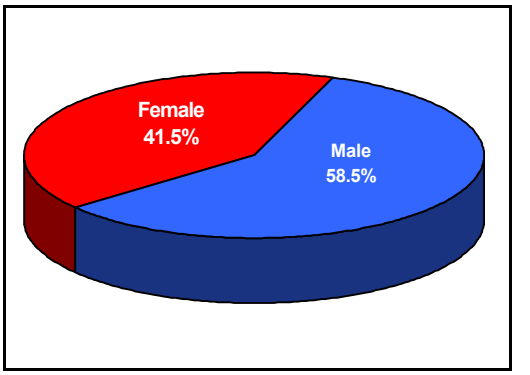

Figure 6. Sample: Gender.

Most of the households (32.9%) had 2 members while 24.8% had 4 members (Figure 7). Single person households made up 11.9% of the sample. Households of 5 or more constituted 13.4% of the sample. The largest household surveyed in the sample had 8 members. The overall average number of individuals per household for the entire sample was 3.0.

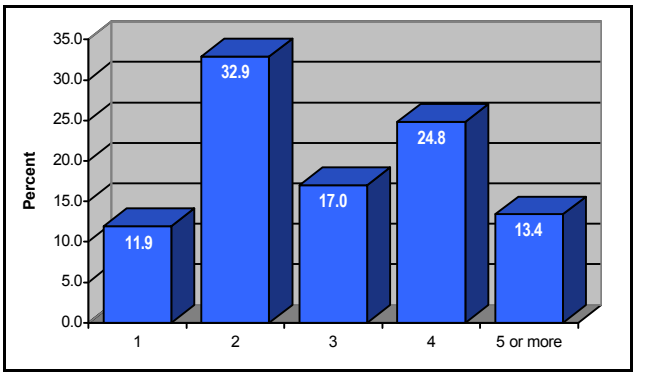

Figure 7. Sample: Number in Household.

It is important to note the sampling frame reflected only households that received a water bill from the Town of Cary. This may serve to have an impact on the sample demographics. This will possibly skew the sample toward somewhat older age groups and higher income levels. The municipality breakdown for the sample was 88.0% from Cary and 12.0% from Morrisville.

The report will include selected crosstabulations expressly chosen by the Town for specific questions in the survey (Appendix B). It is important to exercise caution in the interpretation of crosstabulations. They will act to segment or slice up the sample size and in turn, increase the margin of error for a question. This makes it difficult to generalize crosstabulations with small sample sizes.

The percentages in the tables are rounded off to one decimal place and this may result in row totals that do not always add up to exactly 100.0%. They may be off by as much as 0.4% due to rounding. Selected crosstabulations were included for housing and municipality in Appendix B. The crosstabulations for housing on municipality, income, and age are shown in Tables B204-B206. The crosstabulations for municipality on years in Town, income, and age are found in Tables B207-B209.

In regards to the ± 4.89% margin of error, this reflects the level of sampling error for the survey. Sampling error indicates the difference in measurement which will invariably occur when using a sample instead of surveying the entire population (i.e., census). The degree of sampling error is minimized by larger sample sizes. In this instance, the sample size of 400 indicates the likelihood the results of the survey are within ± 4.89% of what one would expect to obtain if the entire population were surveyed. The 95% confidence level refers to the probability that the observed results from the survey were not the product of sampling error alone. In other words, if we repeated the study 100 times with random samples, then 95 of the samples would demonstrate similar results. In summary, we are 95% confident the results are within ± 4.89% of the population parameters.

The results between the survey periods may show an upward or downward trend between the survey periods. However, it is important to examine these changes for statistical significance. For that reason, significance tests were conducted on the mean differences for the 2011 and 2017 surveys. Any question with a mean score which was measured in both years was compared with statistical analysis. No assumption of homogeneity of variance was assumed since the sample sizes for the service dimensions generally differed for the two measurement periods. For that reason, a Welch's t-test was utilized with a two-tailed test at the .05 significance level to determine significance. This statistical method will test the null hypothesis that the two population means are equal while correcting for unequal variances. A two-tailed test was employed due to the fact the mean difference could be higher or lower. A significant result would indicate the differences in the two means would be more than would be expected by chance. An asterisk will be placed after any mean in the tables that is statistically significant such as 8.53^{*}.

Perceptions of Water-Related Issues

The first set of seven questions asked the respondent's perceptions on several water-related issues in the Towns of Cary and Morrisville. A 9-point grading scale from strongly disagree (1) to strongly agree (9) was used to measure their perceptions. The midpoint in the scale was neutral (5). The tables showing the results will illustrate the number of respondents, the mean, the response percentages, and the percentages for responses above the midpoint of 5.

The first question asked the respondents if they perceived the community has sufficient water supplies for the future (Table 1). The mean on a 9-point scale has increased from 6.31 in 2011 to 7.12 this year and this increase was statistically significant. The percentage on the "agree" side of the scale (above the midpoint of 5) increased from 53.7% to 70.7%. In addition, the percentage on the "disagree" side of the scale fell from 11.1% to 6.4% as did the "neutral" responses from 35.1% to 22.8%. Overall, the respondents appear more confident in 2017 that water supplies are sufficient for the future. However, the mean of 7.12 on a 9-point scale indicates there remains some level of apprehension among the respondents. The crosstabulations for municipality, housing, years in Town, and age for this question are shown in Tables B1-B4 located in Appendix B.

Table 1. Your Community Has Sufficient Water Supplies for the Future.

Year	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
2017	391	7.12*	1.8	1.0	2.3	1.3	22.8	5.6	10.2	17.6	37.3	70.7
2011	402	6.31	1.7	0.7	4.5	4.2	35.1	7.7	14.2	10.4	21.4	53.7

The second question asked the respondents if they perceived efficient water use to be crucial to the future of the community. The results show an increased level of support for this statement (Table 2). The mean improved from 8.05 to 8.37 this year and this increase was statistically significant. There were 94.5% of the responses on the "agree" side of the scale (88.6% in 2011) while there were only 0.5% on the "disagree" side this year. In addition, there was a very high percentage (67.3%) of the respondents who answered this question with a rating of 9 (strongly agree). Overall, respondents continue to place a very high value on efficient water use as a focus for the community. The crosstabulations for this question of municipality, housing, years in Town, and age are shown in Tables B5-B8 (Appendix B).

Table 2. Efficient Water Use is Crucial to the Future of Your Community.

Year	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
2017	397	8.37*	0.5	0.0	0.0	0.0	5.0	2.3	7.3	17.6	67.3	94.5
2011	401	8.05	0.5	0.0	0.5	0.2	10.2	3.0	11.2	14.5	59.9	88.6

The respondents were next asked if the amount of water their household uses impacts whether the community has sufficient water for the future (Table 3). In 2011, the mean for this statement was relatively low at 6.56. However, there has been a substantial improvement in the rating this year. The mean improved to 7.58 and this increase was statistically significant. It was impressive that 82.1% responded on the "agree" side of the scale up from 64.1% in 2011. The "disagree" side fell

from 16.9% to only 4.9% this year. The results support an increase in the perception that individual household water use can have a significant impact on community water supplies. The crosstabulations for this question of municipality, housing, years in Town, and age are shown in Tables B9-B12 (Appendix B).

Table 3. The Amount of Water Your Household Uses Impacts Whether Your Community Has Sufficient Water for the Future.

Year	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
2017	397	7.58*	1.0	1.3	1.8	0.8	13.1	5.0	14.6	14.1	48.4	82.1
2011	401	6.56	6.2	3.0	3.7	4.0	19.0	7.2	12.0	9.2	35.7	64.1

The next question in this set asked the respondents if they felt the Town of Cary Sewer Services was doing a good job protecting public health and the environment (Table 4). There was a high degree of support for this statement. The mean was 7.98 with 88.3% responding on the "agree" side of the scale and only 1.4% on the "disagree" side. There were 53.4% who responded they strongly agree (9) with the job the Town is doing. The crosstabulations for this question of municipality, housing, years in Town, and age are shown in Tables B13-B16 (Appendix B).

Table 4. Town of Cary Sewer Services Does a Good Job Protecting Public Health and the Environment.

Year	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
2017	395	7.98	0.8	0.0	0.3	0.3	10.4	2.8	11.1	21.0	53.4	88.3

The respondents were next asked how they felt their household water usage compared to the average household in the community. Most of the respondents felt they either used the *same* (33.3%) or *less than* (33.0%) the community (Table 5). This matches the pattern in 2011; however, the percentages were higher that year with 42.6% responding *less than* and the *same* at 40.1%. The respondents who felt they used *more than* the community increased slightly from 7.9% to 10.8% this year. However, the most significant difference was in the *not sure* percentages. In 2011, this was only 9.4% and this has increased to 23.0% this year. Overall, there was a much higher degree of uncertainty concerning individual water usage this year; although, most felt they used the *same* or *less than* the community. The crosstabulations for this question of municipality and knowledge of daily household water usage are shown in Tables B17-B18 (Appendix B).

Table 5. The Overall Water Use at Your Home Compared to the Average Household in Your Community.

Year	n	Less Than	More Than	Same	Not Sure
2017	400	33.0	10.8	33.3	23.0
2011	404	42.6	7.9	40.1	9.4

The respondents were then asked if they know the number of indoor and outdoor gallons of water they use each day (Table 6). There were only 8.5% who were aware of this number. This coincides with the 23.0% who indicated they did not know on the previous question. The overall mean from those who did know their daily use was 96.9 gallons. The crosstabulations for this question of municipality, age, tracked water use with Aquastar, and looked at the water use graph on the water bill are shown in Tables B19-B22 (Appendix B).

Table 6. Do You Know How Much Indoor and Outdoor Water Your Household Uses on Average Each Day. (n=399)

Water Use Knowledge	% Yes	% No
Knowledge of average gallons per day	8.5	91.5

The final question in this set asked the respondent if they knew the community drinking water source. Table 7 indicates that most respondents (56.3%) indicated they did not know Cary's actual water source. There were 40.5% who correctly identified Jordan Lake as the source. Only a few of the respondents incorrectly identified Falls Lake (2.3%), wells (0.5%), Raleigh (0.3%), and the Atlantic Ocean (0.3%) as the water source. The crosstabulations for this question of municipality, years in Town, education, and age are shown in Tables B23-B26 (Appendix B).

Table 7. Perceived Community Drinking Water Source.

Year	n	Jordan Lake	Falls Lake	Wells	Raleigh	Atlantic Ocean	Don't Know
2017	400	40.5	2.3	0.5	0.3	0.3	56.3

Satisfaction with Water/Sewer Services

The next set of questions examined the degree of satisfaction the respondents had with four aspects of the Town's water/sewer services. These questions used a 9-point scale ranging from very dissatisfied (1) to very satisfied (9) with 5 as neutral. The respondents were first asked their satisfaction with the day-to-day water/sewer utility services (Table 8). There was a high level of satisfaction expressed by the respondents with a mean of 8.13 with 93.1% on the "satisfied" side of the scale (above 5) including 60.5% answering with a 9 (very satisfied). There were only 3.6% on the "dissatisfied" side. An open-ended question was included with all of these questions in this set to examine the reasons for the dissatisfaction for respondents who answered below the midpoint of 5 (Appendix C). There were 23 total comments given for low satisfaction marks. The comments focused on two main concerns including *bill is too high* (12 comments) and *low water pressure* (7 comments). The crosstabulations for this question of municipality, housing, years in Town, and age are shown in Tables B27-B30 (Appendix B).

Table 8. Satisfaction with Your Day-To-Day Water/Sewer Utility Services.

Year	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
2017	400	8.13	1.5	0.0	0.8	1.3	3.5	3.5	11.3	17.8	60.5	93.1

The respondents were next asked to rate their satisfaction with the taste and quality of their drinking water. The overall ratings were relatively strong with a mean of 7.22 and 76.4% on the "satisfied" side of the scale and only 7.5% on the "dissatisfied" side. The open-ended question for "dissatisfied" responses (below 5) had 143 total comments. The most common response was *don't drink the water/drink bottled water only/use filters* with 75 comments (Appendix D). There also were 25 comments the *water has a bad taste* (chemical/mineral) with 14 of those indicating it has a *chlorine taste*. Finally, there were 11 comments for *bad odor* and 9 comments for *discolored* (orange/murky). Keep in mind, there could be multiple comments from the respondents so the number of comments exceeded the number of respondents. The crosstabulations for this question of municipality, years in Town, housing, and age are shown in Tables B31-B34 (Appendix B).

Table 9. Satisfaction with the Taste and Quality of Your Drinking Water.

Year	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
2017	399	7.22	1.5	0.5	2.5	3.0	16.0	5.0	14.8	23.8	32.8	76.4

The respondents were asked their satisfaction with how the Town implements its water efficiency program (Table 10). The respondents were generally satisfied with a mean of 6.99 including 68.1% on the "satisfied" side of the scale and only 3.5% on the "dissatisfied" side. However, the mean was held down by the somewhat high percentage of neutral responses (28.4%). The open-ended question for "dissatisfied" responses had a total of 41 comments (Appendix E). The most common response was *unaware of it* with 35 comments. This actually contributed to the higher percentage of neutral responses because most of these unaware respondents rated the Town's implementation with a neutral score of 5. Other issues were *don't receive or see much information* (3 comments) and *better enforcement of water use needed* (2 comments). It is evident the overall rating is being impacted by

the large number of respondents who were generally unaware of the Town's water efficiency program. The crosstabulations for this question of municipality, years in Town, housing, and age are shown in Tables B35-B38 (Appendix B).

Table 10. Satisfaction with How the Town Implements its Water Efficiency Program (i.e., Public Outreach, Education, and Water Audits).

Year	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
2017	395	6.99	1.5	0.5	0.5	1.0	28.4	4.3	15.2	20.5	28.1	68.1

The last question in this set asked about the respondent's level of satisfaction with how the Town provides water-related information (Table 11). The results remained very positive and mostly unchanged with a mean of 7.30 compared to 7.34 in 2011 (not statistically significant). There were 78.3% on the "satisfied" side of the scale including 35.0% who were very satisfied. There were only 4.1% on the "dissatisfied" side. In 2011, these percentages were 82.5% versus 6.7%, respectively. The open-ended question for "dissatisfied" responses had only 10 comments with the most common being *don't see water-related information* (7 comments) shown in Appendix F. The crosstabulations for this question of municipality, housing, and age are shown in Tables B39-B41 (Appendix B).

Table 11. Satisfaction with How the Town Provides Water-Related Information.

Year	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
2017	400	7.30	2.3	0.5	0.8	0.5	17.8	5.5	16.8	21.0	35.0	78.3
2011	404	7.34	2.5	1.7	0.5	2.0	10.9	8.2	17.6	17.8	38.9	82.5

Reasons for Conserving Water

A set of three questions was integrated into the survey to examine reasons why respondents conserve water. These reasons examined included *I want to save money*, *to comply with ordinances/laws*, and *it is the right thing to do*. A 9-point scale was used ranging from strongly disagree (1) to strongly agree (9) with a midpoint of neutral (5). The reasons will be ranked in order of importance from highest to lowest means.

The respondents indicated the most important reason for conserving water was because *it is the right thing to do* (Table 12). There continues to be a very high level of support for this rationale. The mean fell slightly from 8.34 in 2011 to 8.25 this year but the decline was not statistically significant. There were 91.2% on the "agree" side including 65.1% indicating they strongly agree with only 1.6% on the "disagree" side. These percentages are very similar to 2011 of 93.3% and 1.4%, respectively. The crosstabulations for this question of municipality and age are shown in Tables B42-B43 (Appendix B).

Table 12. I Conserve Water Because it is the Right Thing to Do.

Year	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
2017	398	8.25	0.8	0.0	0.3	0.5	7.3	1.5	6.8	17.8	65.1	91.2
2011	404	8.34	0.2	0.2	1.0	0.0	5.2	2.0	9.9	9.9	71.5	93.3

Those respondents who answered above the midpoint of 5 (or "agree" side of the scale) were subsequently asked to tell why it is the right thing to do. They were given three options including *to make sure there is enough water for the future*, *to protect the environment*, and *to save energy*. All these options ended up having a high degree of merit to the respondents (Table 13). Please note the percentages take into account respondents who selected all of the three options or two out of the three as important. This resulted in the percentages not adding up to 100%. The most important reason was *to make sure there is enough water in the future* (82.8%) and this increased in importance from 66.7% in 2011. *To protect the environment* remained the second most important reason selected by 67.4% of the respondents and virtually unchanged from 2011 (65.4%). Finally, *to save energy* finished third but gained importance rising from 39.5% in 2011 to 46.5% this year. In addition, the respondents who answered below 5 (or "disagree" side of the scale) were asked their reasons in an open-ended question (Appendix G). There were only 6 comments with 3 of the comments focusing on *conserving because of the high cost of water*. The crosstabulations for this question of municipality, housing, income, and age are shown in Tables B44-B47 (Appendix B).

Table 13. (For Responses Above 5) Tell Us Why it is the Right Thing to Do.

Year	n	To make sure there is enough water for the future	To protect the environment	To save energy
2017	389	82.8	67.4	46.5
2011	404	66.7	65.4	39.5

After *it is the right thing to do*, the respondents indicated the next most important reason to conserve water was *to comply with ordinances/laws* (Table 14). These ordinances and laws also served as a relatively strong water conservation reason. The mean was 7.31 with 74.2% of the respondents on the "agree" side including 47.0% replying they strongly agree with the statement. There was also a low percentage (7.4%) who answered on the "disagree" side. However, these percentages have declined from 2011 when they were 85.6% on the "agree" side and 6.6% on the "disagree" side. The mean fell from 7.84 in 2011 to 7.31 this year and this reduction was statistically significant. Overall, the importance of conserving water *to comply with ordinances/laws* has somewhat decreased as a conservation rationale, but it remains effective. The crosstabulations for this question of municipality, housing, and age are shown in Tables B48-B50 (Appendix B).

Table 14. I Conserve Water to Comply with Ordinances and Abide by the Law.

Year	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
2017	398	7.31*	3.3	1.8	1.8	0.5	18.6	2.3	11.3	13.6	47.0	74.2
2011	404	7.84	2.7	0.5	2.2	1.2	7.7	3.7	8.4	12.1	61.4	85.6

The water conservation rationale that ranked third was the respondents wanted *to save money* (Table 15). There was a slight decrease in the mean from 7.13 in 2011 to 7.08 this year (not statistically significant). This reduction was not statistically significant. There were 73.3% on the "agree" side of the scale including 44.5% who strongly agree. There were only 12.1% on the "disagree" side. These percentages are very similar to 2011 when they were 74.5% and 13.1%, respectively. Even with the decline, saving money still functioned as an effective rationale to conserve water. The crosstabulations for this question of municipality, income, and age are shown in Tables B51-B53 (Appendix B).

Table 15. I Conserve Water to Save Money.

Year	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
2017	400	7.08	4.8	3.0	1.5	2.8	14.8	3.0	16.3	9.5	44.5	73.3
2011	403	7.13	4.0	1.2	3.7	4.2	12.4	5.2	12.7	12.9	43.7	74.5

Effectiveness of Tools to Encourage Water Conservation

A set of questions examined the effectiveness of three tools to encourage water conservation. These tools included regulations like alternate day watering, the Town's website, and information provided by the Block Leader. A 9-point scale was utilized ranging from very ineffective (1) to very effective (9). The midpoint for this scale was average (5). The conservation tools will be ranked in order of effectiveness from highest to lowest means.

The respondents continued to indicate the most effective tool to encourage water conservation was regulations like alternate day watering (Table 16). However, there was a substantial mean decline since 2011 and this decline was statistically significant. The mean fell from 7.46 in 2011 to 4.86 this year. There were 42.2% responding on the "effective" side of the scale while 36.7% were on the "ineffective" side. In 2011, the same percentages were 81.4% and 6.1%, respectively. The possible explanation for the decline was evident in the reasons given by the respondents who answered on the "ineffective" side of the scale (Appendix H). There were 153 total comments and the most frequent response was *don't water lawn/don't use it* with 126 comments. Other comments included *regulations not enforced* (6 comments), *unaware of it* (5 comments), *it does not need to be enforced* (3 comments), and *I use well water* (3 comments). Those who responded they *don't water lawn/don't use it* generally rated alternate day watering with a score of 1 (very ineffective) which significantly impacted the mean. Note the 33.3% who responded with very ineffective this year. It is evident that fewer respondents water their lawns and/or use the regulation this year. For comparison, in 2011 there were only 9 comments for *don't water lawn/don't use it* compared to 126 comments this year. If these respondents were taken out of the ratings including well water users, then alternate day watering would rate 6.65. This would also be a statistically significant decline but not as severe. The crosstabulations for this question of municipality and housing are shown in Tables B54-B55 (Appendix B).

Table 16. Effectiveness of Regulations Like Alternate Day Watering.

Year	n	Mean	Very Ineffective 1	2	3	4	Average 5	6	7	8	Very Effective 9	% Above Midpoint
2017	400	4.86*	33.3	1.3	1.8	0.3	21.5	3.8	10.3	9.8	18.3	42.2
2011	404	7.46	2.2	1.0	2.2	0.7	12.4	6.4	13.4	16.3	45.3	81.4

The mean for the Town's website was rated second in importance but it has declined as well. The mean fell from 6.20 in 2011 to 4.28 this year and this decline was statistically significant. There were 32.9% on the "effective" side and 40.8% on the "ineffective" side (Table 17). The same percentages in 2011 were 58.6% versus 15.3% highlighting the decline in importance as a source of information. The reason for the decrease was evident in the comments from the respondents answering below the midpoint of 5 shown in Appendix I. There were 166 total comments and the most common themes were *don't use the website/don't use for water conservation information* (153 comments), *don't go online* (5 comments), and *unaware of it* (2 comments). The respondents who did not use the website tended to rate the website with a score of 1 which served to lower the mean significantly. Note the 38.3% who responded with very ineffective. In 2011, there were only 51 comments *don't use the website/no computer* which compares to the 158 this year (*don't use website* and *don't go online*). The crosstabulations for this question of municipality, housing, and age are shown in Tables B56-B58 (Appendix B).

Table 17. Effectiveness of the Town's Website.

Year	n	Mean	Very Ineffective 1	2	3	4	Average 5	6	7	8	Very Effective 9	% Above Midpoint
2017	399	4.28*	38.3	1.0	1.5	0.0	26.3	6.0	9.3	7.3	10.3	32.9
2011	387	6.20	7.5	2.6	3.6	1.6	26.1	9.0	15.5	10.1	24.0	58.6

Finally, there was a precipitous decline in importance for water conservation information provided by the Block Leader (Table 18). The mean fell from 4.73 in 2011 to 2.51 this year. There were only 5.8% of the responses on the "effective" side of the scale while 67.5% were on the "ineffective" side. In 2011, these percentages were 28.2% and 28.6%, respectively. The comments from the respondents answering on the "ineffective" side of the scale reveal a major issue of lack of awareness (Appendix J). There were 264 comments for *unaware of a Block Leader* and they also tended to rate the Block Leader program with a low score significantly reducing the mean. There were also 10 comments indicating *I have not received any information from a Block Leader* and 6 other comments for *don't have a Block Leader*. Overall, a key issue is the lack of awareness of the Block Leader Program. Later in this report, the Block Leader Program will rank the lowest as the best information source for water efficiency and have the lowest awareness for a Town water conservation initiative. The crosstabulations for this question of municipality and housing are shown in Tables B59-B60 (Appendix B).

Table 18. Effectiveness of Water Conservation Information Provided by Your Block Leader.

Year	n	Mean	Very Ineffective 1	2	3	4	Average 5	6	7	8	Very Effective 9	% Above Midpoint
2017	393	2.51*	64.4	1.8	1.3	0.0	26.7	1.5	0.8	1.0	2.5	5.8
2011	358	4.73	19.0	4.5	4.5	0.6	43.3	7.3	8.4	2.2	10.3	28.2

Watering Habits

A set of two questions examined the respondent's watering habits. The respondents were first asked how they water their grass (Table 19). A very large percentage (52.3%) of the sample choose not to water their lawn. The use of hose and sprinkler (26.4%) was the most common method to water lawns. There were only 12.6% of the respondents who used an automatic irrigation system. In 2011, this number was 22.0% showing the decline in automatic irrigation system usage. Finally, 8.8% of the respondents were not responsible for maintaining their lawn. The crosstabulations for this question of municipality, housing, income, age, and heard of alternate day watering ordinance are shown in Tables B61-B65 (Appendix B).

Table 19. What Best Describes How You Water Your Grass.

Year	n	We Choose Not to Water	We Use a Hose and Sprinkler	We Use an Automatic Irrigation System	We Are Not Responsible for Maintaining Our Lawn
2017	398	52.3	26.4	12.6	8.8

The respondents who indicated they use a hose and sprinkler or automatic irrigation system were subsequently asked their typical summer watering habits (Table 20). Most of them (71.0%) only water as needed. For those who watered more regularly, there were 18.7% who watered 3 days per week and 8.4% who watered less than 3 days per week. Only 1.9% indicated they watered more than 3 days per week. The responses indicate a relatively good level of efficient water usage. The crosstabulations for this question of municipality, income, age, method of watering grass, and heard of Beat the Peak are shown in Tables B66-B70 (Appendix B).

Table 20. What Best Describes Your Typical Summer Watering Habits (For Those Who Water Their Lawns).

Year	n	We Water 3 Days Per Week	We Water More Than 3 Days Per Week	We Water Less Than 3 Days Per Week	We Only Water as Needed
2017	155	18.7	1.9	8.4	71.0

Town of Cary Water Initiatives

The respondents were asked if they were aware of five Town of Cary water initiatives. Those who were aware, were then asked if they had participated in the initiative in the past two years (Table 21). The respondents were most aware of watering exemption permits (18.3%) and water audits (14.0%) with less awareness for Beat the Peak (7.5%), Fix-A-Leak Week (7.3%), and the Block Leader Program (6.8%). Since 2011, there has been a decline in awareness for watering exemption permits (24.6% to 18.3%) while water audits (10.6% to 14.0%) increased (Table 22). The awareness for all the other initiatives declined including Beat the Peak (11.8% to 7.5%), Fix-A-Leak (9.8% to 7.3%), and the Block Leader Program (13.1% to 6.8%). With regards to participation, the highest levels this year were for watering exemption permits (5.3%) and water audits (2.5%) with very limited participation for the other initiatives. Since 2011, participation in watering exemption permits (3.3% to 5.3%) and water audits (0.0% to 2.5%) has increased, while the other initiatives decreased slightly. However, examining only the respondents who were familiar with the initiatives, the participation level rises for watering exemption permits (28.8%), water audits (17.9%), Block Leader Program (11.1%), Fix-A-Leak (3.4%), and Beat the Peak (3.3%). The crosstabulations for municipality, housing, years in Town, and age are shown in Tables B71-B90 (Appendix B).

Table 21. Familiarity and Participation with Town of Cary Conservation Initiatives in 2017 – In Order of Awareness. (n=399)

2017 Cary Water Initiatives	% Yes	% No	% Not Sure	Total Sample % Participated
Watering exemption permits	18.3	79.7	2.0	5.3
Water audits	14.0	81.0	5.0	2.5
Beat the Peak	7.5	89.2	3.3	0.3
Fix-A-Leak Week	7.3	89.8	3.0	0.3
Block Leader Program	6.8	92.5	0.8	0.8

Table 22. Familiarity and Participation with Town of Cary Conservation Initiatives in 2011 – In Order of Awareness. (n=398)

2011 Cary Water Initiatives	% Yes	% No	% Maybe	Total Sample % Participated
Rain barrels	66.3	28.9	4.8	9.8
High-efficiency toilet rebate	36.2	59.0	4.7	5.8
Watering exception permits	24.6	72.4	3.0	3.3
Free water conservation devices	22.1	76.4	1.5	5.5
Water-Wise workshops	17.6	76.4	6.0	0.5
Turf buyback program	15.6	78.9	5.5	1.0
Block Leader Program	13.1	85.9	1.0	1.3
Beat the Peak	11.8	85.9	2.3	1.0
Water audits	10.6	86.9	2.5	0.0
Fix-A-Leak Week	9.8	87.9	2.3	1.5

Water Efficiency Information Sources

The respondents were asked what information sources would be best for receiving information about water efficiency from the Town of Cary. A total of 19 separate information sources were examined. The respondents chose postcards (82.8%) and BUD (78.9%) by a rather wide margin as the preferred information sources (Table 23). There were four other sources rating above 50% including television (57.0%), Cary's website (56.8%), Homeowners Associations (50.9%), and Cary's email list service (50.3%). It would seem a combination of these with postcards and BUD would reach the most residents. Text messages (42.3%) were also viewed as a relatively effective information source. The sources with middling rankings were Cary News (33.8%), radio (33.3%), Cary's Parks & Recreation Program Brochure (28.8%), Aquastar (28.8%), personal interaction with Town staff (25.1%), Raleigh News & Observer (23.3%), Cary Citizen website (21.0%), and Facebook (20.8%). The lowest rankings were given to Cary's TV 11 (10.5%), Twitter (10.5%), YouTube (7.0%), and Cary's Block Leader Program (5.8%). Appendix K shows the 11 responses to the other category for water efficiency information sources. The most common other information sources mentioned were *phone call/phone call with an automated message* with 3 comments and *Nextdoor* with 2 comments. The crosstabulations for this question of municipality, housing, years in Town, and age are shown in Tables B91-B105 (Appendix B).

Table 23. How Respondent Would Prefer to Receive Information About Water Efficiency from the Town of Cary in 2017 – In Order of Preference. (n=400)

2017 Information Source	% Yes	% No
Postcards	82.8	17.2
BUD	78.9	21.1
Television	57.0	43.0
Cary's website	56.8	43.2
Homeowners Association	50.9	49.1
Cary's email list service	50.3	49.7
Text messages	42.3	57.7
Cary News	33.8	66.2
Radio	33.3	66.7
Cary's Parks & Rec. Program Brochure	28.8	71.2
Personalized web presentment (Aquastar)	28.8	71.2
Personal Interaction with Town staff	25.1	74.9
Raleigh News & Observer	23.3	76.7
Cary Citizen website	21.0	79.0
Facebook	20.8	79.2
Cary's TV 11	10.5	89.5
Twitter	10.5	89.5
YouTube	7.0	93.0
Cary's Block Leader Program	5.8	94.2

There have been changes to the preferred information sources since 2011 (Table 24). Postcards and BUD shifted positions as #1 and #2 as the key information sources. Postcards percentage improved from 67.5% to 82.8% while BUD's percentage declined slightly from 83.2% to 78.9% this year. Television moved from #9 to #3 (45.1% to 57.0%), text messages moved from #20 to #7 (14.9% to 42.3%), and radio shifted from #17 to #9 (27.5% to 33.3%). Aquastar finished #10 (28.8%) this year.

The information sources remaining approximately the same were Cary's website remained at #4 (59.3% to 56.8%) and Homeowners Association moved from #6 to #5 (52.5% to 50.9%). The biggest declines were for Cary's email list service falling from #3 to #6 (60.2% to 50.3%), Cary News moving from #5 to #8 (55.5% to 33.8%), and Cary's Parks & Recreation Program Brochure which moved from #7 to #10 (47.4% to 28.8%). Also declining were Raleigh News & Observer falling from #8 to #13 (45.8% to 23.3%) and Cary Citizen Website falling from #11 to #14 (39.6% to 21.0%).

Table 24. How Respondent Would Prefer to Receive Information About Water Efficiency from the Town of Cary in 2011 – In Order of Preference. (n=395)

2011 Information Source	% Yes	% No
BUD	83.2	16.8
Postcards	67.5	32.5
Cary's email list service	60.2	39.8
Cary's website	59.3	40.7
Cary News	55.5	44.5
Homeowners Association	52.5	47.5
Cary's Parks & Rec. Program Brochure	47.4	52.6
Raleigh News & Observer	45.8	54.2
Television	45.1	54.9
Personal Interaction with Town staff	41.9	58.1
Cary Citizen website	39.6	60.4
Local businesses	39.2	60.8
Neighbors	38.5	61.5
Your children or grandchildren	31.5	68.5
Personalized web presentment for your account	31.1	68.9
Cary's TV 11	30.7	69.3
Radio	27.5	72.5
Independent Weekly	27.3	72.7
Cary's Block Leader program	19.5	80.5
Text messages	14.9	85.1
Twitter	14.1	85.9
YouTube	13.6	86.4

The respondents were also asked the most effective way to reach them in case of a water emergency such as line break, boil-water notice, or severe service drought (Table 25). The most effective methods to contact them would be text messages (78.4%) and door hangers (70.9%). Cary's email list service (64.3%) and television (56.4%) were also relatively effective. There was more limited effectiveness for radio (26.4%), Cary's website (25.9%), Nextdoor (22.9%), Facebook (19.3%), and ReadyWake Notification (18.5%). The least effective would be Twitter (9.0%) and Cary's Block Leader Program (6.3%). Appendix L shows the 391 responses (there could be more than one per respondent) to the other category for water emergency notification methods. There were 264 comments for *none* or no other method needed. *Telephone* (97 comments) and *email* (11 comments) were the methods mentioned most frequently. The crosstabulations for this question of municipality, housing, and age are shown in Tables B106-B116 (Appendix B).

Table 25. Most Effective Way to Reach Respondent in Case of Water Emergency – In Order of Preference. (n=397)

2017 Emergency Communication Source	% Yes	% No
Text messages	78.4	21.6
Door hanger	70.9	29.1
Cary's email list service	64.3	35.7
Television	56.4	43.6
Radio	26.4	73.6
Cary's website	25.9	74.1
NextDoor social media app	22.9	77.1
Facebook	19.3	80.7
ReadyWake Notification	18.5	81.5
Twitter	9.0	91.0
Cary's Block Leader Program	6.3	93.7

In terms of ReadyWake Notification, there were 16.8% of the respondents signed up for the service (Table 26). The crosstabulations for this question of municipality, housing, and age are shown in Tables B117-B119 (Appendix B).

Table 26. Are You Signed Up for the ReadyWake Emergency Notifications Service. (n=394)

ReadyWake	% Yes	% No
Signed up for ReadyWake Emergency Notification	16.8	83.2

Water Use Tools

The survey included a set of six questions examining Aquastar, water use graph, and high-water use notifications. Aquastar is the Town's online tool to view water use. The respondents were first asked if they knew about Aquastar and 34.8% indicated they were familiar with the service (Table 27). The crosstabulations for this question of municipality, years in Town, and age are shown in Tables B120-B122 (Appendix B).

Table 27. Do You Know About Aquastar. (n=400)

Aquastar	% Yes	% No
Knowledge of Aquastar	34.8	65.2

The respondents who indicated they knew about Aquastar were subsequently asked if they had set a leak alert through the service. Table 28 shows a leak alert was set by 23.4% of the respondents. The respondents who said "no" to this question were then asked the reason why. Their 104 total comments are shown in Appendix M with the most common responses being *unaware of it* (75 comments), *don't have the time* (5 comments), *I never thought to sign up* (4 comments), and *don't need it* (3 comments). Overall, there was a relatively high lack of awareness for the availability of this service. The crosstabulations for this question of municipality, years in Town, and age are shown in Tables B123-B125 (Appendix B).

Table 28. Have You Set a Leak Alert Through Aquastar. (n=141)

Aquastar	% Yes	% No
Set a Leak Alert	23.4	76.6

Table 29 shows a much larger percentage (75.5%) had tracked their water use through Aquastar. Reasons for the "no" responses are shown in Appendix N. There were 29 total comments and the most frequent ones were *not interested* (5 comments), *don't have the time* (5 comments), *don't need it* (4 comments), and *unaware of it* (2 comments). The crosstabulations for this question of municipality, years in Town, and age are shown in Tables B126-B128 (Appendix B).

Table 29. Have You Tracked Your Water Use Through Aquastar. (n=139)

Aquastar	% Yes	% No
Tracked water use	75.5	24.5

Finally, 81.7% of the respondents had looked at their water use graph on their water bill (Table 30). The crosstabulations for this question of municipality, housing, years in Town, and age are shown in Tables B129-B132 (Appendix B). Reasons for the "no" responses are shown in Appendix O. There were 23 total comments and the most frequent responses were *not interested* (5 comments), *don't have the time* (4 comments), and *unaware of it* (3 comments).

Table 30. Have You Looked at Your Water Use Graph on Your Water Bill. (n=142)

Water Use Graph	% Yes	% No
Looked at Water Use Graph on Water Bill	81.7	18.3

The entire sample was then asked if they had received an unusually high water use notification from the Town (Table 31). There were 17.6% of the respondents who received a notification. As to the notification method, most of the respondents (61.8%) were notified by a phone call (Table 32). Other notification methods included text message (8.8%), email (8.8%), in person (7.4%), door hanger (5.9%), and letter (5.9%).

Table 31. Have You Received an Unusually High Water Use Notification from the Town. (n=399)

High Water Use Notification	% Yes	% No
Have You Received a High Water Use Notification	17.6	82.4

Table 32. Unusually High Water Use Notification Method.

High Water Use Notification	n	Phone Call	Text Message	Email	In Person	Door Hanger	Letter	Listed on Bill
Notification Method	62	61.8	8.8	8.8	7.4	5.9	5.9	1.5

Water Conservation Actions

The survey included a set of four questions examining the respondent's actions to conserve water. The respondents were first asked if their household had taken any action to reduce their water use in the past five years. Table 33 shows 37.8% of the respondents had taken some action compared to 65.2% in 2011. It was a five-year window versus a two-year window in 2011 making this reduction somewhat surprising. Tables B133-B136 show the crosstabulations of municipality, housing, years in Town, and age for this question (Appendix B).

Table 33. In the Past Five Years has Your Household Taken Any Action to Reduce its Water Use.

Water Use	n	% Yes	% No
2017 – Taken action to reduce water use	399	37.8	62.2
2011 – Taken action to reduce water use	396	65.2	34.8

The respondents who answered "yes" were then asked about several actions both inside and outside the home to use water more wisely. Table 34 shows the 9 conservation actions (in order of usage) inside the home. The most used methods were *use clothes washer less or with fuller loads* (87.4%), *repaired leak in faucet or toilet* (86.7%), *use dishwasher less or with fuller loads* (84.0%), and *take shorter showers* (78.8%). Other slightly less used actions were *installed water-efficient clothes washer* (53.9%), *installed low-flow showerheads* (53.6%), *installed new toilets* (51.7%), and *installed water-efficient dishwasher* (41.7%). The least used action was *catch water in bucket to reuse while water warms* (18.5%). Appendix P shows the 17 responses to the other category with 2 comments each for *put blocks in toilet tank*, *catching water for watering plants*, and *turn off water when brushing teeth*. The crosstabulations for this question of municipality, housing, years in Town, and age are shown in Tables B137-B151 (Appendix B).

Table 34. Actions Taken to Use Water Wisely Inside the Home for 2017 – In Order of Usage. (n=150)

2017 Conservation Action Inside Home	% Yes	% No
Use clothes washer less or with fuller loads	87.4	12.6
Repaired leak in faucet or toilet	86.7	13.3
Use dishwasher less or with fuller loads	84.0	16.0
Take shorter showers	78.8	21.2
Installed water-efficient clothes washer	53.9	46.1
Installed low-flow showerheads	53.6	46.4
Installed new toilets	51.7	48.3
Installed water efficient dishwasher	41.7	58.3
Catch water in bucket to reuse while water warms	18.5	81.5

There have been several changes in the indoor actions to use water wisely list since 2011 (Table 35). The first change is the increase in "yes" percentages for all actions to reduce water usage. This could have been impacted by the fact it was a five-year window this year versus two-year window in 2011. The only action that declined in usage since 2011 was *catching water in bucket to reuse while water warms* which fell from 24.9% to 18.5%. The top four methods remain the same but with shuffling in the order. *Use of clothes washer less or with fuller loads* moved from #2 to #1 (68.6% to 87.4%) and *repaired leak in faucet or toilet* from #4 to #2 (53.6% to 86.7%). While *use dishwasher less or with fuller loads* fell from #1 to #3 (69.0% to 84.0%) and *take shorter showers* declined from #3 to #4 (62.5% to 78.8%). Among the other methods, three others moved up including *installed water-efficient clothes washer* from #6 to #5 (32.3% to 53.9%), *installed low-flow showerheads* from #8 to #6 (29.1% to 53.6%), and *installed new toilets* from #9 to #7 (27.2% to 51.7%). There was a slight decline for *installed water efficient dishwasher* (#7 to #8).

Table 35. Actions Taken to Use Water Wisely Inside the Home for 2011 – In Order of Usage. (n=258)

2011 Conservation Action Inside Home	% Yes	% No
Use dishwasher less or with fuller loads	69.0	31.0
Use clothes washer less or with fuller loads	68.6	31.4
Take shorter showers	62.5	37.5
Repaired leak in faucet or toilet	53.6	46.4
Used garbage disposal less often	37.3	62.7
Installed water-efficient clothes washer	32.3	67.7
Installed water-efficient dishwasher	31.2	68.8
Installed low-flow showerheads	29.1	70.9
Installed new toilets	27.2	72.8
Catch water in bucket to reuse while water warms	24.9	75.1
Installed water savers in toilet	14.1	85.9

The respondents were also asked what measures they had taken outside the home to use water wisely in the past five years. They were asked about their use of 11 outside water conservation methods. Table 36 shows these conservation methods ranked in order of usage. Note the percentages for usage are much lower overall than the inside methods indicating less application of these methods to conserve water this year. This is opposite of 2011 when outside methods were used more often than inside methods. The most utilized conservation methods outside the home were *wash car less often* (59.3%), *added mulch to landscaped areas* (56.4%), *used native plants to North Carolina* (56.1%), *add soil amendments* (55.0%), and *water lawn and shrubs less often* (52.3%). These were the only actions over the 50th percentile in usage. Other methods with a moderate degree of usage were *water 1 inch per week* (32.2%), *followed alternate day watering rules* (30.2%), and *water lawn and shrubs at night* (27.5%). The least used actions were *repaired damaged or leaking irrigation system* (19.6%), *reduced run times on automatic sprinklers* (13.5%), and *used cycling of water when watering* (4.0%).

Table 36. Actions Taken to Use Water Wisely Outside the Home in 2017 – In Order of Usage. (n=148)

2017 Conservation Action Outside Home	% Yes	% No
Wash car less often	59.3	40.7
Added mulch to landscape areas	56.4	43.6
Used native plants to North Carolina in landscape	56.1	43.9
Add soil amendments to improve soil conditions	55.0	45.0
Water lawn and shrubs less often	52.3	47.7
Water 1 inch or less per week including rainfall	32.2	67.8
Followed alternate day watering rules	30.2	69.8
Water lawn and shrubs at night	27.5	72.5
Repaired damaged or leaking irrigation system	19.6	80.4
Reduced run times on automatic sprinklers	13.5	86.5
Used cycling of water when watering	4.0	96.0

The changes from 2011 have been substantial, especially among the top four actions (Table 37). The percentage usage has declined for most of the outside water saving actions. *Wash car less often* moved from #3 to #1 while the percentage fell slightly (64.4% to 59.3%) and *add mulch to landscape areas* moved from #4 to #2 (62.9% to 56.4%). *Used native plants to North Carolina* moved from #7 to #3 and this percentage actually increased from 44.2% to 56.1%. This was also the case for *add soil amendments* moving from #9 to #4 (43.2% to 55.0%). The largest declines were for *water lawn and shrubs less often* dropped from #1 to #5 (74.7% to 52.3%) and *followed alternate day watering rules* fell from #2 to #7 (72.0% to 30.2%). In terms of irrigation systems, note the large decline in the percentages for *repaired damaged or leaking irrigation system* (46.1% to 19.6%) and *reduced run time on automatic sprinklers* (43.5% to 13.5%) this year.

Table 37. Actions Taken to Use Water Wisely Outside the Home in 2011 – In Order of Usage. (n=258)

2011 Conservation Action Outside Home	% Yes	% No
Water lawn and shrubs less often	74.7	25.3
Followed alternate day watering rules	72.0	28.0
Wash car less often	64.4	35.6
Added mulch to landscape areas	62.9	37.1
Water 1 inch or less per week including rainfall	49.0	51.0
Repaired damaged or leaking irrigation system	46.1	53.9
Used native plants to North Carolina in landscape	44.2	55.8
Reduced run times on automatic sprinklers	43.5	56.5
Add soil amendments to improve soil conditions	43.2	56.8
Water lawn and shrubs at night	31.1	68.9
Used cycling of water when watering	27.5	72.5

The most prominent overall changes since 2011 for the outside watering actions were for those actions related to watering the lawn and irrigation systems usage. Note the reductions in the percentages for the lawn watering/irrigation system actions including *water lawn and shrubs less often*, *water 1 inch or less per week*, *water lawn and shrubs at night*, *followed alternate watering rules*, *repaired damaged or leaking irrigation system*, *reduced run time on automatic sprinklers*, and *used cycling of water when watering*. What has moved to the top of the table this year were four non-lawn watering actions including *wash car less often*, *add mulch to landscape areas*, *use native plants to North Carolina*, and *add soil amendments*. Appendix Q shows the 18 responses to the other category. The most common responses were *use rain barrels* (5 comments), *stopped watering* (3 comments), and *planted grass that takes less watering* (2 comments). The crosstabulations for this question of municipality, housing, years in Town, income, and age are shown in Tables B152-B171 (Appendix B).

The respondents who had taken actions to reduce their water usage in the past five years were additionally asked if their house was built after 1994. There were 60.0% of the homes built after 1994, 34.7% were built before then, while 5.3% did not know. The crosstabulations for this question of municipality, housing, years in Town, and age are shown in Tables B172-B175 (Appendix B).

The final question in this set asked the respondents if they were satisfied with their household's water efficiency efforts. Overall the respondents were generally satisfied with their efforts. The mean was 7.33 with 89.3% on the "satisfied" side of the scale and only 0.7 on the "dissatisfied" side. However, there appears to be some room for improvement. Note that only 18.0% were very satisfied while 60.0% responded with either a 7 or 8 leaving an opportunity to move more into the very satisfied area. The crosstabulations for this question of municipality, housing, income, and age are shown in Tables B176-B179 (Appendix B).

Table 38. Satisfaction with Your Household's Water Efficiency Efforts.

Year	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
2017	150	7.33	0.0	0.7	0.0	0.0	10.0	11.3	28.7	31.3	18.0	89.3

Town Watering Ordinances

The final set of questions explored the respondent's awareness of three of the Town's watering ordinances including water waste, rain sensor, and alternate day watering. Table 39 shows the highest awareness (59.4%) was for alternate day watering. The level of awareness has declined for all these ordinances since 2011 (Table 40). The awareness fell for alternate day watering ordinance (89.0% to 59.4%), rain sensor ordinance (21.7% to 14.8%), and water waste ordinance (25.3% to 7.5%). The crosstabulations for these ordinances for municipality, years in Town, age, method of watering grass, summer watering habits, and tracked water use through Aquastar are shown in Tables B180-B197 (Appendix B).

Table 39. Awareness of the Town's Watering Ordinances in 2017 – In Order of Awareness. (n=399)

2017 Town Watering Ordinances	% Yes	% No	% Maybe
Alternate day watering ordinance	59.4	37.6	3.0
Rain sensor ordinance	14.8	81.5	3.8
Water waste ordinance	7.5	83.5	9.0

Table 40. Awareness of the Town's Watering Ordinances in 2011 – In Order of Awareness. (n=390)

2011 Town Watering Ordinances	% Yes	% No	% Maybe
Alternate day watering ordinance	89.0	10.0	1.0
Water waste ordinance	25.3	69.4	5.4
Water shortage response plan	23.1	70.3	6.7
Rain sensor ordinance	21.7	74.9	3.3

The respondents who were aware of the alternate day watering ordinance were asked if they knew their watering days. Table 41 shows that only 12.8% knew it was even, 16.5% odd, and 70.8% were not sure. There is a much higher level of uncertainty compared to 2011 when 43.3% were not sure of their watering day. The crosstabulations for awareness of watering days for municipality, years in Town, age, method of watering grass, summer watering habits, and tracked water use through Aquastar are shown in Tables B198-B203 (Appendix B).

Table 41. (For Those Aware of Alternate Day Watering Ordinances) What Are Your Days for Watering.

Year	n	Wed/Fri/Sun	Tue/Thur/Sat	Not Sure
2017	243	12.8	16.5	70.8
2011	351	27.6	29.1	43.3

Appendix A

Town of Cary
2017 Water Services Survey

Hello, my name is _____ and I am calling for the Town of Cary. Cary manages the water utility for both your community and your responses will help the Town meet its commitment to provide reliable water services to our citizens. The results of this survey are combined into a report which will be available to the public.

Do you receive a water bill from the Town of Cary?

❑ Yes (Continue) ❑ No (Stop and thank the respondent)

Are you over the age of 18?

❑ Yes (Continue) ❑ No (Ask politely to speak with someone over 18)

For this section of the survey you will be read several statements and please indicate your level of agreement with the statement. Please use a scale from 1 to 9, where 1 is strongly disagree and 9 is strongly agree, and 5 is neutral.

1. Your community has sufficient water supplies for the future. (Remind of scale if needed)

1	2	3	4	5	6	7	8	9
Strongly Disagree				**Neutral**				**Strongly Agree**

2. Efficient water use is crucial to the future of your community.

1	2	3	4	5	6	7	8	9
Strongly Disagree				**Neutral**				**Strongly Agree**

3. The amount of water your household uses impacts whether your community has sufficient water for the future.

1	2	3	4	5	6	7	8	9
Strongly Disagree				**Neutral**				**Strongly Agree**

4. Town of Cary sewer services do a good job protecting public health and the environment.

1	2	3	4	5	6	7	8	9
Strongly Disagree				**Neutral**				**Strongly Agree**

5. The overall water use at my home is less than, more than, or the same as the average household in your community?

❑ **Less than** ❑ **More than** ❑ **Same** ❑ **Not Sure**

6. Thinking about both indoor and outdoor water use, do you know how much water your household uses on average each day?

❑ Yes How many gallons? _____
❑ No

7. Please tell us which of the following is our drinking water source?

❑	❑	❑	❑	❑	❑
Jordan Lake	**Falls Lake**	**Wells**	**Raleigh**	**Atlantic Ocean**	**Don't Know**

For the next set of questions, please indicate your satisfaction using a 9-point scale where 1 is very dissatisfied and 9 is very satisfied, and 5 is neutral.

8. How satisfied are you with your day-to-day water/sewer utility services?

1	2	3	4	5	6	7	8	9
Very Dissatisfied				**Neutral**				**Very Satisfied**

(For responses below 5) Please tell us the reason.

_____

9. How satisfied are you with the taste and quality of your drinking water?

1	2	3	4	5	6	7	8	9
Very Dissatisfied				**Neutral**				**Very Satisfied**

(For responses below 5) Please tell us the reason.

_____

10. How satisfied are you with how the Town implements its water efficiency program such as public outreach, education, and water audits?

1	2	3	4	5	6	7	8	9
Very Dissatisfied				**Neutral**				**Very Satisfied**

(For responses below 5) Please tell us the reason.

_____

11. How satisfied are you with how the Town provides water-related information?

1	2	3	4	5	6	7	8	9
Very Dissatisfied				**Neutral**				**Very Satisfied**

(For responses below 5) Please tell us the reason.

_____

To what extent do you agree with the following statements? Please use the scale from 1 to 9, where 1 is strongly disagree and 9 is strongly agree, and 5 is neutral.

12. I conserve water because I want to save money. (Remind of scale if needed)

1	2	3	4	5	6	7	8	9
Strongly Disagree				**Neutral**				**Strongly Agree**

13. I conserve water to comply with ordinances and abide by the law.

1	2	3	4	5	6	7	8	9
Strongly Disagree				**Neutral**				**Strongly Agree**

14. I conserve water because it's the right thing to do.

1	2	3	4	5	6	7	8	9
Strongly Disagree				**Neutral**				**Strongly Agree**

(For responses above 5) Please tell us why it is the right thing to do? (Read choices)

❑ **To make sure there is enough water for the future**

❑ **To protect the environment**

❑ **To save energy**

(For responses below 5) Please tell us the reason.

_____

The following are tools the Town uses to encourage water efficiency. Please rate how effective each of these are in influencing your actions to conserve water using a 9-point scale where 1 is very ineffective and 9 is very effective, 5 is average.

15. How effective are regulations, like alternate day watering? (Remind of scale if needed)

1	2	3	4	5	6	7	8	9
Very Ineffective				**Average**				**Very Effective**

(For responses below 5) Please tell us the reason.

_____

16. How effective is the Town's website in helping you conserve?

1	2	3	4	5	6	7	8	9
Very Ineffective				**Average**				**Very Effective**

(For responses below 5) Please tell us the reason.

_____

17. How effective is water conservation information provided by your Block Leader?

1	2	3	4	5	6	7	8	9
Very Ineffective				**Average**				**Very Effective**

(For responses below 5) Please tell us the reason.

_____

18. Which best describes how you water your grass?

- ❑ We choose not to water (Skip to #20)
- ❑ We use a hose and sprinkler (continue)
- ❑ We use an automatic irrigation system (continue)
- ❑ We are not responsible for maintaining our lawn (Skip to #20)

19. I'm going to read you 4 options, which one best describes your typical summer watering habits?

- ❑ We water 3 days per week
- ❑ We water more than 3 days per week
- ❑ We water less than 3 days per week
- ❑ We water only as needed

20. I am going to read a list of some Town of Cary initiatives. Please tell me with yes, no, or not sure if you have heard of them. (If yes, then asked if they participated in the program anytime in the past two years as a Cary utility customer)

	Yes	No	Not Sure	Participated
20a. Water audits	❑	❑	❑	❑
20b. Block leader program	❑	❑	❑	❑
20c. Fix-A-Leak Week	❑	❑	❑	❑
20d. Beat the Peak (Town's summer irrigation campaign)	❑	❑	❑	❑
20e. Watering exemption permits	❑	❑	❑	❑

21. How would you prefer to receive information about water efficiency from your water utility provider, the Town of Cary? (Read Choices)

	Yes	No
21a. Cary News	❑	❑
21b. BUD (Cary's water & sewer newsletter) or Morrisville's Newsletter	❑	❑
21c. Television	❑	❑
21d. Radio	❑	❑
21e. Raleigh News & Observer	❑	❑
21f. Cary's website	❑	❑
21g. Cary's email list service	❑	❑
21h. Cary's TV 11 (Cary's Government Access Cable Channel)	❑	❑
21i. Cary's Block Leader Program	❑	❑
21j. Cary's Parks, Recreation, and Cultural Resources Program Brochure	❑	❑
21k. Postcards	❑	❑
21l. Homeowners Association	❑	❑
21m. Personal interaction with Town staff	❑	❑
21n. Personalized web presentment for your account (Aquastar)	❑	❑
21o. Twitter	❑	❑
21p. YouTube	❑	❑
21q. Text messages	❑	❑
21r. Cary Citizen website	❑	❑
21s. Facebook	❑	❑

21t. Other _____

22. Do you know about Aquastar, the Town's online tool to view your water use?

❑ Yes (Continue) ❑ No (Skip to #24)

22a. Have you set a leak alert through Aquastar?

❑ Yes
❑ No Why?_____

22b. Have you tracked your water use through Aquastar?

❑ Yes
❑ No Why?_____

23. Have you looked at your water use graph on your water bill?

❑ Yes
❑ No Why?_____

24. Have you received notification from the Town of unusually high water use?

❑ Yes ❑ No

If yes, then ask how were you notified? (Read choices)

❑ Phone call ❑ Text message ❑ Email ❑ In person

25. In the past 5 years has your household taken any action to reduce its water use?

❑ Yes (Continue) ❑ No (Skip to #29)

26. I am going to read a list of actions to use water wisely inside your home. Please indicate all that apply within the last 5 years.

	Yes	No
26a. Installed water-efficient clothes washer	❑	❑
26b. Take shorter showers	❑	❑
26c. Installed low-flow showerheads	❑	❑
26d. Installed new toilets	❑	❑
26e. Use dishwasher less or with fuller loads	❑	❑
26f. Use clothes washer less or with fuller loads	❑	❑
26g. Repaired leaks in faucet or toilet	❑	❑
26h. Catch water in bucket to reuse while waiting for water to get hot	❑	❑
26i. Installed water-efficient dishwasher	❑	❑
26j. Other _____		

Was your home constructed after 1994? ❑ Yes ❑ No ❑ Don't Know

27. Using a 9-point scale where 1 is very dissatisfied, 9 is very satisfied, and 5 is neutral, how satisfied are you with your household's water efficiency efforts?

1	2	3	4	5	6	7	8	9
Very Dissatisfied				Neutral				Very Satisfied

28. I am going to read a list of actions to use water wisely outside your home. Please indicate whether you've done each of them in the past 5 years.

	Yes	No
28a. Washed car less often	❑	❑
28b. Watered lawn and shrubs less often	❑	❑
28c. Watered lawn and shrubs at night	❑	❑
28d. Watered one inch or less per week including rainfall	❑	❑
28e. Added soil amendments (fertilizer or organics) to improve soil conditions	❑	❑
28f. Added mulch to landscape areas (flowers, shrubs, gardens)	❑	❑
28g. Used native plants to North Carolina in your landscape	❑	❑
28h. Reduced run times on automatic sprinklers	❑	❑
28i. Repaired damaged or leaking irrigation system	❑	❑
28j. Used cycling of water such as 5 minutes on, one hour off, repeated	❑	❑
28k. Followed the alternate day water rules	❑	❑
28l. Other _____		

29. I am going to ask you about Town watering ordinances. Please tell me whether you are aware of each.

	Yes	No	Maybe
29a. Water Waste Ordinance	❑	❑	❑
29b. Rain Sensor Ordinance	❑	❑	❑
29c. Alternate Day Watering Ordinance	❑	❑	❑

If yes, then ask what days are their watering days?

❑ **Wed/Fri/Sun** ❑ **Tue/Thur/Sat** ❑ **Not sure**

30. Which of the following are effective ways to reach you in the case of a water emergency, such as a line break, boil-water notice, or severe drought?

	Yes	No
30a. Television	❑	❑
30b. Radio	❑	❑
30c. Cary's website	❑	❑
30d. Cary's email list service	❑	❑
30e. Door hanger	❑	❑
30f. Cary's Block Leader Program	❑	❑
30g. Twitter	❑	❑
30h. Facebook	❑	❑
30i. Text messages	❑	❑
30j. ReadyWake Notification	❑	❑
30k. NextDoor social media app	❑	❑

31. What, if any, other platform(s) should we use to communicate a water emergency to you?

_____

32. Are you signed up for the ReadyWake emergency notifications service?

❑ Yes ❑ No

That concludes our questions about your community. Now tell us a little about yourself.

33. How many years have you lived in your community?

❑ 0-1 ❑ 2-5 ❑ 6-10 ❑ 11-20 ❑ More than 20 ❑ Cary Native

34. Which of the following best describes where you live?

❑ Single family ❑ Apartment ❑ Townhouse ❑ Condominium ❑ Mobile home ❑ Duplex ❑ Other _____

35. Stop me when I reach the age group you fall in.

❑ 18-25 ❑ 26-35 ❑ 36-45 ❑ 46-55 ❑ 56-65 ❑ 66-75 ❑ Over 75

36. Please tell me the last grade or degree completed in school.

❑ High School or less ❑ Some College or Technical ❑ Bachelors Degree ❑ Masters Degree ❑ PhD, JD, MD

37. How many people live in your home? _____

38. Stop me when I reach your household income level?

❑	❑	❑	❑	❑
0- $45,000	$45,001-$75,000	$75,001-$100,000	$100,001-$150,000	Over $150,000

39. By voice: ❑ Male ❑ Female

Thank you for participating in the survey. Your opinion is very important to the Town.

Appendix B: Crosstabulations

Water Related Issues: Sufficient Water Supplies Crosstabulations

Table B1. The Community has Sufficient Water Supplies for the Future by Municipality.

Municipality	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
Cary	343	7.10	1.5	1.2	2.3	1.5	23.3	6.1	9.9	17.5	36.7	70.2
Morrisville	48	7.29	4.2	0.0	2.1	0.0	18.8	2.1	12.5	18.8	41.7	75.1

Table B2. The Community has Sufficient Water Supplies for the Future by Housing.

Housing	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
Single Family	297	7.13	1.7	1.3	2.4	1.7	19.9	7.1	10.1	20.2	35.7	73.1
Townhouse/Condo	77	7.35	0.0	0.0	1.3	0.0	29.9	1.3	11.7	10.4	45.5	68.9
Apartment	11	6.73	0.0	0.0	9.1	0.0	36.4	0.0	9.1	9.1	36.4	54.6
Other	2	7.00	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	50.0	50.0

Table B3. The Community has Sufficient Water Supplies for the Future by Years in Town.

Years in Town	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
0-1	43	7.00	2.3	0.0	2.3	2.3	32.6	0.0	7.0	11.6	41.9	60.5
2-5	125	7.36	0.8	0.8	3.2	0.0	20.8	4.8	9.6	16.0	44.0	74.4
6-10	88	7.08	3.4	2.3	1.1	1.1	18.2	6.8	10.2	22.7	34.1	73.8
11-20	68	7.25	1.5	0.0	1.5	1.5	23.5	2.9	13.2	17.6	38.2	71.9
Over 20	64	6.83	0.0	1.6	3.1	3.1	23.4	12.5	10.9	18.8	26.6	68.8

Table B4. The Community has Sufficient Water Supplies for the Future by Age.

Age	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
18-25	8	6.75	12.5	0.0	0.0	0.0	25.0	0.0	0.0	25.0	37.5	62.5
26-35	51	7.35	0.0	0.0	5.9	0.0	19.6	7.8	7.8	11.8	47.1	74.5
36-45	113	7.26	1.8	1.8	1.8	0.9	19.5	6.2	7.1	22.1	38.9	74.3
46-55	95	7.08	2.1	1.1	1.1	2.1	20.0	5.3	18.9	16.8	32.6	73.6
56-65	53	6.75	1.9	1.9	1.9	3.8	32.1	3.8	5.7	15.1	34.0	58.6
66-75	37	7.51	0.0	0.0	0.0	0.0	24.3	2.7	10.8	21.6	40.5	75.6
Over 75	31	6.94	0.0	0.0	6.5	0.0	29.0	6.5	9.7	12.9	35.5	64.6

Water Related Issues: Efficient Water Use Crosstabulations

Table B5. Efficient Water Use is Crucial to the Future of Your Community by Municipality.

Municipality	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
Cary	349	8.32	0.6	0.0	0.0	0.0	5.7	2.3	7.4	18.9	65.0	93.6
Morrisville	48	8.73	0.0	0.0	0.0	0.0	0.0	2.1	6.3	8.3	83.3	100.0

Table B6. Efficient Water Use is Crucial to the Future of Your Community by Housing.

Housing	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
Single Family	300	8.36	0.3	0.0	0.0	0.0	4.7	2.7	8.0	18.7	65.7	95.1
Townhouse/Condo	78	8.37	1.3	0.0	0.0	0.0	6.4	1.3	3.8	15.4	71.8	92.3
Apartment	12	8.67	0.0	0.0	0.0	0.0	0.0	0.0	8.3	16.7	75.0	100.0
Other	3	7.67	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	66.7	66.7

Table B7. Efficient Water Use is Crucial to the Future of Your Community by Years in Town.

Years in Town	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
0-1	46	8.11	0.0	0.0	0.0	0.0	10.9	4.3	8.7	15.2	60.9	89.1
2-5	125	8.49	0.0	0.0	0.0	0.0	4.8	0.8	4.8	20.0	69.6	95.2
6-10	90	8.40	0.0	0.0	0.0	0.0	4.4	2.2	10.0	15.6	67.8	95.6
11-20	69	8.28	2.9	0.0	0.0	0.0	4.3	2.9	2.9	17.4	69.6	92.8
Over 20	64	8.36	0.0	0.0	0.0	0.0	3.1	3.1	12.5	17.2	64.1	96.9

Table B8. Efficient Water Use is Crucial to the Future of Your Community by Age.

Age	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
18-25	8	7.88	0.0	0.0	0.0	0.0	25.0	0.0	0.0	12.5	62.5	75.0
26-35	52	8.29	0.0	0.0	0.0	0.0	11.5	0.0	1.9	21.2	65.4	88.5
36-45	113	8.39	0.9	0.0	0.0	0.0	2.7	3.5	8.0	16.8	68.1	96.4
46-55	97	8.38	1.0	0.0	0.0	0.0	3.1	3.1	7.2	17.5	68.0	95.8
56-65	56	8.43	0.0	0.0	0.0	0.0	3.6	0.0	12.5	17.9	66.1	96.5
66-75	37	8.22	0.0	0.0	0.0	0.0	10.8	0.0	5.4	24.3	59.5	89.2
Over 75	31	8.61	0.0	0.0	0.0	0.0	0.0	3.2	9.7	9.7	77.4	100.0

Water Related Issues: Water Use Impact on Community Crosstabulations

Table B9. The Amount of Water Your Household Uses Impacts Whether Your Community has Sufficient Water for the Future by Municipality.

Municipality	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
Cary	349	7.66	0.6	1.1	1.4	0.3	12.6	4.9	15.5	15.2	48.4	84.0
Morrisville	48	6.98	4.2	2.1	4.2	4.2	16.7	6.3	8.3	6.3	47.9	68.8

Table B10. The Amount of Water Your Household Uses Impacts Whether Your Community has Sufficient Water for the Future by Housing.

Housing	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
Single Family	300	7.65	0.3	1.3	1.0	0.3	13.3	4.7	16.0	15.7	47.3	83.7
Townhouse/Condo	78	7.41	2.6	1.3	5.1	1.3	11.5	5.1	10.3	10.3	52.6	78.3
Apartment	12	6.75	8.3	0.0	0.0	8.3	16.7	8.3	8.3	8.3	41.7	66.6
Other	3	6.67	0.0	0.0	0.0	0.0	33.3	33.3	0.0	0.0	33.3	66.6

Table B11. The Amount of Water Your Household Uses Impacts Whether Your Community has Sufficient Water for the Future by Years in Town.

Years in Town	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
0-1	46	7.67	2.2	0.0	2.2	2.2	13.0	0.0	17.4	4.3	58.7	80.4
2-5	125	7.50	1.6	0.8	1.6	1.6	12.0	8.0	12.8	16.0	45.6	82.4
6-10	90	7.58	1.1	2.2	0.0	0.0	14.4	4.4	15.6	15.6	46.7	82.3
11-20	68	7.56	0.0	1.5	4.4	0.0	10.3	7.4	14.7	14.7	47.1	83.9
Over 20	65	7.63	0.0	1.5	1.5	0.0	16.9	1.5	15.4	13.8	49.2	79.9

Table B12. The Amount of Water Your Household Uses Impacts Whether Your Community has Sufficient Water for the Future by Age.

Age	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
18-25	8	8.13	0.0	0.0	0.0	0.0	0.0	0.0	37.5	12.5	50.0	100.0
26-35	52	7.63	0.0	0.0	1.9	1.9	17.3	7.7	5.8	11.5	53.8	78.8
36-45	113	7.55	0.9	1.8	2.7	0.0	11.5	6.2	15.9	13.3	47.8	83.2
46-55	97	7.57	1.0	2.1	2.1	1.0	11.3	4.1	13.4	18.6	46.4	82.5
56-65	57	7.32	1.8	0.0	0.0	1.8	19.3	3.5	24.6	8.8	40.4	77.3
66-75	37	7.76	0.0	2.7	2.7	0.0	8.1	5.4	10.8	18.9	51.4	86.5
Over 75	30	7.73	3.3	0.0	0.0	0.0	16.7	0.0	10.0	13.3	56.7	80.0

Water Related Issues: Protecting Public Health and the Environment Crosstabulations

Table B13. Town of Cary Sewer Services Does a Good Job Protecting Public Health and the Environment by Municipality.

Municipality	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
Cary	347	7.99	0.9	0.0	0.3	0.3	10.1	3.2	9.5	21.6	54.2	88.5
Morrisville	48	7.88	0.0	0.0	0.0	0.0	12.5	0.0	22.9	16.7	47.9	87.5

Table B14. Town of Cary Sewer Services Does a Good Job Protecting Public Health and the Environment by Housing.

Housing	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
Single Family	299	8.01	0.3	0.0	0.0	0.3	9.7	3.3	11.7	22.4	52.2	89.6
Townhouse/Condo	78	7.78	2.6	0.0	1.3	0.0	12.8	1.3	10.3	17.9	53.8	83.3
Apartment	12	8.00	0.0	0.0	0.0	0.0	16.7	0.0	8.3	16.7	58.3	83.3
Other	2	9.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

Table B15. Town of Cary Sewer Services Does a Good Job Protecting Public Health and the Environment by Years in Town.

Years in Town	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
0-1	44	7.86	2.3	0.0	2.3	0.0	11.4	0.0	6.8	22.7	54.5	84.0
2-5	125	7.91	0.8	0.0	0.0	0.0	11.2	3.2	14.4	19.2	51.2	88.0
6-10	90	8.04	0.0	0.0	0.0	1.1	8.9	5.6	8.9	20.0	55.6	90.1
11-20	69	7.99	1.4	0.0	0.0	0.0	8.7	0.0	13.0	29.0	47.8	89.8
Over 20	64	8.11	0.0	0.0	0.0	0.0	10.9	3.1	9.4	17.2	59.4	89.1

Table B16. Town of Cary Sewer Services Does a Good Job Protecting Public Health and the Environment by Age.

Age	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
18-25	8	8.25	0.0	0.0	0.0	0.0	12.5	0.0	12.5	0.0	75.0	87.5
26-35	51	7.39	2.0	0.0	2.0	0.0	17.6	3.9	17.6	15.7	41.2	78.4
36-45	113	8.16	0.9	0.0	0.0	0.0	5.3	3.5	9.7	25.7	54.9	93.8
46-55	97	8.06	0.0	0.0	0.0	1.0	9.3	3.1	9.3	23.7	53.6	89.7
56-65	55	7.45	1.8	0.0	0.0	0.0	20.0	3.6	14.5	20.0	40.0	78.1
66-75	37	8.51	0.0	0.0	0.0	0.0	2.7	0.0	8.1	21.6	67.6	97.3
Over 75	31	8.29	0.0	0.0	0.0	0.0	9.7	0.0	9.7	12.9	67.7	90.3

Water Usage Issues: Perception of Water Usage Crosstabulations

Table B17. The Overall Water Use at Your Home is Less Than, More Than, or the Same as the Average Household in Your Community by Municipality.

Municipality	n	Less Than	More Than	Same	Not Sure
Cary	352	32.1	11.6	34.9	21.3
Morrisville	48	39.6	4.2	20.8	35.4

Table B18. The Overall Water Use at Your Home is Less Than, More Than, or the Same as the Average Household in Your Community by Knowledge of Daily Water Usage.

Knowledge of Daily Water Usage	n	Less Than	More Than	Same	Not Sure
Yes	34	44.1	11.8	20.6	23.5
No	365	32.1	10.4	34.5	23.0

Water Usage Issues: Knowledge of Household Water Usage on an Average Day Crosstabulations

Table B19. Knowledge of How Much Indoor and Outdoor Water Your Household Uses on Average Each Day by Municipality.

Municipality	n	% Yes	% No
Cary	351	8.8	91.2
Morrisville	48	6.3	93.8

Table B20. Knowledge of How Much Indoor and Outdoor Water Your Household Uses on Average Each Day by Age.

Age	n	% Yes	% No
18-25	8	0.0	100.0
26-35	52	13.5	86.5
36-45	113	8.0	92.0
46-55	98	8.2	91.8
56-65	56	8.9	91.1
66-75	38	7.9	92.1
Over 75	31	6.5	93.5

Table B21. Knowledge of How Much Indoor and Outdoor Water Your Household Uses on Average Each Day by Tracked Water Use Through Aquastar.

Tracked Water Use Through Aquastar	n	% Yes	% No
Yes	104	16.3	83.7
No	34	5.9	94.1

Table B22. Knowledge of How Much Indoor and Outdoor Water Your Household Uses on Average Each Day by Looked at Water Use Graph on Water Bill.

Looked at Water Use Graph on Water Bill	n	% Yes	% No
Yes	115	14.8	85.2
No	26	7.7	92.3

Water Usage Issues: Perception Community Drinking Water Source Crosstabulations

Table B23. Perceived Community Drinking Water Source by Municipality.

Municipality	n	Jordan Lake	Falls Lake	Wells	Raleigh	Atlantic Ocean	Don't Know
Cary	352	40.6	2.3	0.6	0.3	0.3	56.0
Morrisville	48	39.6	2.1	0.0	0.0	0.0	58.3

Table B24. Perceived Community Drinking Water Source by Years in Town.

Years in Town	n	Jordan Lake	Falls Lake	Wells	Raleigh	Atlantic Ocean	Don't Know
0-1	46	15.2	0.0	0.0	0.0	0.0	84.8
2-5	125	28.0	0.8	0.0	0.0	0.0	71.2
6-10	90	48.9	3.3	1.1	0.0	1.1	45.6
11-20	70	47.1	4.3	1.4	0.0	0.0	47.1
Over 20	66	63.6	3.0	0.0	1.5	0.0	31.8

Table B25. Perceived Community Drinking Water Source by Education.

Education	n	Jordan Lake	Falls Lake	Wells	Raleigh	Atlantic Ocean	Don't Know
High School or Less	31	32.3	0.0	6.5	0.0	3.2	58.1
Some College/Tech	70	35.7	1.4	0.0	1.4	0.0	61.4
Bachelors	150	42.0	4.0	0.0	0.0	0.0	54.0
Masters	109	43.1	1.8	0.0	0.0	0.0	55.0
PhD/JD/MD	34	44.1	0.0	0.0	0.0	0.0	55.9

Table B26. Perceived Community Drinking Water Source by Age.

Age	n	Jordan Lake	Falls Lake	Wells	Raleigh	Atlantic Ocean	Don't Know
18-25	8	12.5	0.0	0.0	0.0	0.0	87.5
26-35	52	19.2	1.9	0.0	1.9	1.9	75.0
36-45	113	37.2	2.7	0.0	0.0	0.0	60.2
46-55	98	45.9	3.1	0.0	0.0	0.0	51.0
56-65	57	49.1	1.8	0.0	0.0	0.0	49.1
66-75	38	50.0	0.0	2.6	0.0	0.0	47.4
Over 75	31	51.6	3.2	3.2	0.0	0.0	41.9

Satisfaction with Day-to-Day Water/Sewer Utility Services Crosstabulations

Table B27. Satisfaction with Your Day-To-Day Water/Sewer Utility Services by Municipality.

Municipality	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
Cary	352	8.16	1.4	0.0	0.9	1.1	2.8	3.4	11.4	17.6	61.4	93.8
Morrisville	48	7.88	2.1	0.0	0.0	2.1	8.3	4.2	10.4	18.8	54.2	87.6

Table B28. Satisfaction with Your Day-To-Day Water/Sewer Utility Services by Housing.

Housing	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
Single Family	303	8.11	1.7	0.0	0.3	1.7	3.0	4.0	10.9	20.1	58.4	93.4
Townhouse/Condo	78	8.24	0.0	0.0	2.6	0.0	3.8	2.6	12.8	11.5	66.7	93.6
Apartment	12	7.42	8.3	0.0	0.0	0.0	16.7	0.0	8.3	8.3	58.3	74.9
Other	3	9.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

Table B29. Satisfaction with Your Day-To-Day Water/Sewer Utility Services by Years in Town.

Years in Town	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
0-1	46	8.22	2.2	0.0	4.3	0.0	0.0	2.2	8.7	10.9	71.7	93.5
2-5	125	8.00	2.4	0.0	0.0	0.8	5.6	4.8	11.2	17.6	57.6	91.2
6-10	90	8.17	1.1	0.0	0.0	3.3	3.3	2.2	8.9	20.0	61.1	92.2
11-20	70	8.13	0.0	0.0	1.4	1.4	4.3	4.3	11.4	18.6	58.6	92.9
Over 20	66	8.26	1.5	0.0	0.0	0.0	1.5	3.0	13.6	19.7	60.6	96.9

Table B30. Satisfaction with Your Day-To-Day Water/Sewer Utility Services by Age.

Age	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
18-25	8	8.50	0.0	0.0	0.0	0.0	0.0	0.0	12.5	25.0	62.5	100.0
26-35	52	8.23	1.9	0.0	1.9	0.0	0.0	1.9	13.5	17.3	63.5	96.2
36-45	113	8.04	0.9	0.0	0.0	1.8	6.2	7.1	8.8	15.9	59.3	91.1
46-55	98	8.13	1.0	0.0	0.0	2.0	3.1	2.0	15.3	19.4	57.1	93.8
56-65	57	7.95	3.5	0.0	1.8	0.0	1.8	5.3	14.0	15.8	57.9	93.0
66-75	38	8.34	0.0	0.0	2.6	2.6	2.6	0.0	0.0	26.3	65.8	92.1
Over 75	31	8.16	3.2	0.0	0.0	0.0	6.5	0.0	9.7	12.9	67.7	90.3

Satisfaction with Taste and Quality of Drinking Water Crosstabulations

Table B31. Satisfaction with the Taste and Quality of Your Drinking Water by Municipality.

Municipality	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
Cary	352	7.24	1.7	0.6	2.6	3.4	15.1	4.5	14.2	24.1	33.8	76.6
Morrisville	47	7.09	0.0	0.0	2.1	0.0	23.4	8.5	19.1	21.3	25.5	74.4

Table B32. Satisfaction with the Taste and Quality of Your Drinking Water by Housing.

Housing	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
Single Family	302	7.26	1.3	0.7	3.0	2.6	14.9	4.3	14.6	25.5	33.1	77.5
Townhouse/Condo	78	6.99	2.6	0.0	1.3	5.1	17.9	7.7	15.4	21.8	28.2	73.1
Apartment	12	7.67	0.0	0.0	0.0	0.0	16.7	8.3	16.7	8.3	50.0	83.3
Other	3	7.00	0.0	0.0	0.0	0.0	33.3	0.0	33.3	0.0	33.3	66.6

Table B33. Satisfaction with the Taste and Quality of Your Drinking Water by Years in Town.

Years in Town	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
0-1	46	7.48	2.2	0.0	0.0	0.0	13.0	6.5	23.9	15.2	39.1	84.7
2-5	125	7.12	2.4	0.8	2.4	2.4	15.2	5.6	18.4	22.4	30.4	76.8
6-10	90	7.08	2.2	1.1	5.6	4.4	13.3	4.4	13.3	17.8	37.8	73.3
11-20	70	7.40	0.0	0.0	0.0	4.3	20.0	4.3	8.6	28.6	34.3	75.8
Over 20	65	7.22	0.0	0.0	3.1	3.1	18.5	4.6	10.8	35.4	24.6	75.4

Table B34. Satisfaction with the Taste and Quality of Your Drinking Water by Age.

Age	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
18-25	8	7.75	0.0	0.0	0.0	0.0	0.0	0.0	50.0	25.0	25.0	100.0
26-35	52	6.77	3.8	0.0	7.7	3.8	11.5	7.7	19.2	19.2	26.9	73.0
36-45	113	7.17	1.8	0.9	0.9	0.9	17.7	8.8	17.7	20.4	31.0	77.9
46-55	98	7.35	0.0	0.0	3.1	7.1	14.3	2.0	10.2	27.6	35.7	75.5
56-65	56	7.13	0.0	0.0	0.0	3.6	21.4	7.1	14.3	33.9	19.6	74.9
66-75	38	7.34	2.6	2.6	0.0	0.0	21.1	0.0	10.5	21.1	42.1	73.7
Over 75	31	7.58	3.2	0.0	6.5	0.0	9.7	0.0	9.7	19.4	51.6	80.7

Satisfaction with the Implementation of the Town's Water Efficiency Program Crosstabulations

Table B35. Satisfaction with How the Town Implements its Water Efficiency Program (i.e., Public Outreach, Education, and Water Audits) by Municipality.

Municipality	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
Cary	348	7.01	1.7	0.6	0.6	0.9	27.6	4.3	14.7	20.7	29.0	68.7
Morrisville	47	6.83	0.0	0.0	0.0	2.1	34.0	4.3	19.1	19.1	21.3	63.8

Table B36. Satisfaction with How the Town Implements its Water Efficiency Program (i.e., Public Outreach, Education, and Water Audits) by Housing.

Housing	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
Single Family	301	7.11	0.7	0.7	0.7	0.3	25.9	4.3	17.6	21.3	28.6	71.8
Townhouse/Condo	76	6.71	3.9	0.0	0.0	2.6	34.2	3.9	6.6	22.4	26.3	59.2
Apartment	12	6.17	0.0	0.0	0.0	8.3	50.0	8.3	8.3	0.0	25.0	41.6
Other	2	7.00	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	50.0	50.0

Table B37. Satisfaction with How the Town Implements its Water Efficiency Program (i.e., Public Outreach, Education, and Water Audits) by Years in Town.

Years in Town	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
0-1	43	6.95	2.3	0.0	0.0	2.3	32.6	2.3	9.3	18.6	32.6	62.8
2-5	125	6.98	2.4	0.0	0.0	0.8	28.8	5.6	13.6	20.0	28.8	68.0
6-10	90	6.97	1.1	1.1	1.1	0.0	28.9	3.3	17.8	18.9	27.8	67.8
11-20	69	6.96	0.0	0.0	0.0	2.9	30.4	5.8	14.5	21.7	24.6	66.6
Over 20	65	7.09	1.5	1.5	1.5	0.0	21.5	3.1	20.0	23.1	27.7	73.9

Table B38. Satisfaction with How the Town Implements its Water Efficiency Program (i.e., Public Outreach, Education, and Water Audits) by Age.

Age	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
18-25	8	6.50	0.0	0.0	0.0	12.5	37.5	0.0	12.5	12.5	25.0	50.0
26-35	51	6.43	3.9	2.0	0.0	2.0	35.3	7.8	11.8	13.7	23.5	56.8
36-45	112	7.12	0.0	0.0	0.0	0.9	32.1	1.8	15.2	19.6	30.4	67.0
46-55	97	7.02	0.0	0.0	2.1	1.0	26.8	4.1	19.6	21.6	24.7	70.0
56-65	56	6.73	5.4	1.8	0.0	0.0	19.6	10.7	19.6	21.4	21.4	73.1
66-75	37	7.24	0.0	0.0	0.0	0.0	35.1	0.0	5.4	24.3	35.1	64.8
Over 75	31	7.68	3.2	0.0	0.0	0.0	12.9	0.0	12.9	29.0	41.9	83.8

Satisfaction with How Town Provides Water-Related Information Crosstabulations

Table B39. Satisfaction with How the Town Provides Water-Related Information by Municipality.

Municipality	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
Cary	352	7.31	2.6	0.6	0.9	0.3	17.6	4.5	16.2	21.3	36.1	78.1
Morrisville	48	7.17	0.0	0.0	0.0	2.1	18.8	12.5	20.8	18.8	27.1	79.2

Table B40. Satisfaction with How the Town Provides Water-Related Information by Housing.

Housing	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
Single Family	303	7.35	1.7	0.7	1.0	0.3	17.5	4.3	17.2	22.1	35.3	78.9
Townhouse/Condo	78	7.17	3.8	0.0	0.0	1.3	16.7	9.0	16.7	19.2	33.3	78.2
Apartment	12	7.17	0.0	0.0	0.0	0.0	25.0	16.7	16.7	0.0	41.7	75.1
Other	3	6.00	0.0	0.0	0.0	0.0	66.7	0.0	0.0	33.3	0.0	33.3

Table B41. Satisfaction with How the Town Provides Water-Related Information by Age.

Age	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
18-25	8	6.50	0.0	0.0	0.0	0.0	37.5	12.5	25.0	12.5	12.5	62.5
26-35	52	6.81	3.8	1.9	0.0	1.9	21.2	11.5	19.2	7.7	32.7	71.1
36-45	113	7.51	0.0	0.0	0.9	0.9	19.5	4.4	13.3	21.2	39.8	78.7
46-55	98	7.38	2.0	0.0	1.0	0.0	14.3	5.1	19.4	28.6	29.6	82.7
56-65	57	6.58	7.0	1.8	1.8	0.0	21.1	3.5	24.6	19.3	21.1	68.5
66-75	38	7.82	0.0	0.0	0.0	0.0	15.8	2.6	7.9	31.6	42.1	84.2
Over 75	31	7.90	3.2	0.0	0.0	0.0	6.5	6.5	12.9	12.9	58.1	90.4

Reasons for Conserving Water: It's the Right Thing to Do Crosstabulations

Table B42. I Conserve Water Because it is the Right Thing to Do by Municipality.

Municipality	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
Cary	350	8.24	0.9	0.0	0.3	0.6	6.9	1.1	7.4	18.9	64.0	91.4
Morrisville	48	8.31	0.0	0.0	0.0	0.0	10.4	4.2	2.1	10.4	72.9	89.6

Table B43. I Conserve Water Because it is the Right Thing to Do by Age.

Age	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
18-25	8	7.50	0.0	0.0	0.0	12.5	12.5	12.5	0.0	0.0	62.5	75.0
26-35	52	8.23	1.9	0.0	0.0	0.0	3.8	1.9	11.5	17.3	63.5	94.2
36-45	113	8.40	0.9	0.0	0.0	0.0	6.2	0.9	3.5	18.6	69.9	92.9
46-55	97	7.97	1.0	0.0	1.0	1.0	9.3	2.1	9.3	21.6	54.6	87.6
56-65	57	8.21	0.0	0.0	0.0	0.0	10.5	1.8	7.0	17.5	63.2	89.5
66-75	38	8.68	0.0	0.0	0.0	0.0	2.6	0.0	2.6	15.8	78.9	97.3
Over 75	30	8.33	0.0	0.0	0.0	0.0	10.0	0.0	6.7	13.3	70.0	90.0

Reasons for Conserving Water: Why it is the Right Thing to Do Crosstabulations

Table B44. (For Responses Above 5) Tell Us Why it is the Right Thing to Do by Municipality.

Municipality	n	To make sure there is enough water for the future	To protect the environment	To save energy
Cary	343	84.5	68.8	49.3
Morrisville	46	69.6	56.5	26.1

Table B45. (For Responses Above 5) Tell Us Why it is the Right Thing to Do by Housing.

Housing	n	To make sure there is enough water for the future	To protect the environment	To save energy
Single Family	295	82.7	68.5	47.8
Townhouse/Condo	75	81.3	65.3	41.3
Apartment	12	83.3	58.3	41.7
Other	3	100.0	66.7	66.7

Table B46. (For Responses Above 5) Tell Us Why it is the Right Thing to Do by Income.

Income	n	To make sure there is enough water for the future	To protect the environment	To save energy
0-$45,000	24	87.5	75.0	41.7
$45,001-$75,000	54	88.9	59.3	42.6
$75,001-$100,000	67	82.1	61.2	47.8
$100,001-$150,000	78	83.3	71.8	48.7
Over $150,000	87	83.9	77.0	56.3

Table B47. (For Responses Above 5) Tell Us Why it is the Right Thing to Do by Age.

Age	n	To make sure there is enough water for the future	To protect the environment	To save energy
18-25	7	100.0	42.9	28.6
26-35	50	76.0	72.0	48.0
36-45	110	83.6	72.7	42.7
46-55	93	82.8	66.7	51.6
56-65	57	84.2	61.4	47.4
66-75	38	92.1	65.8	42.1
Over 75	31	74.2	61.3	51.6

Reasons for Conserving Water: To Comply with Ordinances and Abide by the Law Crosstabulations

Table B48. I Conserve Water to Comply with Ordinances and Abide by the Law by Municipality.

Municipality	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
Cary	351	7.28	3.7	2.0	1.4	0.3	18.2	2.3	12.0	14.5	45.6	74.4
Morrisville	47	7.53	0.0	0.0	4.3	2.1	21.3	2.1	6.4	6.4	57.4	72.3

Table B49. I Conserve Water to Comply with Ordinances and Abide by the Law by Housing.

Housing	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
Single Family	303	7.30	3.6	1.0	1.7	0.7	18.2	2.6	12.5	15.5	44.2	74.8
Townhouse/Condo	77	7.39	1.3	5.2	2.6	0.0	18.2	1.3	6.5	9.1	55.8	72.7
Apartment	12	7.33	8.3	0.0	0.0	0.0	16.7	0.0	16.7	0.0	58.3	75.0
Other	2	5.00	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0

Table B50. I Conserve Water to Comply with Ordinances and Abide by the Law by Age.

Age	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
18-25	8	7.38	12.5	0.0	0.0	0.0	12.5	0.0	0.0	12.5	62.5	75.0
26-35	50	6.98	4.0	2.0	6.0	0.0	20.0	0.0	10.0	20.0	38.0	68.0
36-45	113	7.08	2.7	3.5	2.7	0.9	21.2	1.8	13.3	8.8	45.1	69.0
46-55	98	7.11	4.1	2.0	0.0	0.0	21.4	3.1	15.3	16.3	37.8	72.5
56-65	57	7.81	3.5	0.0	1.8	1.8	7.0	1.8	12.3	14.0	57.9	86.0
66-75	38	8.08	0.0	0.0	0.0	0.0	15.8	2.6	5.3	10.5	65.8	84.2
Over 75	31	7.39	3.2	0.0	0.0	0.0	25.8	3.2	3.2	16.1	48.4	70.9

Reasons for Conserving Water: Because I Want to Save Money Crosstabulations

Table B51. I Conserve Water Because I Want to Save Money by Municipality.

Municipality	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
Cary	352	7.01	4.8	3.4	1.7	3.1	14.8	2.6	17.3	9.4	42.9	72.2
Morrisville	48	7.63	4.2	0.0	0.0	0.0	14.6	6.3	8.3	10.4	56.3	81.3

Table B52. I Conserve Water Because I Want to Save Money by Income.

Income	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
0-$45,000	24	7.54	0.0	0.0	4.2	4.2	16.7	0.0	8.3	16.7	50.0	75.0
$45,001-$75,000	56	7.82	0.0	1.8	3.6	1.8	8.9	3.6	12.5	3.6	64.3	84.0
$75,001-$100,000	72	7.49	4.2	0.0	0.0	6.9	13.9	1.4	6.9	9.7	56.9	74.9
$100,001-$150,000	80	6.70	8.8	3.8	2.5	1.3	11.3	5.0	21.3	10.0	36.3	72.6
Over $150,000	89	6.55	6.7	5.6	0.0	2.2	18.0	3.4	25.8	6.7	31.5	67.4

Table B53. I Conserve Water Because I Want to Save Money by Age.

Age	n	Mean	Strongly Disagree 1	2	3	4	Neutral 5	6	7	8	Strongly Agree 9	% Above Midpoint
18-25	8	7.75	0.0	0.0	0.0	12.5	12.5	0.0	0.0	12.5	62.5	75.0
26-35	52	7.31	0.0	1.9	1.9	3.8	17.3	3.8	17.3	9.6	44.2	74.9
36-45	113	7.09	7.1	3.5	0.9	1.8	12.4	1.8	15.9	8.8	47.8	74.3
46-55	98	6.88	5.1	4.1	0.0	1.0	18.4	5.1	20.4	8.2	37.8	71.5
56-65	57	7.39	3.5	0.0	3.5	3.5	8.8	3.5	17.5	14.0	45.6	80.6
66-75	38	7.03	7.9	2.6	0.0	5.3	13.2	2.6	13.2	2.6	52.6	71.0
Over 75	31	6.87	3.2	6.5	3.2	3.2	19.4	0.0	6.5	16.1	41.9	64.5

Effectiveness of Water Conservation Tools: Regulations Like Alternate Day Watering Crosstabulations

Table B54. Effectiveness of Regulations Like Alternate Day Watering by Municipality.

Municipality	n	Mean	Very Ineffective 1	2	3	4	Average 5	6	7	8	Very Effective 9	% Above Midpoint
Cary	352	4.87	33.5	1.1	1.7	0.3	20.5	4.0	10.5	10.2	18.2	42.9
Morrisville	48	4.77	31.3	2.1	2.1	0.0	29.2	2.1	8.3	6.3	18.8	35.5

Table B55. Effectiveness of Regulations Like Alternate Day Watering by Housing.

Housing	n	Mean	Very Ineffective 1	2	3	4	Average 5	6	7	8	Very Effective 9	% Above Midpoint
Single Family	303	5.26	28.7	1.3	2.0	0.3	19.1	4.0	10.6	11.6	22.4	48.6
Townhouse/Condo	78	3.72	46.2	0.0	1.3	0.0	28.2	3.8	11.5	3.8	5.1	24.2
Apartment	12	3.00	50.0	8.3	0.0	0.0	33.3	0.0	0.0	8.3	0.0	8.3
Other	3	2.33	66.7	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0

Effectiveness of Water Conservation Tools: Town's Website Crosstabulations

Table B56. Effectiveness of Water Conservation Information Provided by the Town's Website by Municipality.

Municipality	n	Mean	Very Ineffective 1	2	3	4	Average 5	6	7	8	Very Effective 9	% Above Midpoint
Cary	351	4.26	38.2	1.1	1.7	0.0	27.1	5.4	9.4	6.8	10.3	31.9
Morrisville	48	4.42	39.6	0.0	0.0	0.0	20.8	10.4	8.3	10.4	10.4	39.5

Table B57. Effectiveness of Water Conservation Information Provided by the Town's Website by Housing.

Housing	n	Mean	Very Ineffective 1	2	3	4	Average 5	6	7	8	Very Effective 9	% Above Midpoint
Single Family	302	4.39	35.8	1.0	2.0	0.0	27.5	6.0	10.6	7.0	10.3	33.9
Townhouse/Condo	78	3.87	47.4	1.3	0.0	0.0	23.1	5.1	3.8	9.0	10.3	28.2
Apartment	12	4.25	41.7	0.0	0.0	0.0	25.0	8.3	8.3	0.0	16.7	33.3
Other	3	2.33	66.7	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0

Table B58. Effectiveness of Water Conservation Information Provided by the Town's Website by Age.

Age	n	Mean	Very Ineffective 1	2	3	4	Average 5	6	7	8	Very Effective 9	% Above Midpoint
18-25	8	4.25	37.5	0.0	0.0	0.0	37.5	0.0	0.0	25.0	0.0	25.0
26-35	52	4.50	32.7	1.9	0.0	0.0	34.6	3.8	9.6	5.8	11.5	30.7
36-45	112	4.38	36.6	1.8	0.9	0.0	25.9	8.0	8.9	6.3	11.6	34.8
46-55	98	4.27	38.8	0.0	3.1	0.0	24.5	6.1	10.2	8.2	9.2	33.7
56-65	57	4.61	33.3	0.0	3.5	0.0	28.1	3.5	8.8	10.5	12.3	35.1
66-75	38	4.05	47.4	0.0	0.0	0.0	23.7	0.0	7.9	5.3	15.8	29.0
Over 75	31	3.29	51.6	3.2	0.0	0.0	16.1	16.1	9.7	3.2	0.0	29.0

Effectiveness of Water Conservation Tools: Information Provided by Block Leader Crosstabulations

Table B59. Effectiveness of Water Conservation Information Provided by Your Block Leader by Municipality.

Municipality	n	Mean	Very Ineffective 1	2	3	4	Average 5	6	7	8	Very Effective 9	% Above Midpoint
Cary	346	2.56	63.3	1.7	1.4	0.0	27.2	1.7	0.9	0.9	2.9	6.4
Morrisville	47	2.11	72.3	2.1	0.0	0.0	23.4	0.0	0.0	2.1	0.0	2.1

Table B60. Effectiveness of Water Conservation Information Provided by Your Block Leader by Housing.

Housing	n	Mean	Very Ineffective 1	2	3	4	Average 5	6	7	8	Very Effective 9	% Above Midpoint
Single Family	296	2.54	64.9	1.0	1.0	0.0	26.4	1.7	1.0	1.0	3.0	6.7
Townhouse/Condo	78	2.51	61.5	2.6	2.6	0.0	29.5	1.3	0.0	1.3	1.3	3.9
Apartment	12	2.17	58.3	16.7	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0
Other	3	2.33	66.7	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0

Water Usage Issues: Methods to Water Grass Crosstabulations

Table B61. What Best Describes How You Water Your Grass by Municipality.

Municipality	n	We choose not to water	We use a hose and sprinkler	We use an automatic irrigation system	We are not responsible to maintain our lawn
Cary	350	52.9	25.7	13.7	7.7
Morrisville	48	47.9	31.3	4.2	16.7

Table B62. What Best Describes How You Water Your Grass by Housing.

Housing	n	We choose not to water	We use a hose and sprinkler	We use an automatic irrigation system	We are not responsible to maintain our lawn
Single Family	301	49.8	30.6	16.6	3.0
Townhouse/Condo	78	56.4	16.7	0.0	26.9
Apartment	12	66.7	0.0	0.0	33.3
Other	3	100.0	0.0	0.0	0.0

Table B63. What Best Describes How You Water Your Grass by Income.

Income	n	We choose not to water	We use a hose and sprinkler	We use an automatic irrigation system	We are not responsible to maintain our lawn
0-$45,000	24	70.8	8.3	0.0	20.8
$45,001-$75,000	56	69.6	10.7	0.0	19.6
$75,001-$100,000	71	49.3	29.6	8.5	12.7
$100,001-$150,000	80	52.5	33.8	10.0	3.8
Over $150,000	88	45.5	23.9	30.7	0.0

Table B64. What Best Describes How You Water Your Grass by Age.

Age	n	We choose not to water	We use a hose and sprinkler	We use an automatic irrigation system	We are not responsible to maintain our lawn
18-25	8	62.5	25.0	0.0	12.5
26-35	52	53.8	28.8	0.0	17.3
36-45	113	53.1	29.2	11.5	6.2
46-55	97	48.5	24.7	20.6	6.2
56-65	57	52.6	22.8	19.3	5.3
66-75	38	60.5	21.1	7.9	10.5
Over 75	30	43.3	30.0	10.0	16.7

Table B65. What Best Describes How You Water Your Grass by Heard of Alternate Day Watering Ordinance.

Heard of Alternate Day Watering	n	We choose not to water	We use a hose and sprinkler	We use an automatic irrigation system	We are not responsible to maintain our lawn
Yes	235	47.7	27.7	19.6	5.1
No	150	59.3	23.3	2.7	14.7
Not Sure	12	50.0	41.7	0.0	8.3

Water Usage Issues: Typical Summer Watering Habits Crosstabulations

Table B66. What Best Describes How You Water Your Grass by Municipality.

Municipality	n	We water 3 days per week	We water more than 3 days per week	We water less than 3 days per week	We water only as needed
Cary	138	18.8	1.4	8.7	71.0
Morrisville	17	17.6	5.9	5.9	70.6

Table B67. What Best Describes How You Water Your Grass by Income.

Income	n	We water 3 days per week	We water more than 3 days per week	We water less than 3 days per week	We water only as needed
0-$45,000	2	0.0	0.0	0.0	100.0
$45,001-$75,000	6	0.0	16.7	0.0	83.3
$75,001-$100,000	28	14.3	0.0	7.1	78.6
$100,001-$150,000	34	14.7	0.0	8.8	76.5
Over $150,000	48	25.0	2.1	14.6	58.3

Table B68. What Best Describes How You Water Your Grass by Age.

Age	n	We water 3 days per week	We water more than 3 days per week	We water less than 3 days per week	We water only as needed
18-25	2	50.0	0.0	0.0	50.0
26-35	15	6.7	0.0	20.0	73.3
36-45	46	19.6	2.2	8.7	69.6
46-55	44	18.2	2.3	11.4	68.2
56-65	24	25.0	0.0	4.2	70.8
66-75	11	9.1	0.0	0.0	90.9
Over 75	12	16.7	8.3	0.0	75.0

Table B69. What Best Describes How You Water Your Grass by Method of Watering Grass.

Grass Watering Method	n	We water 3 days per week	We water more than 3 days per week	We water less than 3 days per week	We water only as needed
We choose not to water	208	--	--	--	--
We use a hose and sprinkler	104	4.8	1.9	6.7	86.5
We use an automatic irrigation system	50	48.0	2.0	12.0	38.0
We are not responsible to maintain our lawn	35	--	--	--	--

Table B70. What Best Describes How You Water Your Grass by Heard of Beat the Peak.

Heard of Beat the Peak	n	We water 3 days per week	We water more than 3 days per week	We water less than 3 days per week	We water only as needed
Yes	13	15.4	0.0	15.4	69.2
No	136	17.6	2.2	8.1	72.1
Not Sure	6	50.0	0.0	0.0	50.0

Town of Cary Initiatives: Familiarity and Participation With Watering Exemption Permits Crosstabulations

Table B71. Familiarity and Participation with Watering Exemption Permits Initiative by Municipality.

Municipality	n	% Yes	% No	% Not Sure	% Participated
Cary	351	19.1	78.9	2.0	5.7
Morrisville	48	12.5	85.4	2.1	2.1

Table B72. Familiarity and Participation with Watering Exemption Permits Initiative by Housing.

Housing	n	% Yes	% No	% Not Sure	% Participated
Single Family	302	20.5	77.8	1.7	6.6
Townhouse/Condo	78	14.1	83.3	2.6	1.3
Apartment	12	0.0	100.0	0.0	0.0
Other	3	0.0	66.7	33.3	0.0

Table B73. Familiarity and Participation with Watering Exemption Permits Initiative by Years in Town.

Years in Town	n	% Yes	% No	% Not Sure	% Participated
0-1	45	2.2	95.6	2.2	0.0
2-5	125	16.8	82.4	0.8	3.2
6-10	90	14.4	83.3	2.2	6.7
11-20	70	24.3	72.9	2.9	7.1
More than 20	66	31.8	66.7	1.5	9.1

Table B74. Familiarity and Participation with Watering Exemption Permits Initiative by Age.

Age	n	% Yes	% No	% Not Sure	% Participated
18-25	8	12.5	87.5	0.0	0.0
26-35	52	7.7	90.4	1.9	0.0
36-45	112	18.8	79.5	1.8	4.5
46-55	98	19.4	79.6	1.0	5.1
56-65	57	22.8	75.4	1.8	12.3
66-75	38	21.1	76.3	2.6	2.6
Over 75	31	22.6	71.0	6.5	9.7

Town of Cary Initiatives: Familiarity and Participation With Water Audits Crosstabulations

Table B75. Familiarity and Participation with Water Audits Initiative by Municipality.

Municipality	n	% Yes	% No	% Not Sure	% Participated
Cary	352	14.2	80.4	5.4	2.8
Morrisville	48	12.5	85.4	2.1	0.0

Table B76. Familiarity and Participation with Water Audits by Initiative by Housing.

Housing	n	% Yes	% No	% Not Sure	% Participated
Single Family	303	16.2	78.2	5.6	3.0
Townhouse/Condo	78	9.0	88.5	2.6	1.3
Apartment	12	0.0	100.0	0.0	0.0
Other	3	0.0	66.7	33.3	0.0

Table B77. Familiarity and Participation with Water Audits by Initiative by Years in Town.

Years in Town	n	% Yes	% No	% Not Sure	% Participated
0-1	46	6.5	93.5	0.0	0.0
2-5	125	14.4	83.2	2.4	1.6
6-10	90	14.4	78.9	6.7	2.2
11-20	70	12.9	81.4	5.7	4.3
More than 20	66	19.7	71.2	9.1	4.5

Table B78. Familiarity and Participation with Water Audits by Initiative by Age.

Age	n	% Yes	% No	% Not Sure	% Participated
18-25	8	12.5	87.5	0.0	0.0
26-35	52	3.8	92.3	3.8	0.0
36-45	113	17.7	78.8	3.5	3.5
46-55	98	11.2	84.7	4.1	2.0
56-65	57	24.6	70.2	5.3	7.0
66-75	38	7.9	81.6	10.5	0.0
Over 75	31	16.1	77.4	6.5	0.0

Town of Cary Initiatives: Familiarity and Participation With Beat the Peak Crosstabulations

Table B79. Familiarity and Participation with Beat the Peak Initiative by Municipality.

Municipality	n	% Yes	% No	% Not Sure	% Participated
Cary	351	7.4	89.5	3.1	0.3
Morrisville	48	8.3	87.5	4.2	0.0

Table B80. Familiarity and Participation with Beat the Peak Initiative by Housing.

Housing	n	% Yes	% No	% Not Sure	% Participated
Single Family	302	7.6	89.4	3.0	0.3
Townhouse/Condo	78	7.7	88.5	3.8	0.0
Apartment	12	0.0	100.0	0.0	0.0
Other	3	0.0	66.7	33.3	0.0

Table B81. Familiarity and Participation with Beat the Peak Initiative by Years in Town.

Years in Town	n	% Yes	% No	% Not Sure	% Participated
0-1	45	2.2	93.3	4.4	0.0
2-5	125	4.8	92.0	3.2	0.8
6-10	90	12.2	85.6	2.2	0.0
11-20	70	5.7	90.0	4.3	0.0
More than 20	66	10.6	86.4	3.0	0.0

Table B82. Familiarity and Participation with Beat the Peak Initiative by Age.

Age	n	% Yes	% No	% Not Sure	% Participated
18-25	8	25.0	75.0	0.0	0.0
26-35	52	3.8	88.5	7.7	0.0
36-45	112	6.3	91.1	2.7	0.9
46-55	98	10.2	88.8	1.0	0.0
56-65	57	10.5	82.5	7.0	0.0
66-75	38	2.6	94.7	2.6	0.0
Over 75	31	3.2	96.8	0.0	0.0

Town of Cary Initiatives: Familiarity and Participation With Fix-A-Leak Week Crosstabulations

Table B83. Familiarity and Participation with Fix-A-Leak Week Initiative by Municipality.

Municipality	n	% Yes	% No	% Not Sure	% Participated
Cary	352	7.4	89.5	3.1	0.3
Morrisville	48	6.3	91.7	2.1	0.0

Table B84. Familiarity and Participation with Fix-A-Leak Week Initiative by Housing.

Housing	n	% Yes	% No	% Not Sure	% Participated
Single Family	303	7.9	89.1	3.0	0.3
Townhouse/Condo	78	5.1	92.3	2.6	0.0
Apartment	12	0.0	100.0	0.0	0.0
Other	3	0.0	66.7	33.3	0.0

Table B85. Familiarity and Participation with Fix-A-Leak Week Initiative by Years in Town.

Years in Town	n	% Yes	% No	% Not Sure	% Participated
0-1	46	2.2	93.5	4.3	0.0
2-5	125	5.6	92.8	1.6	0.0
6-10	90	8.9	84.4	6.7	0.0
11-20	70	5.7	92.9	1.4	1.4
More than 20	66	12.1	86.4	1.5	0.0

Table B86. Familiarity and Participation with Fix-A-Leak Week Initiative by Age.

Age	n	% Yes	% No	% Not Sure	% Participated
18-25	8	0.0	87.5	12.5	0.0
26-35	52	3.8	90.4	5.8	0.0
36-45	113	3.5	93.8	2.7	0.0
46-55	98	11.2	86.7	2.0	0.0
56-65	57	12.3	84.2	3.5	0.0
66-75	38	5.3	94.7	0.0	2.6
Over 75	31	6.5	90.3	3.2	0.0

Town of Cary Initiatives: Familiarity and Participation With Block Leader Program Crosstabulations

Table B87. Familiarity and Participation with Block Leader Program Initiative by Municipality.

Municipality	n	% Yes	% No	% Not Sure	% Participated
Cary	352	7.1	92.0	0.9	0.9
Morrisville	48	4.2	95.8	0.0	0.0

Table B88. Familiarity and Participation with Block Leader Program Initiative by Housing.

Housing	n	% Yes	% No	% Not Sure	% Participated
Single Family	303	7.6	91.7	0.7	1.0
Townhouse/Condo	78	5.1	94.9	0.0	0.0
Apartment	12	0.0	100.0	0.0	0.0
Other	3	0.0	66.7	33.3	0.0

Table B89. Familiarity and Participation with Block Leader Program Initiative by Years in Town.

Years in Town	n	% Yes	% No	% Not Sure	% Participated
0-1	46	2.2	97.8	0.0	0.0
2-5	125	2.4	96.8	0.8	0.0
6-10	90	7.8	91.1	1.1	1.1
11-20	70	8.6	91.4	0.0	2.9
More than 20	66	13.6	84.8	1.5	0.0

Table B90. Familiarity and Participation with Block Leader Program Initiative by Age.

Age	n	% Yes	% No	% Not Sure	% Participated
18-25	8	0.0	100.0	0.0	0.0
26-35	52	0.0	98.1	1.9	0.0
36-45	113	4.4	95.6	0.0	0.0
46-55	98	10.2	88.8	1.0	1.0
56-65	57	10.5	87.7	1.8	3.5
66-75	38	7.9	92.1	0.0	0.0
Over 75	31	9.7	90.3	0.0	0.0

Water Efficiency Information Sources: Preferred Information Source Crosstabulations

Table B91. How Would You Prefer to Receive Information About Water Efficiency from the Town of Cary by Cary Resident – In Order of Preference. (n=350)

Information Source	% Yes	% No
Postcards	82.7	17.3
BUD	77.2	22.8
Cary's website	56.5	43.5
Television	56.5	43.5
Cary's email list service	51.1	48.9
Homeowners Association	49.7	50.3
Text messages	40.3	59.7
Radio	33.5	66.5
Cary News	32.1	67.9
Cary's Parks & Rec. Program Brochure	28.8	71.2
Personalized web presentment for your account (Aquastar)	26.7	73.3
Personal interaction with Town staff	23.7	76.3
Raleigh News & Observer	21.9	78.1
Cary Citizen website	20.5	79.5
Facebook	19.6	80.4
Cary's TV 11	9.9	90.1
Twitter	9.7	90.3
YouTube	6.0	94.0
Cary's Block Leader Program	5.7	94.3

Table B92. How Would You Prefer to Receive Information About Water Efficiency from the Town of Cary by Morrisville Resident – In Order of Preference. (n=48)

Information Source	% Yes	% No
BUD	91.7	8.3
Postcards	83.3	16.7
Television	60.4	39.6
Homeowners Association	59.6	40.4
Cary's website	58.3	41.7
Text messages	56.3	43.8
Cary News	45.8	54.2
Cary's email list service	43.8	56.3
Personalized web presentment for your account (Aquastar)	43.8	56.3
Personal interaction with Town staff	35.4	64.6
Raleigh News & Observer	33.3	66.7
Radio	31.3	68.8
Cary's Parks & Rec. Program Brochure	29.2	70.8
Facebook	29.2	70.8
Cary Citizen website	25.0	75.0
Twitter	16.7	83.3
Cary's TV 11	14.6	85.4
YouTube	14.6	85.4
Cary's Block Leader Program	6.3	93.8

Table B93. How Would You Prefer to Receive Information About Water Efficiency from the Town of Cary by Single Family Household – In Order of Preference. (n=302)

Information Source	% Yes	% No
Postcards	82.2	17.8
BUD	78.5	21.5
Cary's website	58.1	41.9
Television	56.8	43.2
Cary's email list service	50.8	49.2
Homeowners Association	49.5	50.5
Text messages	41.3	58.7
Cary News	35.0	65.0
Radio	32.0	68.0
Cary's Parks & Rec. Program Brochure	30.5	69.5
Personalized web presentment for your account (Aquastar)	27.7	72.3
Personal interaction with Town staff	27.2	72.8
Raleigh News & Observer	24.4	75.6
Cary Citizen website	21.1	78.9
Facebook	20.1	79.9
Cary's TV 11	11.6	88.4
Twitter	9.6	90.4
Cary's Block Leader Program	6.3	93.7
YouTube	6.0	94.0

Table B94. How Would You Prefer to Receive Information About Water Efficiency from the Town of Cary by Other Household – In Order of Preference. (n=92)

Information Source	% Yes	% No
Postcards	83.9	16.1
BUD	81.7	18.3
Television	57.0	43.0
Homeowners Association	53.3	46.7
Cary's website	52.7	47.3
Cary's email list service	49.5	50.5
Text messages	47.3	52.7
Radio	38.7	61.3
Personalized web presentment for your account (Aquastar)	33.3	66.7
Cary News	28.0	72.0
Facebook	23.7	76.3
Cary's Parks & Rec. Program Brochure	22.6	77.4
Cary Citizen website	21.5	78.5
Personal interaction with Town staff	19.6	80.4
Raleigh News & Observer	19.4	80.6
Twitter	14.0	86.0
YouTube	10.9	89.1
Cary's TV 11	5.4	94.6
Cary's Block Leader Program	4.3	95.7

Table B95. How Would You Prefer to Receive Information About Water Efficiency from the Town of Cary by 0-1 Year Resident – In Order of Preference. (n=46)

Information Source	% Yes	% No
Postcards	87.0	13.0
BUD	67.4	32.6
Cary's website	58.7	41.3
Cary's email list service	56.5	43.5
Television	50.0	50.0
Homeowners Association	41.3	58.7
Cary News	39.1	60.9
Radio	39.1	60.9
Text messages	39.1	60.9
Cary's Parks & Rec. Program Brochure	32.6	67.4
Facebook	30.4	69.6
Personalized web presentment for your account (Aquastar)	30.4	69.6
Cary Citizen website	28.3	71.7
Raleigh News & Observer	21.7	78.3
Personal interaction with Town staff	17.4	82.6
Twitter	17.4	82.6
YouTube	13.0	87.0
Cary's TV 11	4.3	95.7
Cary's Block Leader Program	2.2	97.8

Table B96. How Would You Prefer to Receive Information About Water Efficiency from the Town of Cary by 2-5 Year Resident – In Order of Preference. (n=123)

Information Source	% Yes	% No
Postcards	85.6	14.4
BUD	77.6	22.4
Cary's website	69.6	30.4
Television	57.6	42.4
Cary's email list service	56.0	44.0
Text messages	48.8	51.2
Homeowners Association	46.4	53.6
Personalized web presentment for your account (Aquastar)	37.6	62.4
Radio	32.8	67.2
Cary News	29.6	70.4
Cary's Parks & Rec. Program Brochure	27.2	72.8
Cary Citizen website	24.0	76.0
Personal interaction with Town staff	23.6	76.4
Facebook	23.2	76.8
Raleigh News & Observer	16.0	84.0
YouTube	8.9	91.1
Twitter	8.8	91.2
Cary's TV 11	4.0	96.0
Cary's Block Leader Program	4.0	96.0

Table B97. How Would You Prefer to Receive Information About Water Efficiency from the Town of Cary by 6-10 Year Resident – In Order of Preference. (n=89)

Information Source	% Yes	% No
Postcards	76.7	23.3
BUD	76.4	23.6
Homeowners Association	57.8	42.2
Television	57.8	42.2
Cary's website	53.3	46.7
Cary's email list service	52.2	47.8
Text messages	44.4	55.6
Cary News	37.8	62.2
Radio	33.3	66.7
Raleigh News & Observer	31.1	68.9
Cary's Parks & Rec. Program Brochure	30.0	70.0
Personal interaction with Town staff	24.4	75.6
Cary Citizen website	22.2	77.8
Personalized web presentment for your account (Aquastar)	18.9	81.1
Facebook	13.3	86.7
Cary's TV 11	13.3	86.7
Twitter	12.2	87.8
Cary's Block Leader Program	5.6	94.4
YouTube	4.5	95.5

Table B98. How Would You Prefer to Receive Information About Water Efficiency from the Town of Cary by More Than 10 Year Resident – In Order of Preference. (n=135)

Information Source	% Yes	% No
BUD	86.8	13.2
Postcards	82.4	17.6
Television	57.4	42.6
Homeowners Association	53.3	46.7
Cary's website	47.1	52.9
Cary's email list service	41.9	58.1
Text messages	36.8	63.2
Cary News	33.1	66.9
Radio	31.6	68.4
Personal interaction with Town staff	30.1	69.9
Cary's Parks & Rec. Program Brochure	28.9	71.1
Personalized web presentment for your account (Aquastar)	27.2	72.8
Raleigh News & Observer	25.7	74.3
Facebook	20.6	79.4
Cary's TV 11	16.2	83.8
Cary Citizen website	15.4	84.6
Cary's Block Leader Program	8.8	91.2
Twitter	8.8	91.2
YouTube	5.1	94.9

Table B99. How Would You Prefer to Receive Information About Water Efficiency from the Town of Cary by 18-25 Age Group – In Order of Preference. (n=8)

Information Source	% Yes	% No
Postcards	87.5	12.5
Television	75.0	25.0
Radio	62.5	37.5
BUD	50.0	50.0
Cary's email list service	50.0	50.0
Cary's website	37.5	62.5
Cary News	37.5	62.5
Homeowners Association	25.0	75.0
Text messages	25.0	75.0
Cary's Parks & Rec. Program Brochure	12.5	87.5
Raleigh News & Observer	12.5	87.5
Cary Citizen website	12.5	87.5
Facebook	12.5	87.5
Personalized web presentment for your account (Aquastar)	12.5	87.5
Personal interaction with Town staff	0.0	100.0
Cary's TV 11	0.0	100.0
Cary's Block Leader Program	0.0	100.0
Twitter	0.0	100.0
YouTube	0.0	100.0

Table B100. How Would You Prefer to Receive Information About Water Efficiency from the Town of Cary by 26-35 Age Group – In Order of Preference. (n=51)

Information Source	% Yes	% No
Postcards	76.9	23.1
BUD	70.6	29.4
Cary's website	69.2	30.8
Cary's email list service	53.8	46.2
Television	50.0	50.0
Homeowners Association	46.2	53.8
Text messages	44.2	55.8
Personalized web presentment for your account (Aquastar)	42.3	57.7
Radio	40.4	59.6
Facebook	38.5	61.5
Cary's Parks & Rec. Program Brochure	34.6	65.4
Cary News	28.8	71.2
Personal interaction with Town staff	23.1	76.9
Cary Citizen website	19.2	80.8
Twitter	19.2	80.8
Raleigh News & Observer	13.5	86.5
YouTube	13.7	86.3
Cary's TV 11	1.9	98.1
Cary's Block Leader Program	1.9	98.1

Table B101. How Would You Prefer to Receive Information About Water Efficiency from the Town of Cary by 36-45 Age Group – In Order of Preference. (n=113)

Information Source	% Yes	% No
Postcards	87.6	12.4
BUD	77.0	23.0
Cary's website	63.7	36.3
Cary's email list service	59.3	40.7
Homeowners Association	58.4	41.6
Television	48.7	51.3
Text messages	48.7	51.3
Personalized web presentment for your account (Aquastar)	34.5	65.5
Radio	34.5	65.5
Cary News	33.6	66.4
Cary's Parks & Rec. Program Brochure	32.7	67.3
Cary Citizen website	29.2	70.8
Facebook	25.7	74.3
Personal interaction with Town staff	22.1	77.9
Raleigh News & Observer	20.4	79.6
Twitter	12.4	87.6
YouTube	10.6	89.4
Cary's TV 11	8.0	92.0
Cary's Block Leader Program	5.3	94.7

Table B102. How Would You Prefer to Receive Information About Water Efficiency from the Town of Cary by 46-55 Age Group – In Order of Preference. (n=97)

Information Source	% Yes	% No
Postcards	79.6	20.4
BUD	76.5	23.5
Cary's website	60.2	39.8
Television	55.1	44.9
Cary's email list service	52.0	48.0
Homeowners Association	49.0	51.0
Text messages	49.0	51.0
Cary's Parks & Rec. Program Brochure	33.0	67.0
Radio	32.7	67.3
Cary News	31.6	68.4
Personalized web presentment for your account (Aquastar)	27.6	72.4
Personal interaction with Town staff	22.9	77.1
Cary Citizen website	21.4	78.6
Facebook	20.4	79.6
Raleigh News & Observer	17.3	82.7
Twitter	13.3	86.7
Cary's TV 11	7.1	92.9
Cary's Block Leader Program	7.1	92.9
YouTube	3.1	96.9

Table B103. How Would You Prefer to Receive Information About Water Efficiency from the Town of Cary by 56-65 Age Group – In Order of Preference. (n=56)

Information Source	% Yes	% No
BUD	93.0	7.0
Postcards	89.5	10.5
Television	64.9	35.1
Cary's website	49.1	50.9
Text messages	49.1	50.9
Cary's email list service	42.1	57.9
Homeowners Association	39.3	60.7
Radio	36.8	63.2
Personal interaction with Town staff	33.3	66.7
Cary News	26.3	73.7
Raleigh News & Observer	26.3	73.7
Cary's Parks & Rec. Program Brochure	24.6	75.4
Personalized web presentment for your account (Aquastar)	24.6	75.4
Cary Citizen website	15.8	84.2
Facebook	14.0	86.0
Cary's TV 11	12.3	87.7
Cary's Block Leader Program	10.5	89.5
YouTube	7.0	93.0
Twitter	5.3	94.7

Table B104. How Would You Prefer to Receive Information About Water Efficiency from the Town of Cary by 66-75 Age Group – In Order of Preference. (n=38)

Information Source	% Yes	% No
BUD	86.8	13.2
Postcards	81.6	18.4
Television	68.4	31.6
Homeowners Association	57.9	42.1
Cary's email list service	44.7	55.3
Cary's website	42.1	57.9
Cary News	42.1	57.9
Raleigh News & Observer	39.5	60.5
Personal interaction with Town staff	31.6	68.4
Cary's Parks & Rec. Program Brochure	26.3	73.7
Cary's TV 11	26.3	73.7
Text messages	23.7	76.3
Cary Citizen website	21.1	78.9
Personalized web presentment for your account (Aquastar)	21.1	78.9
Radio	21.1	78.9
Facebook	13.2	86.8
Cary's Block Leader Program	5.3	94.7
YouTube	5.3	94.7
Twitter	2.6	97.4

Table B105. How Would You Prefer to Receive Information About Water Efficiency from the Town of Cary by Over 75 Age Group – In Order of Preference. (n=31)

Information Source	% Yes	% No
BUD	83.9	16.1
Postcards	74.2	25.8
Television	67.7	32.3
Cary News	51.6	48.4
Homeowners Association	51.6	48.4
Raleigh News & Observer	48.4	51.6
Cary's website	35.5	64.5
Personal interaction with Town staff	32.3	67.7
Cary's email list service	25.8	74.2
Cary's TV 11	22.6	77.4
Radio	19.4	80.6
Personalized web presentment for your account (Aquastar)	12.9	87.1
Text messages	12.9	87.1
Cary's Parks & Rec. Program Brochure	9.7	90.3
Cary Citizen website	6.5	93.5
Cary's Block Leader Program	3.2	96.8
Twitter	3.2	96.8
Facebook	0.0	100.0
YouTube	0.0	100.0

Most Effective Communication Method for Water Emergency Crosstabulations

Table B106. Most Effective Way to Reach You in Case of Water Emergency by Cary Resident – In Order of Preference. (n=349)

Communication Method	% Yes	% No
Text messages	77.2	22.8
Door hanger	71.7	28.3
Cary's email list service	65.1	34.9
Television	56.1	43.9
Radio	26.9	73.1
Cary's website	26.0	74.0
NextDoor social media app	22.9	77.1
Facebook	19.1	80.9
ReadyWake Notification	18.2	81.8
Twitter	8.8	91.2
Cary's Block Leader Program	6.0	94.0

Table B107. Most Effective Way to Reach You in Case of Water Emergency by Morrisville Resident – In Order of Preference. (n=47)

Communication Method	% Yes	% No
Text messages	87.5	12.5
Door hanger	64.6	35.4
Television	58.3	41.7
Cary's email list service	58.3	41.7
Cary's website	25.5	74.5
Radio	22.9	77.1
NextDoor social media app	22.9	77.1
Facebook	20.8	79.2
ReadyWake Notification	20.8	79.2
Twitter	10.4	89.6
Cary's Block Leader Program	8.3	91.7

Table B108. Most Effective Way to Reach You in Case of Water Emergency by Single Family Household – In Order of Preference. (n=301)

Communication Method	% Yes	% No
Text messages	77.9	22.1
Door hanger	69.5	30.5
Cary's email list service	67.2	32.8
Television	54.8	45.2
Radio	25.9	74.1
Cary's website	24.5	75.5
NextDoor social media app	24.5	75.5
ReadyWake Notification	19.5	80.5
Facebook	17.9	82.1
Twitter	8.6	91.4
Cary's Block Leader Program	6.6	93.4

Table B109. Most Effective Way to Reach You in Case of Water Emergency by Other Household – In Order of Preference. (n=92)

Communication Method	% Yes	% No
Text messages	82.8	17.2
Door hanger	74.2	25.8
Television	61.3	38.7
Cary's email list service	55.9	44.1
Cary's website	29.3	70.7
Radio	29.0	71.0
Facebook	24.7	75.3
NextDoor social media app	18.3	81.7
ReadyWake Notification	16.1	83.9
Twitter	10.8	89.2
Cary's Block Leader Program	5.4	94.6

Table B110. Most Effective Way to Reach You in Case of Water Emergency by 18-25 Age Group – In Order of Preference. (n=7)

Communication Method	% Yes	% No
Text messages	75.0	25.0
Door hanger	62.5	37.5
Television	37.5	62.5
Cary's website	37.5	62.5
Cary's email list service	37.5	62.5
Radio	14.3	85.7
ReadyWake Notification	12.5	87.5
Twitter	0.0	100.0
Facebook	0.0	100.0
NextDoor social media app	0.0	100.0
Cary's Block Leader Program	0.0	100.0

Table B111. Most Effective Way to Reach You in Case of Water Emergency by 26-35 Age Group – In Order of Preference. (n=50)

Communication Method	% Yes	% No
Text messages	86.5	13.5
Cary's email list service	75.0	25.0
Door hanger	73.1	26.9
Television	55.8	44.2
Cary's website	40.0	60.0
Radio	38.5	61.5
Facebook	34.6	65.4
NextDoor social media app	26.9	73.1
ReadyWake Notification	15.4	84.6
Twitter	13.5	86.5
Cary's Block Leader Program	3.8	96.2

Table B112. Most Effective Way to Reach You in Case of Water Emergency by 36-45 Age Group – In Order of Preference. (n=112)

Communication Method	% Yes	% No
Text messages	88.5	11.5
Cary's email list service	73.5	26.5
Door hanger	70.8	29.2
Television	45.1	54.9
Cary's website	28.3	71.7
NextDoor social media app	27.7	72.3
Radio	25.7	74.3
Facebook	25.0	75.0
ReadyWake Notification	21.2	78.8
Twitter	11.5	88.5
Cary's Block Leader Program	6.2	93.8

Table B113. Most Effective Way to Reach You in Case of Water Emergency by 46-55 Age Group – In Order of Preference. (n=97)

Communication Method	% Yes	% No
Text messages	85.7	14.3
Cary's email list service	72.2	27.8
Door hanger	64.9	35.1
Television	54.1	45.9
Radio	28.6	71.4
NextDoor social media app	26.5	73.5
Cary's website	23.5	76.5
Facebook	20.4	79.6
ReadyWake Notification	18.4	81.6
Twitter	12.2	87.8
Cary's Block Leader Program	5.1	94.9

Table B114. Most Effective Way to Reach You in Case of Water Emergency by 56-65 Age Group – In Order of Preference. (n=57)

Communication Method	% Yes	% No
Text messages	78.9	21.1
Door hanger	75.4	24.6
Television	70.2	29.8
Cary's email list service	45.6	54.4
Radio	31.6	68.4
NextDoor social media app	22.8	77.2
Cary's website	21.1	78.9
ReadyWake Notification	15.8	84.2
Cary's Block Leader Program	12.3	87.7
Facebook	10.5	89.5
Twitter	1.8	98.2

Table B115. Most Effective Way to Reach You in Case of Water Emergency by 66-75 Age Group – In Order of Preference. (n=37)

Communication Method	% Yes	% No
Door hanger	71.1	28.9
Television	65.8	34.2
Cary's email list service	60.5	39.5
Text messages	60.5	39.5
ReadyWake Notification	26.3	73.7
Cary's website	21.1	78.9
Radio	18.9	81.1
NextDoor social media app	18.4	81.6
Facebook	10.5	89.5
Twitter	5.3	94.7
Cary's Block Leader Program	5.3	94.7

Table B116. Most Effective Way to Reach You in Case of Water Emergency by Over 75 Age Group – In Order of Preference. (n=31)

Communication Method	% Yes	% No
Door hanger	80.6	19.4
Television	71.0	29.0
Cary's email list service	35.5	64.5
Text messages	32.3	67.7
Cary's website	12.9	87.1
ReadyWake Notification	12.9	87.1
Cary's Block Leader Program	6.5	93.5
Radio	3.2	96.8
Twitter	3.2	96.8
Facebook	3.2	96.8
NextDoor social media app	0.0	100.0

Signed Up for ReadyWake Emergency Notification Service Crosstabulations

Table B117. Signed Up for ReadyWake Emergency Notification Service by Municipality.

Municipality	n	% Yes	% No
Cary	346	17.1	82.9
Morrisville	48	14.6	85.4

Table B118. Signed Up for ReadyWake Emergency Notification Service by Housing.

Housing	n	% Yes	% No
Single Family	298	18.5	81.5
Townhouse/Condo	78	11.5	88.5
Apartment	12	16.7	83.3
Other	3	0.0	100.0

Table B119. Signed Up for ReadyWake Emergency Notification Service by Age.

Age	n	% Yes	% No
18-25	8	12.5	87.5
26-35	52	13.5	86.5
36-45	110	17.3	82.7
46-55	98	18.4	81.6
56-65	57	15.8	84.2
66-75	36	22.2	77.8
Over 75	31	12.9	87.1

Knowledge of Aquastar Crosstabulations

Table B120. Do You Know About Aquastar by Municipality.

Municipality	n	% Yes	% No
Cary	352	33.5	66.5
Morrisville	48	43.8	56.3

Table B121. Do You Know About Aquastar by Years in Town.

Years in Town	n	% Yes	% No
0-1	46	32.6	67.4
2-5	125	45.6	54.4
6-10	90	25.6	74.4
11-20	70	32.9	67.1
More than 20	66	31.8	68.2

Table B122. Do You Know About Aquastar by Age.

Age	n	% Yes	% No
18-25	8	25.0	75.0
26-35	52	48.1	51.9
36-45	113	38.9	61.1
46-55	98	31.6	68.4
56-65	57	38.6	61.4
66-75	38	21.1	78.9
Over 75	31	22.6	77.4

Setting Leak Alert Through Aquastar Crosstabulations

Table B123. Have You Set a Leak Alert Through Aquastar by Municipality.

Municipality	n	% Yes	% No
Cary	120	27.5	72.5
Morrisville	21	0.0	100.0

Table B124. Have You Set a Leak Alert Through Aquastar by Years in Town.

Years in Town	n	% Yes	% No
0-1	16	18.8	81.3
2-5	58	6.9	93.1
6-10	22	40.9	59.1
11-20	24	45.8	54.2
More than 20	21	28.6	71.5

Table B125. Have You Set a Leak Alert Through Aquastar by Age.

Age	n	% Yes	% No
18-25	3	0.0	100.0
26-35	25	24.0	76.0
36-45	44	13.6	86.4
46-55	32	40.6	59.4
56-65	22	13.6	86.4
66-75	8	62.5	37.5
Over 75	7	0.0	100.0

Tracking Water Use Through Aquastar Crosstabulations

Table B126. Have You Tracked Your Water Use Through Aquastar by Municipality.

Municipality	n	% Yes	% No
Cary	118	79.7	20.3
Morrisville	21	52.4	47.6

Table B127. Have You Tracked Your Water Use Through Aquastar by Years in Town.

Years in Town	n	% Yes	% No
0-1	15	60.0	40.0
2-5	57	75.4	24.6
6-10	23	87.0	13.0
11-20	23	78.3	21.7
More than 20	21	71.4	28.6

Table B128. Have You Tracked Your Water Use Through Aquastar by Age.

Age	n	% Yes	% No
18-25	2	0.0	100.0
26-35	25	80.0	20.0
36-45	44	75.0	25.0
46-55	31	87.1	12.9
56-65	22	63.6	36.4
66-75	8	87.5	12.5
Over 75	7	57.1	42.9

Examined Water Use Graph on Water Bill Crosstabulations

Table B129. Have You Looked at Your Water Graph on Your Water Bill by Municipality.

Municipality	n	% Yes	% No
Cary	121	86.0	14.0
Morrisville	21	57.1	42.9

Table B130. Have You Looked at Your Water Graph on Your Water Bill by Housing.

Housing	n	% Yes	% No
Single Family	105	86.7	13.3
Townhouse/Condo	33	66.7	33.3
Apartment	3	100.0	0.0
Other	1	0.0	100.0

Table B131. Have You Looked at Your Water Graph on Your Water Bill by Years in Town.

Years in Town	n	% Yes	% No
0-1	15	60.0	40.0
2-5	57	78.9	21.1
6-10	26	88.5	11.5
11-20	23	87.0	13.0
More than 20	21	90.5	9.5

Table B132. Have You Looked at Your Water Graph on Your Water Bill by Age.

Age	n	% Yes	% No
18-25	2	0.0	100.0
26-35	27	74.1	25.9
36-45	44	84.1	15.9
46-55	32	90.6	9.4
56-65	22	72.7	27.3
66-75	8	100.0	0.0
Over 75	7	85.7	14.3

Actions Taken to Reduce Water Use Crosstabulations

Table B133. In the Past 5 Years Has Your Household Taken Any Actions to Reduce its Water Use by Municipality.

Municipality	n	% Yes	% No
Cary	351	37.6	62.4
Morrisville	48	39.6	60.4

Table B134. In the Past 5 Years Has Your Household Taken Any Actions to Reduce its Water Use by Housing.

Housing	n	% Yes	% No
Single Family	302	39.4	60.6
Townhouse/Condo	78	35.9	64.1
Apartment	12	16.7	83.3
Other	3	33.3	66.7

Table B135. In the Past 5 Years Has Your Household Taken Any Actions to Reduce its Water Use by Years in Town.

Years in Town	n	% Yes	% No
0-1	45	35.6	64.4
2-5	125	33.6	66.4
6-10	90	34.4	65.6
11-20	70	38.6	61.4
More than 20	66	53.0	47.0

Table B136. In the Past 5 Years Has Your Household Taken Any Actions to Reduce its Water Use by Age.

Age	n	% Yes	% No
18-25	8	37.5	62.5
26-35	52	32.7	67.3
36-45	112	38.4	61.6
46-55	98	38.8	61.2
56-65	57	52.6	47.4
66-75	38	34.2	65.8
Over 75	31	19.4	80.6

Water Efficiency: Actions to Use Water Wisely Inside the Home Crosstabulations

Table B137. Actions Taken to Use Water Wisely Inside the Home by Cary Resident – In Order of Usage. (n=131)

Conservation Action Inside the Home	% Yes	% No
Use clothes washer less or with fuller loads	86.4	13.6
Repaired leak in faucet or toilet	84.7	15.3
Use dishwasher less or with fuller loads	83.2	16.8
Take shorter showers	76.5	23.5
Installed new toilets	54.5	45.5
Installed low-flow showerheads	53.8	46.2
Installed water-efficient clothes washer	53.4	46.6
Installed water efficient dishwasher	43.9	56.1
Catch water in bucket to reuse while water warms	18.9	81.1

Table B138. Actions Taken to Use Water Wisely Inside the Home by Morrisville Resident – In Order of Usage. (n=19)

Conservation Action Inside the Home	% Yes	% No
Repaired leak in faucet or toilet	100.0	0.0
Take shorter showers	94.7	5.3
Use clothes washer less or with fuller loads	94.7	5.3
Use dishwasher less or with fuller loads	89.5	10.5
Installed water-efficient clothes washer	57.9	42.1
Installed low-flow showerheads	52.6	47.4
Installed new toilets	31.6	68.4
Installed water efficient dishwasher	26.3	73.7
Catch water in bucket to reuse while water warms	15.8	84.2

Table B139. Actions Taken to Use Water Wisely Inside the Home by Single Family Household – In Order of Usage. (n=118)

Conservation Action Inside the Home	% Yes	% No
Use clothes washer less or with fuller loads	89.1	10.9
Use dishwasher less or with fuller loads	85.7	14.3
Repaired leak in faucet or toilet	84.7	15.3
Take shorter showers	79.0	21.0
Installed water-efficient clothes washer	58.3	41.7
Installed low-flow showerheads	57.1	42.9
Installed new toilets	55.5	44.5
Installed water efficient dishwasher	47.9	52.1
Catch water in bucket to reuse while water warms	21.8	78.2

Table B140. Actions Taken to Use Water Wisely Inside the Home by Other Household – In Order of Usage. (n=31)

Conservation Action Inside the Home	% Yes	% No
Repaired leak in faucet or toilet	93.5	6.5
Use clothes washer less or with fuller loads	80.6	19.4
Take shorter showers	77.4	22.6
Use dishwasher less or with fuller loads	77.4	22.6
Installed low-flow showerheads	41.9	58.1
Installed new toilets	38.7	61.3
Installed water-efficient clothes washer	35.5	64.5
Installed water efficient dishwasher	19.4	80.6
Catch water in bucket to reuse while water warms	6.5	93.5

Table B141. Actions Taken to Use Water Wisely Inside the Home by 0-1 Year Residents – In Order of Usage. (n=15)

Conservation Action Inside the Home	% Yes	% No
Take shorter showers	93.8	6.3
Use clothes washer less or with fuller loads	93.8	6.3
Repaired leak in faucet or toilet	93.8	6.3
Use dishwasher less or with fuller loads	86.7	13.3
Installed low-flow showerheads	43.8	56.3
Installed water-efficient clothes washer	41.2	58.8
Installed new toilets	31.3	68.8
Installed water efficient dishwasher	31.3	68.8
Catch water in bucket to reuse while water warms	6.3	93.8

Table B142. Actions Taken to Use Water Wisely Inside the Home by 2-5 Year Residents – In Order of Usage. (n=42)

Conservation Action Inside the Home	% Yes	% No
Repaired leak in faucet or toilet	90.5	9.5
Use clothes washer less or with fuller loads	88.1	11.9
Use dishwasher less or with fuller loads	85.7	14.3
Take shorter showers	81.0	19.0
Installed water-efficient clothes washer	57.1	42.9
Installed low-flow showerheads	52.4	47.6
Installed new toilets	35.7	64.3
Installed water efficient dishwasher	35.7	64.3
Catch water in bucket to reuse while water warms	19.0	81.0

Table B143. Actions Taken to Use Water Wisely Inside the Home by 6-10 Year Residents – In Order of Usage. (n=31)

Conservation Action Inside the Home	% Yes	% No
Use clothes washer less or with fuller loads	83.9	16.1
Use dishwasher less or with fuller loads	80.6	19.4
Repaired leak in faucet or toilet	80.6	19.4
Take shorter showers	74.2	25.8
Installed low-flow showerheads	51.6	48.4
Installed new toilets	51.6	48.4
Installed water-efficient clothes washer	48.4	51.6
Installed water efficient dishwasher	35.5	64.5
Catch water in bucket to reuse while water warms	16.1	83.9

Table B144. Actions Taken to Use Water Wisely Inside the Home by More Than 10 Year Residents – In Order of Usage. (n=61)

Conservation Action Inside the Home	% Yes	% No
Use clothes washer less or with fuller loads	87.1	12.9
Repaired leak in faucet or toilet	85.2	14.8
Use dishwasher less or with fuller loads	83.9	16.1
Take shorter showers	75.8	24.2
Installed new toilets	67.7	32.3
Installed water-efficient clothes washer	58.1	41.9
Installed low-flow showerheads	58.1	41.9
Installed water efficient dishwasher	51.6	48.4
Catch water in bucket to reuse while water warms	22.6	77.4

Table B145. Actions Taken to Use Water Wisely Inside the Home by 18-25 Age Group – In Order of Usage. (n=3)

Conservation Action Inside the Home	% Yes	% No
Take shorter showers	100.0	0.0
Repaired leak in faucet or toilet	100.0	0.0
Installed low-flow showerheads	66.7	33.3
Use clothes washer less or with fuller loads	66.7	33.3
Installed water-efficient clothes washer	33.3	66.7
Use dishwasher less or with fuller loads	33.3	66.7
Installed new toilets	0.0	100.0
Installed water efficient dishwasher	0.0	100.0
Catch water in bucket to reuse while water warms	0.0	100.0

Table B146. Actions Taken to Use Water Wisely Inside the Home by 26-35 Age Group – In Order of Usage. (n=17)

Conservation Action Inside the Home	% Yes	% No
Take shorter showers	88.2	11.8
Use clothes washer less or with fuller loads	88.2	11.8
Use dishwasher less or with fuller loads	82.4	17.6
Repaired leak in faucet or toilet	82.4	17.6
Installed water-efficient clothes washer	41.2	58.8
Installed low-flow showerheads	41.2	58.8
Installed new toilets	29.4	70.6
Installed water efficient dishwasher	29.4	70.6
Catch water in bucket to reuse while water warms	17.6	82.4

Table B147. Actions Taken to Use Water Wisely Inside the Home by 36-45 Age Group – In Order of Usage. (n=43)

Conservation Action Inside the Home	% Yes	% No
Use dishwasher less or with fuller loads	90.7	9.3
Use clothes washer less or with fuller loads	90.7	9.3
Repaired leak in faucet or toilet	90.7	9.3
Take shorter showers	86.0	14.0
Installed water-efficient clothes washer	63.6	36.4
Installed low-flow showerheads	51.2	48.8
Installed new toilets	46.5	53.5
Installed water efficient dishwasher	46.5	53.5
Catch water in bucket to reuse while water warms	20.9	79.1

Table B148. Actions Taken to Use Water Wisely Inside the Home by 46-55 Age Group – In Order of Usage. (n=38)

Conservation Action Inside the Home	% Yes	% No
Repaired leak in faucet or toilet	89.5	10.5
Use clothes washer less or with fuller loads	78.9	21.1
Use dishwasher less or with fuller loads	76.3	23.7
Take shorter showers	68.4	31.6
Installed low-flow showerheads	65.8	34.2
Installed new toilets	63.2	36.8
Installed water-efficient clothes washer	55.3	44.7
Installed water efficient dishwasher	50.0	50.0
Catch water in bucket to reuse while water warms	13.2	86.8

Table B149. Actions Taken to Use Water Wisely Inside the Home by 56-65 Age Group – In Order of Usage. (n=29)

Conservation Action Inside the Home	% Yes	% No
Use clothes washer less or with fuller loads	100.0	0.0
Use dishwasher less or with fuller loads	93.1	6.9
Repaired leak in faucet or toilet	89.7	10.3
Take shorter showers	83.3	16.7
Installed water-efficient clothes washer	60.0	40.0
Installed new toilets	60.0	40.0
Installed low-flow showerheads	43.3	56.7
Installed water efficient dishwasher	36.7	63.3
Catch water in bucket to reuse while water warms	26.7	73.3

Table B150. Actions Taken to Use Water Wisely Inside the Home by 66-75 Age Group – In Order of Usage. (n=13)

Conservation Action Inside the Home	% Yes	% No
Use dishwasher less or with fuller loads	84.6	15.4
Use clothes washer less or with fuller loads	84.6	15.4
Repaired leak in faucet or toilet	69.2	30.8
Take shorter showers	61.5	38.5
Installed low-flow showerheads	61.5	38.5
Installed new toilets	61.5	38.5
Installed water efficient dishwasher	61.5	38.5
Installed water-efficient clothes washer	46.2	53.8
Catch water in bucket to reuse while water warms	15.4	84.6

Table B151. Actions Taken to Use Water Wisely Inside the Home by Over 75 Age Group – In Order of Usage. (n=6)

Conservation Action Inside the Home	% Yes	% No
Take shorter showers	66.7	33.3
Use dishwasher less or with fuller loads	66.7	33.3
Use clothes washer less or with fuller loads	66.7	33.3
Repaired leak in faucet or toilet	66.7	33.3
Installed low-flow showerheads	50.0	50.0
Installed new toilets	50.0	50.0
Installed water-efficient clothes washer	16.7	83.3
Catch water in bucket to reuse while water warms	16.7	83.3
Installed water efficient dishwasher	0.0	100.0

Water Efficiency Information Sources: Actions to Use Water Wisely Outside the Home Crosstabulations

Table B152. Actions Taken to Use Water Wisely Outside the Home by Cary Resident – In Order of Usage. (n=128)

Conservation Action Outside the Home	% Yes	% No
Added mulch to landscaped areas	57.7	42.3
Used native plants to North Carolina to your landscape	56.6	43.4
Washed car less often	56.5	43.5
Added soil amendments to improve soil conditions	56.2	43.8
Watered lawn and shrubs less often	52.3	47.7
Watered one inch or less per week including rainfall	32.0	68.0
Followed the alternate day water rules	27.7	72.3
Watered lawn and shrubs at night	26.9	73.1
Repaired damaged or leaking irrigation system	19.2	80.8
Reduced run times on automatic sprinklers	13.2	86.8
Used cycling of water when watering	3.8	96.2

Table B153. Actions Taken to Use Water Wisely Outside the Home by Morrisville Resident – In Order of Usage. (n=18)

Conservation Action Outside the Home	% Yes	% No
Washed car less often	78.9	21.1
Watered lawn and shrubs less often	52.6	47.4
Used native plants to North Carolina to your landscape	52.6	47.4
Added soil amendments to improve soil conditions	47.4	52.6
Added mulch to landscaped areas	47.4	52.6
Followed the alternate day water rules	47.4	52.6
Watered one inch or less per week including rainfall	33.3	66.7
Watered lawn and shrubs at night	31.6	68.4
Repaired damaged or leaking irrigation system	22.2	77.8
Reduced run times on automatic sprinklers	15.8	84.2
Used cycling of water when watering	5.3	94.7

Table B154. Actions Taken to Use Water Wisely Outside the Home by Single Family Household – In Order of Usage. (n=114)

Conservation Action Outside the Home	% Yes	% No
Added mulch to landscaped areas	63.2	36.8
Washed car less often	63.0	37.0
Used native plants to North Carolina to your landscape	62.1	37.9
Added soil amendments to improve soil conditions	61.5	38.5
Watered lawn and shrubs less often	57.3	42.7
Watered one inch or less per week including rainfall	36.0	64.0
Followed the alternate day water rules	34.2	65.8
Watered lawn and shrubs at night	29.1	70.9
Repaired damaged or leaking irrigation system	23.9	76.1
Reduced run times on automatic sprinklers	16.4	83.6
Used cycling of water when watering	4.3	95.7

Table B155. Actions Taken to Use Water Wisely Outside the Home by Other Household – In Order of Usage. (n=30)

Conservation Action Outside the Home	% Yes	% No
Washed car less often	43.3	56.7
Watered lawn and shrubs less often	32.3	67.7
Used native plants to North Carolina to your landscape	32.3	67.7
Added soil amendments to improve soil conditions	29.0	71.0
Added mulch to landscaped areas	29.0	71.0
Watered lawn and shrubs at night	19.4	80.6
Watered one inch or less per week including rainfall	16.1	83.9
Followed the alternate day water rules	16.1	83.9
Repaired damaged or leaking irrigation system	3.3	96.7
Reduced run times on automatic sprinklers	3.2	96.8
Used cycling of water when watering	3.2	96.8

Table B156. Actions Taken to Use Water Wisely Outside the Home by 0-1 Year Residents – In Order of Usage. (n=15)

Conservation Action Outside the Home	% Yes	% No
Washed car less often	50.0	50.0
Watered lawn and shrubs less often	43.8	56.3
Added soil amendments to improve soil conditions	37.5	62.5
Added mulch to landscaped areas	37.5	62.5
Used native plants to North Carolina to your landscape	37.5	62.5
Watered lawn and shrubs at night	31.3	68.8
Watered one inch or less per week including rainfall	25.0	75.0
Followed the alternate day water rules	25.0	75.0
Reduced run times on automatic sprinklers	6.3	93.8
Repaired damaged or leaking irrigation system	0.0	100.0
Used cycling of water when watering	0.0	100.0

Table B157. Actions Taken to Use Water Wisely Outside the Home by 2-5 Year Residents – In Order of Usage. (n=41)

Conservation Action Outside the Home	% Yes	% No
Washed car less often	66.7	33.3
Used native plants to North Carolina to your landscape	56.1	43.9
Added mulch to landscaped areas	52.4	47.6
Added soil amendments to improve soil conditions	50.0	50.0
Watered lawn and shrubs less often	42.9	57.1
Watered one inch or less per week including rainfall	28.6	71.4
Followed the alternate day water rules	28.6	71.4
Watered lawn and shrubs at night	26.2	73.8
Repaired damaged or leaking irrigation system	14.3	85.7
Reduced run times on automatic sprinklers	12.2	87.8
Used cycling of water when watering	4.8	95.2

Table B158. Actions Taken to Use Water Wisely Outside the Home by 6-10 Year Residents – In Order of Usage. (n=30)

Conservation Action Outside the Home	% Yes	% No
Washed car less often	56.7	43.3
Added soil amendments to improve soil conditions	51.6	48.4
Added mulch to landscaped areas	51.6	48.4
Used native plants to North Carolina to your landscape	51.6	48.4
Watered lawn and shrubs less often	48.4	51.6
Watered one inch or less per week including rainfall	23.3	76.7
Watered lawn and shrubs at night	16.1	83.9
Followed the alternate day water rules	16.1	83.9
Repaired damaged or leaking irrigation system	9.7	90.3
Reduced run times on automatic sprinklers	6.5	93.5
Used cycling of water when watering	3.2	96.8

Table B159. Actions Taken to Use Water Wisely Outside the Home by More Than 10 Year Residents – In Order of Usage. (n=58)

Conservation Action Outside the Home	% Yes	% No
Added mulch to landscaped areas	66.7	33.3
Added soil amendments to improve soil conditions	65.0	35.0
Watered lawn and shrubs less often	63.3	36.7
Used native plants to North Carolina to your landscape	63.3	36.7
Washed car less often	58.1	41.9
Watered one inch or less per week including rainfall	41.4	58.6
Followed the alternate day water rules	40.0	60.0
Watered lawn and shrubs at night	33.3	66.7
Repaired damaged or leaking irrigation system	33.3	66.7
Reduced run times on automatic sprinklers	20.0	80.0
Used cycling of water when watering	5.0	95.0

Table B160. Actions Taken to Use Water Wisely Outside the Home by 0-$45,000 Income Level – In Order of Usage. (n=4)

Conservation Action Outside the Home	% Yes	% No
Washed car less often	25.0	75.0
Watered lawn and shrubs less often	25.0	75.0
Watered lawn and shrubs at night	25.0	75.0
Watered one inch or less per week including rainfall	25.0	75.0
Added soil amendments to improve soil conditions	25.0	75.0
Added mulch to landscaped areas	25.0	75.0
Used native plants to North Carolina to your landscape	25.0	75.0
Reduced run times on automatic sprinklers	0.0	100.0
Repaired damaged or leaking irrigation system	0.0	100.0
Followed the alternate day water rules	0.0	100.0
Used cycling of water when watering	0.0	100.0

Table B161. Actions Taken to Use Water Wisely Outside the Home by $45,001-$75,000 Income Level – In Order of Usage. (n=22)

Conservation Action Outside the Home	% Yes	% No
Washed car less often	50.0	50.0
Added soil amendments to improve soil conditions	50.0	50.0
Added mulch to landscaped areas	50.0	50.0
Used native plants to North Carolina to your landscape	50.0	50.0
Watered lawn and shrubs less often	45.5	54.5
Watered lawn and shrubs at night	27.3	72.7
Watered one inch or less per week including rainfall	27.3	72.7
Reduced run times on automatic sprinklers	9.1	90.9
Repaired damaged or leaking irrigation system	9.1	90.9
Followed the alternate day water rules	9.1	90.9
Used cycling of water when watering	9.1	90.9

Table B162. Actions Taken to Use Water Wisely Outside the Home by $75,001-$100,000 Income Level – In Order of Usage. (n=23)

Conservation Action Outside the Home	% Yes	% No
Washed car less often	68.0	32.0
Added soil amendments to improve soil conditions	56.0	44.0
Added mulch to landscaped areas	56.0	44.0
Used native plants to North Carolina to your landscape	56.0	44.0
Watered lawn and shrubs less often	48.0	52.0
Followed the alternate day water rules	36.0	64.0
Watered lawn and shrubs at night	32.0	68.0
Watered one inch or less per week including rainfall	26.1	73.9
Repaired damaged or leaking irrigation system	25.0	75.0
Reduced run times on automatic sprinklers	16.7	83.3
Used cycling of water when watering	8.0	92.0

Table B163. Actions Taken to Use Water Wisely Outside the Home by $100,001-$150,000 Income Level – In Order of Usage. (n=36)

Conservation Action Outside the Home	% Yes	% No
Used native plants to North Carolina to your landscape	61.1	38.9
Washed car less often	59.5	40.5
Added soil amendments to improve soil conditions	55.6	44.4
Added mulch to landscaped areas	55.6	44.4
Watered lawn and shrubs less often	47.2	52.8
Watered one inch or less per week including rainfall	33.3	66.7
Followed the alternate day water rules	27.8	72.2
Watered lawn and shrubs at night	22.2	77.8
Reduced run times on automatic sprinklers	11.1	88.9
Repaired damaged or leaking irrigation system	11.1	88.9
Used cycling of water when watering	2.8	97.2

Table B164. Actions Taken to Use Water Wisely Outside the Home by Over $150,000 Income Level – In Order of Usage. (n=30)

Conservation Action Outside the Home	% Yes	% No
Watered lawn and shrubs less often	64.5	35.5
Used native plants to North Carolina to your landscape	64.5	35.5
Added mulch to landscaped areas	61.3	38.7
Added soil amendments to improve soil conditions	58.1	41.9
Washed car less often	56.7	43.3
Followed the alternate day water rules	45.2	54.8
Watered lawn and shrubs at night	41.9	58.1
Watered one inch or less per week including rainfall	41.9	58.1
Repaired damaged or leaking irrigation system	32.3	67.7
Reduced run times on automatic sprinklers	25.8	74.2
Used cycling of water when watering	3.2	96.8

Table B165. Actions Taken to Use Water Wisely Outside the Home by 18-25 Age Group – In Order of Usage. (n=3)

Conservation Action Outside the Home	% Yes	% No
Washed car less often	66.7	33.3
Watered lawn and shrubs less often	66.7	33.3
Added soil amendments to improve soil conditions	66.7	33.3
Added mulch to landscaped areas	66.7	33.3
Used native plants to North Carolina to your landscape	66.7	33.3
Watered lawn and shrubs at night	33.3	66.7
Watered one inch or less per week including rainfall	33.3	66.7
Followed the alternate day water rules	33.3	66.7
Reduced run times on automatic sprinklers	0.0	100.0
Repaired damaged or leaking irrigation system	0.0	100.0
Used cycling of water when watering	0.0	100.0

Table B166. Actions Taken to Use Water Wisely Outside the Home by 26-35 Age Group – In Order of Usage. (n=16)

Conservation Action Outside the Home	% Yes	% No
Washed car less often	58.8	41.2
Watered lawn and shrubs less often	47.1	52.9
Added mulch to landscaped areas	47.1	52.9
Added soil amendments to improve soil conditions	41.2	58.8
Used native plants to North Carolina to your landscape	41.2	58.8
Watered lawn and shrubs at night	23.5	76.5
Watered one inch or less per week including rainfall	23.5	76.5
Followed the alternate day water rules	17.6	82.4
Reduced run times on automatic sprinklers	5.9	94.1
Repaired damaged or leaking irrigation system	0.0	100.0
Used cycling of water when watering	0.0	100.0

Table B167. Actions Taken to Use Water Wisely Outside the Home by 36-45 Age Group – In Order of Usage. (n=41)

Conservation Action Outside the Home	% Yes	% No
Washed car less often	67.4	32.6
Used native plants to North Carolina to your landscape	59.5	40.5
Added soil amendments to improve soil conditions	58.1	41.9
Added mulch to landscaped areas	58.1	41.9
Watered lawn and shrubs less often	46.5	53.5
Followed the alternate day water rules	32.6	67.4
Watered lawn and shrubs at night	27.9	72.1
Watered one inch or less per week including rainfall	22.0	78.0
Repaired damaged or leaking irrigation system	16.3	83.7
Reduced run times on automatic sprinklers	11.6	88.4
Used cycling of water when watering	4.7	95.3

Table B168. Actions Taken to Use Water Wisely Outside the Home by 46-55 Age Group – In Order of Usage. (n=37)

Conservation Action Outside the Home	% Yes	% No
Used native plants to North Carolina to your landscape	62.2	37.8
Washed car less often	59.5	40.5
Watered lawn and shrubs less often	59.5	40.5
Added soil amendments to improve soil conditions	59.5	40.5
Added mulch to landscaped areas	59.5	40.5
Watered one inch or less per week including rainfall	45.9	54.1
Watered lawn and shrubs at night	32.4	67.6
Followed the alternate day water rules	32.4	67.6
Repaired damaged or leaking irrigation system	29.7	70.3
Reduced run times on automatic sprinklers	21.6	78.4
Used cycling of water when watering	8.1	91.9

Table B169. Actions Taken to Use Water Wisely Outside the Home by 56-65 Age Group – In Order of Usage. (n=29)

Conservation Action Outside the Home	% Yes	% No
Added mulch to landscaped areas	66.7	33.3
Added soil amendments to improve soil conditions	63.3	36.7
Used native plants to North Carolina to your landscape	63.3	36.7
Washed car less often	60.0	40.0
Watered lawn and shrubs less often	56.7	43.3
Watered one inch or less per week including rainfall	37.9	62.1
Followed the alternate day water rules	33.3	66.7
Watered lawn and shrubs at night	30.0	70.0
Repaired damaged or leaking irrigation system	26.7	73.3
Reduced run times on automatic sprinklers	13.8	86.2
Used cycling of water when watering	3.3	96.7

Table B170. Actions Taken to Use Water Wisely Outside the Home by 66-75 Age Group – In Order of Usage. (n=13)

Conservation Action Outside the Home	% Yes	% No
Washed car less often	46.2	53.8
Watered lawn and shrubs less often	38.5	61.5
Added soil amendments to improve soil conditions	38.5	61.5
Added mulch to landscaped areas	38.5	61.5
Watered one inch or less per week including rainfall	30.8	69.2
Used native plants to North Carolina to your landscape	30.8	69.2
Followed the alternate day water rules	23.1	76.9
Watered lawn and shrubs at night	15.4	84.6
Repaired damaged or leaking irrigation system	15.4	84.6
Reduced run times on automatic sprinklers	7.7	92.3
Used cycling of water when watering	0.0	100.0

Table B171. Actions Taken to Use Water Wisely Outside the Home by Over 75 Age Group – In Order of Usage. (n=5)

Conservation Action Outside the Home	% Yes	% No
Watered lawn and shrubs less often	60.0	40.0
Used native plants to North Carolina to your landscape	40.0	60.0
Washed car less often	33.3	66.7
Watered lawn and shrubs at night	20.0	80.0
Watered one inch or less per week including rainfall	20.0	80.0
Added soil amendments to improve soil conditions	20.0	80.0
Added mulch to landscaped areas	20.0	80.0
Followed the alternate day water rules	20.0	80.0
Reduced run times on automatic sprinklers	0.0	100.0
Repaired damaged or leaking irrigation system	0.0	100.0
Used cycling of water when watering	0.0	100.0

Home Constructed After 1994 Crosstabulations

Table B172. Was Your Home Constructed After 1994 by Municipality.

Municipality	n	% Yes	% No	% Don't Know
Cary	131	56.5	38.9	4.6
Morrisville	19	84.2	5.3	10.5

Table B173. Was Your Home Constructed After 1994 by Housing.

Housing	n	% Yes	% No	% Don't Know
Single Family	119	58.8	37.8	3.4
Townhouse/Condo	27	66.7	22.2	11.1
Apartment	2	50.0	0.0	50.0
Other	1	0.0	100.0	0.0

Table B174. Was Your Home Constructed After 1994 by Years in Town.

Years in Town	n	% Yes	% No	% Don't Know
0-1	16	56.3	31.3	12.5
2-5	41	63.4	24.4	12.2
6-10	31	74.2	25.8	0.0
11-20	27	70.4	25.9	3.7
More than 20	35	37.1	62.9	0.0

Table B175. Was Your Home Constructed After 1994 by Age.

Age	n	% Yes	% No	% Don't Know
18-25	3	66.7	0.0	33.3
26-35	17	41.2	41.2	17.6
36-45	42	76.2	21.4	2.4
46-55	38	63.2	31.6	5.3
56-65	30	53.3	43.3	3.3
66-75	13	38.5	61.5	0.0
Over 75	6	50.0	50.0	0.0

Satisfaction with Household's Water Efficiency Efforts Crosstabulations

Table B176. Satisfaction with Your Household's Water Efficiency Efforts by Municipality.

Municipality	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
Cary	131	7.31	0.0	0.8	0.0	0.0	10.7	11.5	28.2	30.5	18.3	88.5
Morrisville	19	7.47	0.0	0.0	0.0	0.0	5.3	10.5	31.6	36.8	15.8	94.7

Table B177. Satisfaction with Your Household's Water Efficiency Efforts by Housing.

Housing	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
Single Family	119	7.36	0.0	0.8	0.0	0.0	8.4	11.8	28.6	31.9	18.5	90.8
Townhouse/Condo	27	7.26	0.0	0.0	0.0	0.0	15.4	7.7	26.9	34.6	15.4	84.6
Apartment	2	5.50	0.0	0.0	0.0	0.0	50.0	50.0	0.0	0.0	0.0	50.0
Other	1	7.00	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0

Table B178. Satisfaction with Your Household's Water Efficiency Efforts by Income.

Income	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
0-$45,000	4	7.75	0.0	0.0	0.0	0.0	0.0	25.0	25.0	0.0	50.0	100.0
$45,001-$75,000	22	7.68	0.0	0.0	0.0	0.0	4.5	9.1	36.4	13.6	36.4	95.5
$75,001-$100,000	25	7.28	0.0	4.0	0.0	0.0	8.0	8.0	32.0	24.0	24.0	88.0
$100,001-$150,000	36	7.22	0.0	0.0	0.0	0.0	13.9	13.9	13.9	52.8	5.6	86.2
Over $150,000	31	7.06	0.0	0.0	0.0	0.0	12.9	16.1	35.5	22.6	12.9	87.1

Table B179. Satisfaction with Your Household's Water Efficiency Efforts by Age.

Age	n	Mean	Very Dissatisfied 1	2	3	4	Neutral 5	6	7	8	Very Satisfied 9	% Above Midpoint
18-25	3	6.67	0.0	0.0	0.0	0.0	0.0	33.3	66.7	0.0	0.0	100.0
26-35	17	6.76	0.0	5.9	0.0	0.0	11.8	11.8	35.3	29.4	5.9	82.4
36-45	42	7.21	0.0	0.0	0.0	0.0	11.9	11.9	31.0	33.3	11.9	88.1
46-55	38	7.45	0.0	0.0	0.0	0.0	10.5	10.5	21.1	39.5	18.4	89.5
56-65	30	7.40	0.0	0.0	0.0	0.0	10.0	13.3	26.7	26.7	23.3	90.0
66-75	13	8.00	0.0	0.0	0.0	0.0	7.7	0.0	23.1	23.1	46.2	92.4
Over 75	6	7.67	0.0	0.0	0.0	0.0	0.0	0.0	50.0	33.3	16.7	100.0

Awareness of Town's Water Waste Ordinance Crosstabulations

Table B180. Awareness of Town's Water Waste Ordinance by Municipality.

Municipality	n	% Yes	% No	% Maybe
Cary	351	6.6	83.5	10.0
Morrisville	48	14.6	83.3	2.1

Table B181. Awareness of Town's Water Waste Ordinance by Years in Town.

Years in Town	n	% Yes	% No	% Maybe
0-1	46	6.5	91.3	2.2
2-5	125	9.6	84.8	5.6
6-10	90	5.6	82.2	12.2
11-20	70	5.7	85.7	8.6
More than 20	66	9.1	74.2	16.7

Table B182. Awareness of Town's Water Waste Ordinance by Age.

Age	n	% Yes	% No	% Maybe
18-25	8	12.5	75.0	12.5
26-35	52	7.7	84.6	7.7
36-45	113	7.1	86.7	6.2
46-55	98	5.1	86.7	8.2
56-65	57	12.3	71.9	15.8
66-75	38	2.6	81.6	15.8
Over 75	31	12.9	83.9	3.2

Table B183. Awareness of Town's Water Waste Ordinance by Method of Watering Grass.

Watering Method	n	% Yes	% No	% Maybe
We choose not to water	207	3.9	87.0	9.2
We use a hose and sprinkler	105	8.6	81.9	9.5
We use an automatic irrigation system	50	18.0	70.0	12.0
We are not responsible to maintain our lawn	35	11.4	85.7	2.9

Table B184. Awareness of Town's Water Waste Ordinance by Summer Watering Habits.

Watering Habits	n	% Yes	% No	% Maybe
We water 3 days per week	29	17.2	75.9	6.9
We water more than 3 days per week	3	33.3	66.7	0.0
We water less than 3 days per week	13	7.7	61.5	30.8
We water only as needed	110	10.0	80.9	9.1

Table B185. Awareness of Town's Water Waste Ordinance by Tracked Water Use Through Aquastar.

Tracked Water Use Through Aquastar	n	% Yes	% No	% Maybe
Yes	105	8.6	79.0	12.4
No	34	11.8	76.5	11.8

Awareness of Town's Rain Sensor Ordinance Crosstabulations

Table B186. Awareness of Town's Rain Sensor Ordinance by Municipality.

Municipality	n	% Yes	% No	% Maybe
Cary	351	15.1	80.9	4.0
Morrisville	48	12.5	85.4	2.1

Table B187. Awareness of Town's Rain Sensor Ordinance by Years in Town.

Years in Town	n	% Yes	% No	% Maybe
0-1	46	8.7	91.3	0.0
2-5	125	16.0	81.6	2.4
6-10	90	7.8	85.6	6.7
11-20	70	21.4	75.7	2.9
More than 20	66	19.7	74.2	6.1

Table B188. Awareness of Town's Rain Sensor Ordinance by Age.

Age	n	% Yes	% No	% Maybe
18-25	8	12.5	75.0	12.5
26-35	52	11.5	86.5	1.9
36-45	113	10.6	85.8	3.5
46-55	98	17.3	78.6	4.1
56-65	57	22.8	75.4	1.8
66-75	38	15.8	76.3	7.9
Over 75	31	12.9	87.1	0.0

Table B189. Awareness of Town's Rain Sensor Ordinance by Method of Watering Grass.

Watering Method	n	% Yes	% No	% Maybe
We choose not to water	207	8.2	87.9	3.9
We use a hose and sprinkler	105	13.3	81.0	5.7
We use an automatic irrigation system	50	48.0	50.0	2.0
We are not responsible to maintain our lawn	35	8.6	91.4	0.0

Table B190. Awareness of Town's Rain Sensor Ordinance by Summer Watering Habits.

Watering Habits	n	% Yes	% No	% Maybe
We water 3 days per week	29	31.0	65.5	3.4
We water more than 3 days per week	3	33.3	66.7	0.0
We water less than 3 days per week	13	30.8	53.8	15.4
We water only as needed	110	21.8	74.5	3.6

Table B191. Awareness of Town's Rain Sensor Ordinance by Tracked Water Use Through Aquastar.

Tracked Water Use Through Aquastar	n	% Yes	% No	% Maybe
Yes	105	18.1	76.2	5.7
No	34	17.6	79.4	2.9

Awareness of Town's Alternate Day Watering Ordinance Crosstabulations

Table B192. Awareness of Town's Alternate Day Watering Ordinance by Municipality.

Municipality	n	% Yes	% No	% Maybe
Cary	351	61.8	35.0	3.1
Morrisville	48	41.7	56.3	2.1

Table B193. Awareness of Town's Alternate Day Watering Ordinance by Years in Town.

Years in Town	n	% Yes	% No	% Maybe
0-1	46	30.4	69.6	0.0
2-5	125	53.6	43.2	3.2
6-10	90	57.8	35.6	6.7
11-20	70	75.7	24.3	0.0
More than 20	66	75.8	21.2	3.0

Table B194. Awareness of Town's Alternate Day Watering Ordinance by Age.

Age	n	% Yes	% No	% Maybe
18-25	8	37.5	62.5	0.0
26-35	52	50.0	42.3	7.7
36-45	113	54.9	42.5	2.7
46-55	98	65.3	32.7	2.0
56-65	57	63.2	33.3	3.5
66-75	38	65.8	31.6	2.6
Over 75	31	61.3	38.7	0.0

Table B195. Awareness of Town's Alternate Day Watering Ordinance by Method of Watering Grass.

Watering Method	n	% Yes	% No	% Maybe
We choose not to water	207	54.1	43.0	2.9
We use a hose and sprinkler	105	61.9	33.3	4.8
We use an automatic irrigation system	50	92.0	8.0	0.0
We are not responsible to maintain our lawn	35	34.3	62.9	2.9

Table B196. Awareness of Town's Alternate Day Watering Ordinance by Summer Watering Habits.

Watering Habits	n	% Yes	% No	% Maybe
We water 3 days per week	29	96.6	3.4	0.0
We water more than 3 days per week	3	66.7	33.3	0.0
We water less than 3 days per week	13	69.2	15.4	15.4
We water only as needed	110	65.5	31.8	2.7

Table B197. Awareness of Town's Alternate Day Watering Ordinance by Tracked Water Use Through Aquastar.

Tracked Water Use Through Aquastar	n	% Yes	% No	% Maybe
Yes	105	66.7	32.4	1.0
No	34	58.8	41.2	0.0

Awareness of Town's Alternate Day Watering Ordinance Crosstabulations

Table B198. Awareness of Town's Alternate Day Watering Ordinance by Municipality.

Municipality	n	% Wed/Fri/Sun	% Tue/Thur/Sat	% Not Sure
Cary	220	13.6	17.3	69.1
Morrisville	23	4.3	8.7	87.0

Table B199. Awareness of Town's Alternate Day Watering Ordinance by Years in Town.

Years in Town	n	% Wed/Fri/Sun	% Tue/Thur/Sat	% Not Sure
0-1	16	12.5	12.5	75.0
2-5	68	5.9	14.7	79.4
6-10	56	16.1	17.9	66.1
11-20	53	20.8	13.2	66.0
More than 20	49	10.2	22.4	67.3

Table B200. Awareness of Town's Alternate Day Watering Ordinance by Age.

Age	n	% Wed/Fri/Sun	% Tue/Thur/Sat	% Not Sure
18-25	3	0.0	33.3	66.7
26-35	28	3.6	7.1	89.3
36-45	63	14.3	12.7	73.0
46-55	65	12.3	13.8	73.8
56-65	37	13.5	27.0	59.5
66-75	25	24.0	16.0	60.0
Over 75	20	10.0	25.0	65.0

Table B201. Awareness of Town's Alternate Day Watering Ordinance by Method of Watering Grass.

Watering Method	n	% Wed/Fri/Sun	% Tue/Thur/Sat	% Not Sure
We choose not to water	112	4.5	7.1	88.4
We use a hose and sprinkler	71	14.1	22.5	63.4
We use an automatic irrigation system	46	32.6	32.6	34.8
We are not responsible to maintain our lawn	12	8.3	0.0	91.7

Table B202. Awareness of Town's Alternate Day Watering Ordinance by Summer Watering Habits.

Watering Habits	n	% Wed/Fri/Sun	% Tue/Thur/Sat	% Not Sure
We water 3 days per week	28	28.6	39.3	32.1
We water more than 3 days per week	2	0.0	0.0	100.0
We water less than 3 days per week	10	40.0	30.0	30.0
We water only as needed	77	16.9	23.4	59.7

Table B203. Awareness of Town's Alternate Day Watering Ordinance by Tracked Water Use Through Aquastar.

Tracked Water Use Through Aquastar	n	% Wed/Fri/Sun	% Tue/Thur/Sat	% Not Sure
Yes	92	12.0	18.5	69.6
No	151	13.2	15.2	71.5

Selected Housing Crosstabulations

Table B204. Housing by Municipality.

Municipality	n	Single Family	Townhome/ Condo	Apartment	Other
Cary	348	80.5	16.7	2.0	0.9
Morrisville	48	47.9	41.7	10.4	0.0

Table B205. Housing by Income.

Income	n	Single Family	Townhome/ Condo	Apartment	Other
0-$45,000	23	43.5	34.8	17.4	4.3
$45,001-$75,000	55	56.4	36.4	7.3	0.0
$75,001-$100,000	72	69.4	26.4	2.8	1.4
$100,001-$150,000	80	81.3	17.5	0.0	1.3
Over $150,000	89	96.6	2.2	1.1	0.0

Table B206. Housing by Age.

Age	n	Single Family	Townhome/ Condo	Apartment	Other
18-25	8	50.0	37.5	12.5	0.0
26-35	52	48.1	46.2	0.0	5.8
36-45	113	81.4	17.7	0.9	0.0
46-55	98	81.6	14.3	4.1	0.0
56-65	56	76.8	17.9	5.4	0.0
66-75	37	86.5	8.1	5.4	0.0
Over 75	31	83.9	12.9	3.2	0.0

Selected Municipality Crosstabulations

Table B207. Years in Town by Municipality.

Municipality	n	0-1	2-5	6-10	11-20	Over 20
Cary	349	11.2	28.9	24.1	17.8	18.1
Morrisville	48	14.6	50.0	12.5	16.7	6.3

Table B208. Income by Municipality.

Municipality	n	0-$45,000	$45,001-$75,000	$75,001-$100,000	$100,001-$150,000	Over $150,000
Cary	280	6.8	16.1	20.4	26.4	30.4
Morrisville	41	12.2	26.8	36.6	14.6	9.8

Table B209. Age by Municipality.

Municipality	n	18-25	26-35	36-45	46-55	56-65	66-75	Over 75
Cary	349	2.0	12.6	27.5	25.2	13.8	10.6	8.3
Morrisville	2.1	2.1	16.7	35.4	20.8	18.8	2.1	4.2

Appendix C

Reasons for Low Ratings (Below 5) for Satisfaction with the Day-to-Day Water/Sewer Utility Services

8. How satisfied are you with your day-to-day water/sewer utility services? Reasons for responses below 5 on the scale.

- Water bill/Cost too high. (12 comments)
- Poor water pressure. (7 comments)
- My toilets backed up twice in the past 6 months. Cary comes out and does temporary fix at the curb but it keeps happening.
- Poor water quality.
- Construction on pipes makes your water black and dirty. I had no warning when they were going to do it.
- I do not like the tiered water services.

Appendix D

Reasons for Low Ratings (Below 5) for Satisfaction with the Taste and Quality of Drinking Water

9. How satisfied are you with the taste and quality of your drinking water? Reasons for responses below 5 on the scale.

- Don't drink Town water/Use a filter/Drink bottle water. (75 comments)
- Bad taste – chemical/mineral. (25 comments)
- Water has a chlorine taste/smell. (14 comments)
- Bad odor. (11 comments)
- Discolored – orange tint/murky. (9 comments)
- It leaves a black residue. (2 comments)
- When the Town puts chemicals in the water, it is horrible and lasts a month.
- Town does not have good filtration.
- Don't put fluorine in the water. Fluorine is horrible and really needs to go. It will cause me to move out of the area. It is mass medication and toxic. If they want to help those who need fluorine, start a program for them. Don't medicate and poison those who don't need it. The Town is not a doctor. If I need fluorine for me or my family, then I will get it myself. I feel fluorine in the water is the worst thing about Cary.
- The treatments are horrible, the only time the water is bad.
- It is worse during treatments.
- I don't trust the pipes in my area but I am sure the Town's water is fine. Every day is great except for March when they clean the pipes.
- I use well water.

Appendix E

Reasons for Low Ratings (Below 5) for How the Town Implements its Water Efficiency Programs

10. How satisfied are you with how the Town implements its water efficiency programs such as public outreach, education, and water audits? Reasons for responses below 5 on the scale.

    - Unaware of it. (35 comments)
    - Don't receive or see much information. (4 comments)
    - Need better enforcement with water use. (2 comments)

Appendix F

Reasons for Low Ratings (Below 5) for How the Town Provides Water-Related Information

11. How satisfied are you with how the Town provides water-related information? Reasons for responses below 5 on the scale.

    - Don't see water-related information. (7 comments)
    - I am unaware of most things and have to search out information.
    - I do my billing online now and no longer receive BUD. I would still like to get BUD news.
    - I would like more information about what is in the water and the delivery systems adding chemicals.

Appendix G

Reasons for Low Ratings (Below 5) for I Conserve Water Because it's the Right Thing to Do

14. I conserve water because it's the right thing to do. Reasons for responses below 5 on the scale.

- I conserve because the cost of water is high. (4 comments)
- I don't know about laws and ordinances.
- I don’t think about it much.

Appendix H

Reasons for Low Ratings (Below 5) for Effectiveness of Regulations, Like Alternate Day Watering

15. How effective are regulations, like alternate day watering?

- Don’t water/Don’t use it. (126 comments)
- Not enforced/People don’t comply with it. (6 comments)
- Unaware of it. (5 comments)
- It does not need to be enforced. (3 comments)
- I use well water. (3 comments)
- I just don’t see that it changes the amount of water used total.
- It is sloppy – set timers but you can’t set them to skip 2 consecutive days, so then you get fined or scolded for not being exactly on your days.
- I would like to use but my water pressure is low.
- I don't water often enough to use alternate day watering.
- I don't water enough to know.
- The neighborhood lawn care handles the irrigation systems.
- There is no sense in watering if you can't water enough to keep your grass alive. It just wastes water.
- There are too many exceptions.
- Some people don’t water at all and some water all the time.
- It would be interesting to see the data on its effectiveness.

Appendix I

Reasons for Low Ratings (Below 5) for Effectiveness of the Town's Website in Helping the Respondent Conserve Water

16. How effective is the Town's website in helping you conserve?

- Don't use the website/Don’t use the website for water conservation. (153 comments)
- Don’t go online. (5 comments)
- Never used the website. (3 comments)
- Unaware of it. (2 comments)
- I have used the website for water conservation information.
- It is not obvious, I have to search.
- I do not bother because I don’t use much water.

Appendix J

Reasons for Low Ratings (Below 5) for Effectiveness of the Water Conservation Information Provided by the Block Leader

17. How effective is the water conservation information provided by your Block Leader?

- Unaware of Block Leader. (264 comments)
- I have not received any information from a Block Leader. (10 comments)
- Don't have a Block Leader. (6 comments)
- I have heard of Block Leader but I know nothing about them or what they do.
- Don't know who it is anymore.

Appendix K

Other Responses for Preference to Receive Information About Water Efficiency from the Town

21. Other?

- Phone call/Phone call with automated message. (3 comments)
- Nextdoor. (2 comments)
- A website banner alert when you open your bill that you have to click on. Pay for Facebook ads to pop up on every Cary resident's page.
- Anything in the mail.
- Just put everything in one place and tell people where to look. The website is hard to navigate and needs a new layout.
- I subscribe to a government link.
- Town Council meetings.
- Paper items to read are best.

Appendix L

Other Platforms to Communicate Town Water Emergencies

31. What, if any, other platform(s) should we use to communicate a water emergency to you?

- None. (264 comments)
- Telephone. (97 comments)
- Email. (11 comments)
- Mail. (2 comments)
- Door-to-door. (2 comments)
- Local newscast. (2 comments)
- Newspaper. (2 comments)
- Anything to inform of an emergency is good. I don't always check everything, so the more sources the better.
- Town signs.
- Need a loud emergency siren.
- News, no personal contact.
- Not sure.
- A notification app like used for weather and Amber Alerts.
- HOA alert.
- WRAL website.
- ReadyWake.
- Newsletter.
- Something I can see immediately.

Appendix M

Reasons for "No" Responses for Setting a Leak Alert Through Aquastar

22a. Have you set a leak alert through Aquastar? Reasons for "no" responses.

- Unaware of it. (75 comments)
- Don't have the time. (5 comments)
- Never thought to sign up. (4 comments)
- Don't need it. (3 comments)
- Not sure/No reason. (2 comments)
- Not interested. (2 comments)
- Not sure if I signed up. (2 comments)
- Digistar is my online tool and I believe it is changing to Aquastar.
- Will be doing this.
- Need to set up a network station to let people know when they have a leak. This will save tons of water with that simple tool. Need good software to catch leaks big and small.
- I know based on my bill.
- I would like to soon due to leaking toilet.
- I do not participate.
- Bill pay has gone to Digistar or Digipay and I don't go through Aquastar much anymore.
- I did at a different address but have not set it up here.
- I just look at the bill.
- Too lazy.
- I am home a lot and aware of leaks.

Appendix N

Reasons for "No" Responses for Tracking Water Use Through Aquastar

22b. Have you tracked your water use through Aquastar? Reasons for "no" responses.

- Not interested. (5 comments)
- Don't have the time. (5 comments)
- Don't need it. (4 comments)
- Unaware of it. (2 comments)
- I don't know how.
- No reason.
- Digistar is my online tool and I believe it is changing to Aquastar.
- No need, my bill stays the same.
- Probably will start using it.
- I do not water and there isn't much I can do to reduce use.
- Use Digistar more now and not Aquastar.
- I have not used the site.
- No need, a high bill indicates overuse.
- The Town does so I don't.
- I have not thought to do it.
- I forgot all about it.
- I do not track water use much at all.

Appendix O

Reasons for "No" Responses for Looking at Water Use Graph on Your Water Bill

23. Have you looked at your water use graph on your water bill? Reasons for "no" responses.

- Not interested. (5 comments)
- Don't have the time. (4 comments)
- Unaware of it. (3 comments)
- I don't need it. (2 comments)
- No reason. (2 comments)
- I don't know how.
- Digistar is my online tool and I believe it is changing to Aquastar.
- No need, my water bill stays the same.
- Will probably start using it.
- Use Digistar now and not Aquastar.
- I have not looked into the site.
- No, I do not use much water anyway.

Appendix P

Other Responses for Actions to Use Water Wisely Inside Your Home

26. Other?

- Put blocks in toilet tank. (2 comments)
- I catch water for watering plants. (2 comments)
- Turn off water when brushing teeth. (2 comments)
- Removed sprinkler system.
- I run washers in the evening.
- Tankless water heater.
- Don't flush toilet until needed. Pour bleach in after each use instead of flushing.
- Replaced kitchen faucet.
- Water pressure was too high so they lowered it.
- Don't shower every day.
- I flush toilet with shower water.
- The kids left.
- Installed low flow toilet.
- I put five-minute timers in the bathrooms.

Appendix Q

Other Responses for Actions to Use Water Wisely Outside Your Home

28. Other?

- Rain barrels. (5 comments)
- Stopped watering. (3 comments)
- Planted grass that does not need watering. (2 comments)
- Compost to put on plants.
- Rarely use water outside.
- I use recycled water for watering the lawn.
- Just cautious when using water.
- I no longer have grass.
- I use to wait 3 days to water now only 2.
- I wash car only at stations that use recycled water.
- Changed water line.

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Appendix C2

Water Use Efficiency Evaluation

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TECHNICAL MEMORANDUM

Long Range Water Resources Plan Update: Water Use Efficiency Evaluation

Prepared for

Town of Cary

June 2018

CH2M HILL North Carolina, Inc.
3120 Highwoods Boulevard
Suite 214
Raleigh, NC 27604

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Contents

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Integrating Water Use Efficiency into Long Range Water Resources Plan

Water use in the Town of Cary (Town) is quite low compared with other communities in the U.S. The Town has one of the longest standing water conservation programs in the State of North Carolina, starting in 1995, has one of the most proactive programs in the Southeast and is well recognized across the U.S. For example, the Town now enjoys some of the most efficient customer water use in the nation, as evidenced by its 2016 average single family residential (SFR) use of 58 gallons per capita per day (GPCD) and multifamily residential (MFR) use of 40 GPCD (CH2M, 2017a).

The Town has partnered with CH2M to update the 2013 Long Range Water Resources Plan (LRWRP). Underscoring the Town's commitment to conservation as an essential element of an integrated water resources management approach to meet water demands, the Town engaged CH2M to update the evaluation of the Town's water conservation program and Strategic Reclaimed Water System Plan originally completed as part of the 2013 LRWRP. This technical memorandum (TM) updates the evaluation by including water use data from 2013 through 2017, current conservation program information and practices, and considerations for next steps. The Town's water use statistics are benchmarked against nationally published values.

The Town has recognized the importance of conservation for over 20 years and has incorporated water demand management into its long-range water plans. Continued integration of Cary's demand management into the Town's LRWRP is essential to the success of the Plan for several reasons.

First, ongoing reductions in indoor residential and nonresidential domestic water demands because of national water efficiency standards for plumbing fixtures and appliances are expected to occur for all United States (U.S.) water systems over the coming decades, as old, inefficient fixtures are replaced with new efficient models as part of normal replacement and new construction projects. The Town's demand forecasts need to incorporate these projected demand reductions, known as passive conservation, to help them have the most informed, accurate, and reliable forecasts possible.

Second, the success of the Town's water conservation program in achieving its water-saving goals in the past is a strong indication of its ability to realize new and higher levels of water efficiency in the future that may be needed. Nevertheless, even with Cary's current efficiencies and the passive water savings expected from high-efficiency fixtures in the years ahead, future service area growth and total demand increases are anticipated that may ultimately bump up against Cary's current supply capacities–unless demands are further reduced or supply capacities are increased—or a combination of both options. Thus, the additional water-savings potential from the many new water conservation technologies and practices available today should be identified now so they can be implemented as needed and integrated into future demand forecasts and supply planning.

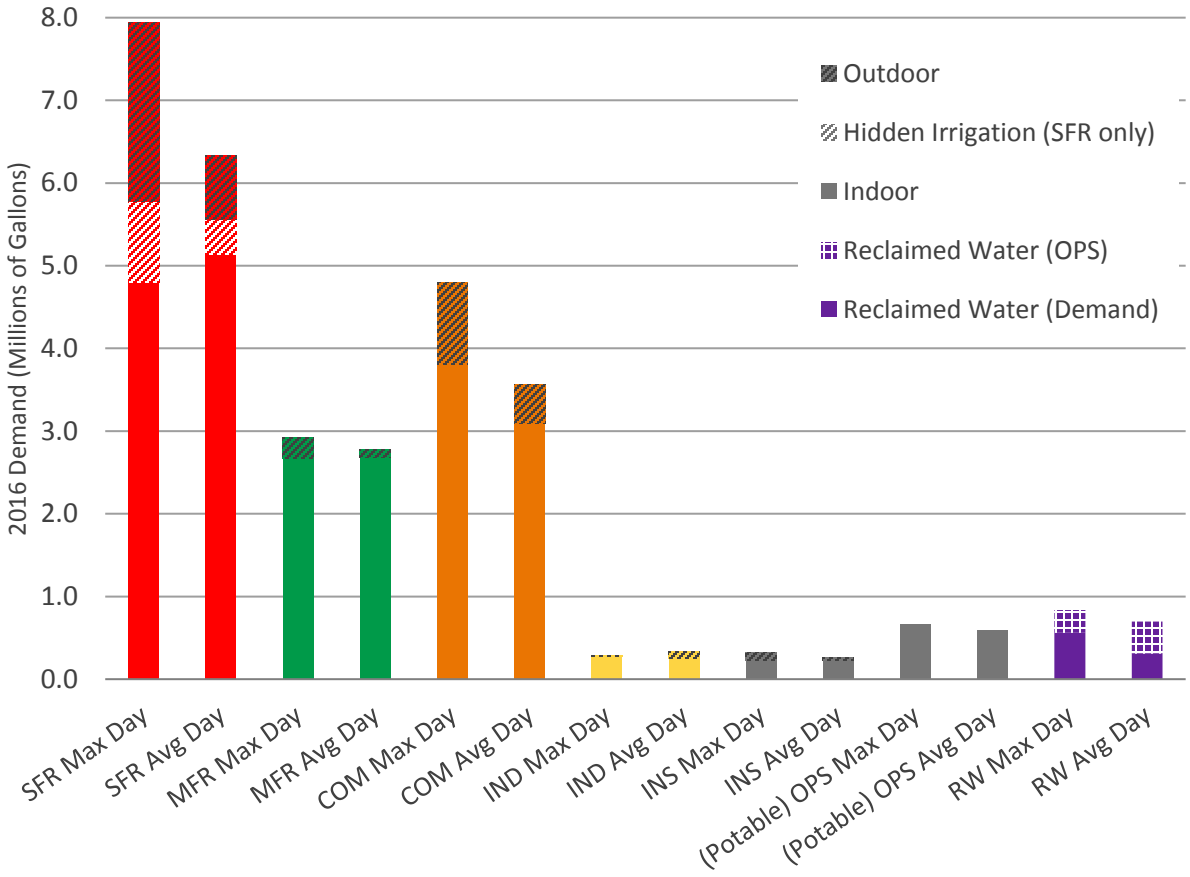
Third, water conservation—or demand management—is a key component of the Town's LRWRP, which is consistent with the American Water Works Association's (AWWA's) recommended process for the development of integrated resources plans (IRPs) (CH2M and Brown and Caldwell, 2013). As such, integrated plans take a least-cost approach that analyze supply- and demand-side management options equally to "identify the most efficient means of achieving the goals [of the plan] while considering the costs of project impacts on other community objectives and environmental management goals" (AWWA, 2007). While the M50 Manual is now in its third edition, this planning concept remains at the core of its planning focus. Figure 1 highlights how water conservation is a key component of the IRP process for the Town. This least-cost approach to new supply alternatives is also consistent with the

Town's water planning approach, including its commitment to water and other resource conservation goals.

Figure 1. Integrated Resources Planning for the Town's Water Resources
Long Range Water Resources Plan Update

Water Conservation Program Historical Perspective and Goals

Water demand data analysis conducted during 2017 indicated that per capita water use has trended downward from 114 GPCD in 2001 to 82 GPCD in 2016—an approximate 28 percent reduction, which exceeds the Town's previous reduction goal. Both indoor and outdoor water usage have declined over time in Cary. Using daily water meter data, a detailed analysis of water use was conducted to disaggregate water use by customer classification and indoor versus outdoor use. Water use profiles for various water use sectors during 2016 are depicted on Figure 2 for average day and maximum day usage. Maximum day water usage data showcases the volume of outdoor demands, particularly with SFR. Reclaimed water demands are also shown (CH2M, 2017a).



SFR = Single Family Residential; MFR= Multi-Family Residential; COM = Commercial; IND = industry; INS = Institutional; OPS = operations; RW = Recycled Water

Figure 2. 2016 Average Day and Maximum Day Water Use Profile by Customer Category
Long Range Water Resources Plan Update

Despite the decrease in unit or per capita consumption, total water demand has increased, however, this increase is due primarily to population growth and related increases in commercial and institutional activities. Development occurring predominantly in the Cape Fear River basin portion of the service area

has resulted in increased water demand. Water use in the Neuse River basin has remained relatively flat (CH2M, 2017a).

2.1 Conservation Goals

Policy Statement 111 adopted by the Town Council provides the foundation for the Town's Conservation Program. The conservation program is designed to (i) support the high quality of life in Cary by providing safe and reliable water service while reducing wasteful uses of water, reducing costs of infrastructure, and conserving a limited natural resource; and (ii) delay capital projects for the expansion of water supply facilities or the development of new sources. The Town initiated a proactive water conservation program in 1996 with the goals of a 20-percent reduction in per capita water use and reduced aggregated peak demands for water by 2015. The Town successfully exceeded its 20 percent reduction goal.

Looking forward, the Town's Conservation Program supports The Cary 2040 Community Plan values by exploring policies and practices that:

- support redevelopment and infill efforts,
- foster a prosperous economy and fiscal health through affordable water rates,
- protect nature and the environment, and
- provide comprehensive and top-quality facilities.

Current water use data trends were analyzed as part of the current update to the LRWRP. Water use on a unit or per capita basis has declined – exceeding the Town's 20 percent reduction goal. Going forward, it will be important to maintain the current water efficiency levels on a unit basis as the population and associated development increase. Therefore, the objectives for the Conservation Program include:

- Maintaining awareness of the value of water and water use efficiency
- Establishing development standards and policies so current conservation efficiencies are not eroded
- Preparing response and resilience measures that could be implemented if future demands exceed or future supplies are less than projected.

2.2 Overview of 2012 Water Conservation Program Evaluation and Current Water Efficiency Measures

The Water Conservation Program accomplishes its goals through a combination of three strategies:

1. Education
2. Financial incentives
3. Regulations

Many of the water conservation measures are geared towards all water users, while others focus on specific customer classes, such as SFR. A comprehensive evaluation of water efficiency measures was conducted for the 2013 LRWRP. The analysis provided detailed information on water savings and costs for various conservation measures. Table 1 includes a summary of the programs in place during 2012 and their status today (CH2M, 2012). Some of the measures, such as rebates for high-efficiency toilets (HETs) and turf replacement, have been phased out over time due to diminishing water-savings benefits relative to the investment. Others remain as active conservation program elements and are discussed in more detail in the sections that follow.

Table 1. Existing Cary Water Conservation Program Elements
Long Range Water Resources Plan Update

2013 Conservation Program Elements	Customer Class/ Use	Water Conservation Measure Status
Education and Public Information		
Public Education/Beat the Peak Campaign	All	Active measure
Fix a Leak Week Campaign	Residential	Active measure
Block Leader Program	Residential	Broadened to include other Town programs; now under redesign
Residential Water Audits	Residential	Active measure
Website	All	Active measure
Festival Booths	All	Active measure
School programs	All	Expanded to include older students
Financial Incentives		
Tiered Rate Structure	All	Active measure
Water Budgets (linked with tiered rates)	Commercial (some Residential)	Active measure
HET Rebate	All	Not active measure
Turf Buy Back	Residential	Not active measure
Rain Barrel	Residential	Not active measure
Give-aways (showerheads, kitchen and bathroom aerators, shower timers)	Residential	Not active measure
Give-aways (rain gauges, dye tablets)	Residential	Active measure
Regulations and Policies		
Water Waste Ordinance	All-Outdoor	Active measure, but not proactively enforced
Rain Sensor Ordinance	All-Outdoor	Active measure, but not proactively enforced
Alternate Day Watering Ordinance	All-Outdoor	Active measure, but not proactively enforced
Land Development Ordinance	New Commercial-Outdoor	Active measure
Irrigation Plan Review	All-New Outdoor	Active measure
Requirement for Separate Irrigation Meters (Automatic Irrigation Systems)	All-Outdoor	Active measure, but fewer new homes with automatic irrigation systems

The previous evaluation identified several strategic focus areas for consideration in future conservation programming including. These include:

- Leverage advanced metering technology
- Shift awareness to action (public outreach and education)
- Change policies/ordinances
- Establish a strategic communications/messaging framework for water resources

2.2.1 Leverage Aquastar Advanced Metering Technology

The Town has completed installation of advanced water meters and implemented Aquastar which has been an effective method to increase water billing efficiency and for leak detection. While customers have the ability to review water use on a near real-time basis, the system has additional capabilities. For example, the Town has not yet leveraged the potential to link information generated by Aquastar with web portals to communicate with customers about their individual water consumption in new ways such as tailored messages related to their water use and to receive customer feedback in innovative ways.

The Town has steadily increased its usage of the Aquastar alert feature, as shown in the annual statistics included in Table 3. The Town should continue to encourage customers to sign up for the alert features. As additional customers sign up for alerts, customer responses to the Aquastar alerts compared with the current "high-bill" alert practices should be monitored. Additionally, the positive impacts of encouraging usage alerts should be balanced with staff's ability to handle increased calls and requests for water audits.

Table 3: Town Aquastar Data

Long Range Water Resources Plan

Aquastar Data	**2014**	**2015**	**2016**	**2017**
DigiPay Accounts	0	12,008	28,178	40,683
Alerts set up	N/A	N/A	2,142	2,979
Alerts sent, average day	92	152	200	238
Alerts sent, per year	33,514	55,530	72,991	86,870

Source: Town of Cary

The Town is at the forefront of implementing advanced metering technology coupled with customer web portals and is looking to implement additional capabilities. Most utilities have not yet seen (but still expect to see) benefits of implementing additional functionality. The next step, providing access to customized information via individualized web portals, will allow customers to:

- Evaluate their consumption patterns against Town-identified efficiency benchmarks.
- Increase efficiencies based on their water use patterns.
- Evaluate the impact of their water efficiency measures on their water usage and water bill.

2.2.2 Public Outreach and Education

The Town provides school education programs and public information via social media, monthly videos and other methods. The Town's program has evolved over time to reach customers across a variety of media options while maintaining a focus on in-person education through school visits and tours as well as staffing booths at festivals and other community events. This supports the Town's efforts to reach a broad spectrum of community members. The water services survey results included a list of customer-preferred education and outreach methods, and the Town's strategy looking forward will continue to include such a diverse range of outreach including traditional methods while also following the current social media trends (Table 4). Customers tend to seek information from other sources than the Town's website, as noted in the survey, further supporting the need for the Town to continue its variety of public education and outreach efforts. These outreach methods in part have resulted in the 2017 survey result that over 80 percent of customers believe water conservation is the right thing to do and is important to make sure there is enough water for the future (CH2M, 2017a).

Table 4. 2017 Water Services Survey Results – Customer Outreach Methods
Long Range Water Resources Plan Update

2017 Top 10 Information Sources (2011 rank included)	Percent Yes	Percent No
Postcards (#2)	82.8	17.2
BUD (#1)	78.9	21.1
Television (#9)	57.0	43.0
Cary's website (#4)	56.8	43.2
Homeowners Association (#6)	50.9	49.1
Cary's email list service (#3)	50.3	49.7
Text messages (#20)	42.3	57.7
Cary News (#5)	33.8	66.2
Radio (#17)	33.3	66.7
Cary's Parks & Recreation Brochure (#7)/Aquastar (#15)	28.8	71.2

Source: CH2M, 2017a

The Town's school outreach program will continue to provide long-term benefits. One tactic to maximize Town resource investments in education would be to design a "train the teacher" program so that teachers are empowered with the materials and knowledge they need to take messages back into their classrooms. A benefit of this approach is the potential to reach a broader number of students. An incentive to teachers could be continuing education credits if the Town's curriculum meets such requirements. Another way to encourage teacher participation is to partner this approach with a poster or video contest for classrooms, with an annual water efficiency theme.

2.2.3 Policies and Ordinances

Based on data reviewed at the time which indicated a trend of increased outdoor usage in all sectors, but particularly SFR, five policy recommendations were included in the 2012 Evaluation as a means to reverse the trend towards increased outdoor water use:

- Precision spray nozzle irrigation system requirements for new construction
- Irrigation system plan approval by conservation program
- Irrigation system evaluation (audit) and maintenance requirements
- Irrigation water budget requirement
- Require separate indoor and outdoor meters for new construction (for any outdoor water use – not just irrigation)

The Town has found that irrigation plan and water budget reviews have especially proven useful for commercial customers. The Town can help influence good water use behaviors before new commercial properties are developed. Current water use trends indicate that outdoor water use has been decreasing since the 2012 evaluation reducing the potential benefit for policies such as water budgets. Requirements for new construction could be tools to help manage outdoor water use.

2.2.4 Strategic Communications/Messaging Framework for Water Resources

The customer survey indicated a general lack of awareness of the Town's water supply sources, conservation strategies and personal water use. A means to increase awareness of the Town's programs would be through continued distribution of informational videos, newspaper and newsletter articles and social media consistent with the practices summarized in Section 2.2.2. Focused education on the Town's water supply sources should be an objective of school programs and group outreach, such as through presentations to civic groups.

Strategic communication strategies to increase customer awareness of their own water use is imperative, and this is not unique to the Town. Generally, as technology features such as automatic electronic bill pay have been implemented, customers are less cognizant of their water use because they are not monitoring bills as closely. While utilities have seen financial benefits of this technology advancement through more reliable bill collection, it has come at the risk of customer connection to their usage and reduced effectiveness of outreach efforts such as bill inserts. This further emphasizes the need to continue a multi-media approach to strategic communications through continued use of videos and social media while not completely abandoning methods such as bill inserts or newsletters. Strategic communications should remain brief and consistent.

Unit Consumption Values Benchmarking with National Trends

National trends in residential water use, along with current and potential emerging water efficiency standards for domestic plumbing fixtures and appliances, serve as useful benchmarks for assessing water use efficiency, particularly among SFR and MFR water users. Evaluation of these national trends and benchmarks compared with the Town's current customer unit demand values provides insight into current customer water use efficiencies, as well as potential future water savings and demand scenarios.

3.1 U.S. Household Demand, Average GPCD

Average U.S. domestic (combined SFR and MFR, indoor and outdoor) GPCD usage reported by the U.S. Geological Survey (USGS) for the years 1990 through 2015, as well as SFR indoor use based on two residential end-use studies of thousands of homes sponsored by the Water Research Foundation (WRF) (previously the AWWA Research Foundation) is shown on Figure 3. (Note: Data shown are for the actual or approximate years of metered use and are earlier than the dates of their published reports as cited in references.)

Starting in the year 2000, both average U.S. domestic and SFR indoor use have been declining according to USGS and WRF surveys. From 2000 to 2015, average U.S. domestic use reduced from 100 to 83 GPCD, an 18 GPCD or 18 percent decline. Domestic water use includes potable water provided by public water systems to households. Indoor SFR demand reduced from an average of 69.3 GPCD in the late 1990s down to 58.6 GPCD for data collected between 2010 and 2013 (Mayer et al., 1999), a decline of 10.7 GPCD or 15.4 percent, as shown on Figure 3. These residential demand reductions suggest that most of America's household savings were indoors, with little reduction (about 1 GPCD) in average outdoor usage between the years. These water savings are considered largely to be the result of mandatory national water efficiency standards for low-volume plumbing fixtures first established by the U.S. Energy Policy Act of 1992, and more recently, by the voluntary but more stringent high-efficiency standards that have been promoted by the U.S. Environmental Protection Agency's (EPA's) WaterSense and Energy Star programs for over the past decade (Vickers and Bracciano, 2014).

3.1.1 Cary's Single Family Residential Statistics Compared to National Trends

Compared to current national water use averages, the Town's 2017 average SFR 58 GPCD for combined indoor and outdoor demand, as shown on Figure 3, is 24 GPCD or 29 percent less than the 82 GPCD U.S. domestic average in 2015 (USGS, 2017). Cary's *total* average SFR is also nearly equal to the REU2016 study's average *indoor* demand (Mayer, et al., 1999; DeOreo et al., 2016), an indication of Cary's relatively low outdoor residential demand. Cary's 2017 average for MFR of 40 GPCD is only half – 50 percent less than – the national combined (SFR and MFR) 83 GPCD domestic use reported by USGS.

In sum, Cary's current SFR and MFR water use metrics are significantly less than recent national averages, a clear indication of the system's relatively efficient residential water use. At the same time, it must be noted that even with Cary's relatively low use compared to current national standards and use metrics, future water demand is expected to decrease as a result of passive conservation.

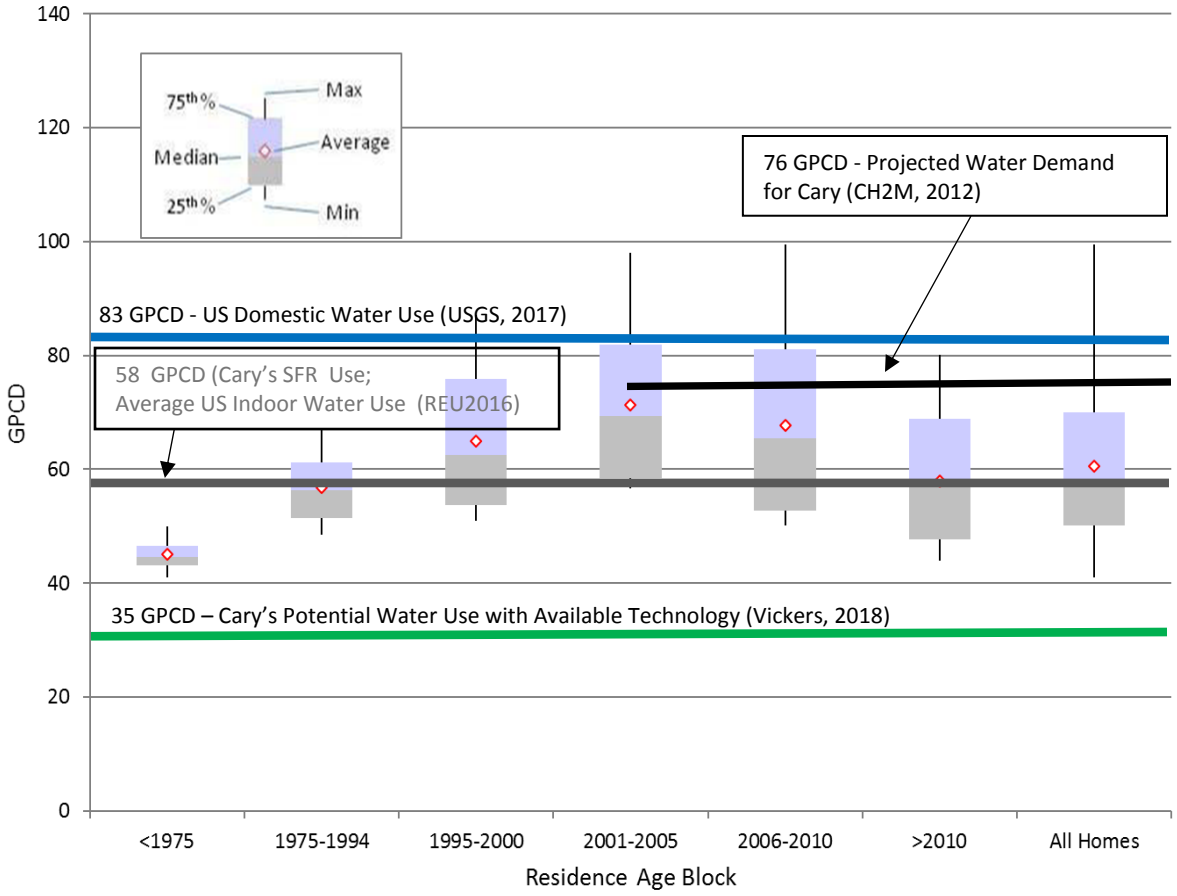


Figure 3. Single Family Residential Water Use Profile by House Age
Long Range Water Resources Plan Update

3.1.2 Single Family Residential Indoor Use – Past, Present, and Future

Future indoor residential and similar commercial domestic demands are projected to decrease nationally from current use trends, as shown in Figure 4. Such demand reductions will affect water users in Cary, as well. These savings are expected as a result of existing and potential emerging fixture and appliance water efficiency standards, particularly for toilets and clothes washers, which will affect replacement products installed in homes and other dwelling units in the years ahead, as summarized in Table 5. For example, where U.S. indoor SFR use averages now about 59 GPCD, and the Town's combined indoor and outdoor single meter SFR demand averages 58 GPCD (CH2M, 2017a), on average, indoor demand could drop by about 24 GPCD or 40 percent, to an average of 35 GPCD for homes that install WaterSense- and Energy Star-compliant fixtures that are already widely available from product manufacturers for purchase in 2018. Potentially, based on an evaluation conducted by Vickers and Associates for this study, ultra-efficient homes could each an average indoor usage of 25 GPCD.

The new, highly water-efficient products now widely available include:

- Toilets using between 1.0 and 1.28 gallons per flush (gpf)
- Maximum 2.0-gallons per minute (gpm) showerheads
- Efficient bathroom (maximum 1.0-gpm) and kitchen (maximum 2.0-gpm) faucets

- Maximum 15-gallons per load (gpl) clothes washers
- Maximum 5-gpl dishwashers

Homes that install ultra-water-efficient fixtures – available technology but not yet widely installed – may use as little as 25 GPCD indoors with the following:

- 0 gpf toilets (that is, foam-, graywater-, and rainwater-based flushing fixtures)
- Maximum 10-gpl clothes washers
- Maximum 3-gpl dishwashers

These types of fixtures feature reduced leakage, and slightly more efficient showerheads and faucets than those currently specified by WaterSense.

Table 5. National Water Efficiency Standards and Trends for Residential Plumbing Fixtures and Appliances [a]

Plumbing Fixtures	**U.S. Energy Policy Act (Mandatory)**		**EPA WaterSense (Voluntary in most U.S. states but dominant market standards)**		**Ultra-efficient Products; Potential Emerging Standards**	
	Maximum Water Use	**Effective Date**	**Maximum Water Use**	**Effective Date**	**Maximum Water Use**	**Availability in 2018**
Toilets	1.6 gpf	1994	1.28 gpf	2007	0.0 gpf, 0.8 gpf, and 1.0 gpf	Yes
Showerheads	2.5 gpm	1994	2.0 gpm	2010	1.5 to 2.0 gpm	Yes
Faucets – Bathroom or Lavatory	2.2 gpm	1994	1.5 gpm	2007	0.5 gpm, 1.0 gpm, and 1.2 gpm[b]	Yes
Faucets - Kitchen	2.2 gpm	1994	-	-	1.8 gpm[c]	Yes
Appliances	**Energy Star (Voluntary) - Approximate Appliance Flow Rates**				**Ultra-efficient Products; Potential Emerging Standards**	
Clothes Washers	25 to 30 gpl	1985–2000	15 to 20 gpl	2000-present	10 gpl	Yes
Dishwashers	7 to 12 gpl	1990-–2000	5 to 7 gpl	2000-present	3 gpl	Yes

Sources: (EPA, 2018a, 2018b; Vickers, 2001; Vickers and Bracciano, 2014)

[a] Standards and flow rates shown are for residential SFR and MFR dwellings only. Standards and codes differ for some fixtures installed in public facilities and restrooms. Potential emerging standards include a list of alternatives that have been presented.

[b] CalGreen standard (State of California, California Green Building Standards Code, 2016).

[c] WaterSense faucet standards apply to bathroom and lavatory but not kitchen faucets.

Notes: gpf = gallons per flush; gpl = gallons per load' gpm = gallons per minute

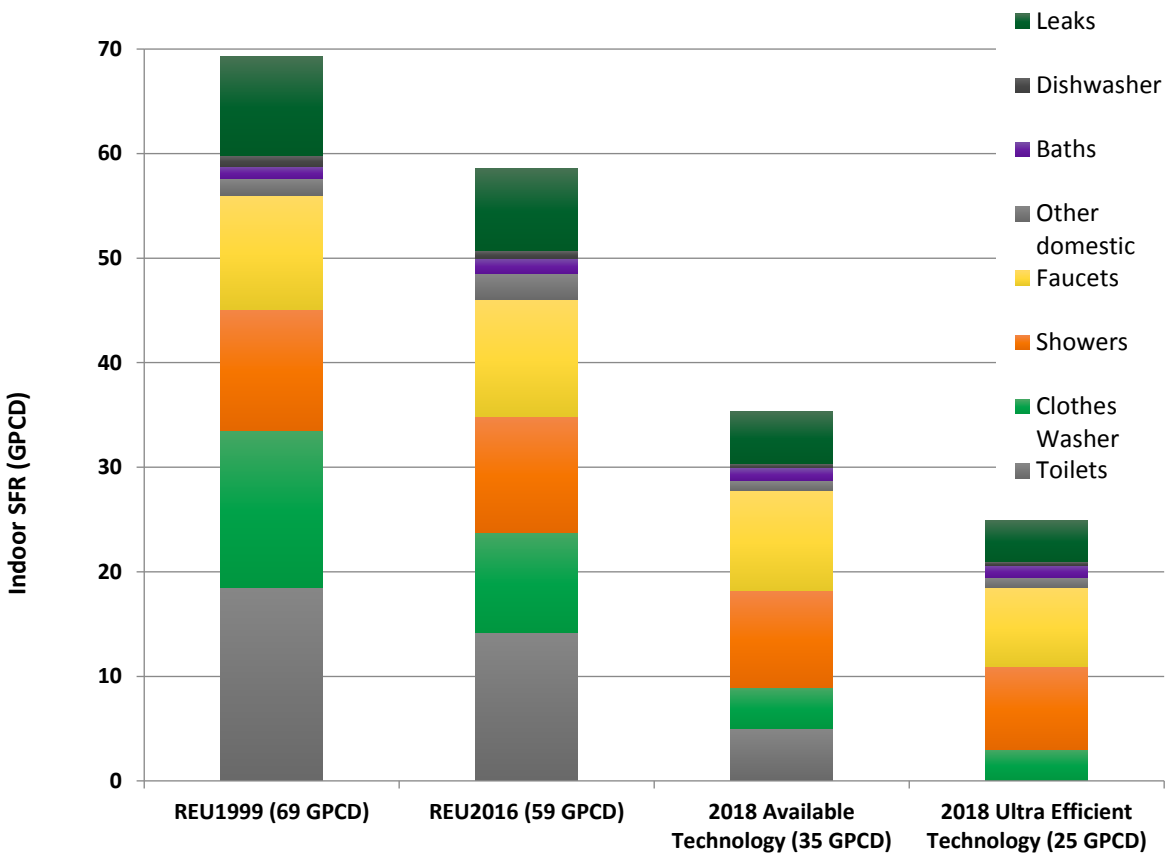


Figure 4. Single Family Indoor Average Usage – Past, Present, and Future Potential with Water Efficient Technology: a Comparison from Four National Studies
Long Range Water Resources Plan Update

3.1.3 Projected Years to Realize Passive Savings from Efficient Fixtures

Projections of annual per capita demand reductions from the passive but ongoing replacement of existing higher-use fixtures and appliances with more efficient products are necessarily site-specific (that is, changes in national water use trends and fixture standards must be customized to local per capita SFR and MFR metrics and nonresidential customer demands based on related demographic, economic, and growth rate forecasts). An example of future annual per capita demand reductions from fixture replacements for SFR, MFR, and commercial domestic users is presented on Figure 5. Some studies suggest that with aggressive programming and investments, water use can be reduced incrementally on the order of 1 to 1.5 GPCD annually. Passive conservation was factored in to the demand projection task for the 2018 LRWRP. Projections indicate that passive conservation is expected to reduce total potable water demand (as compared to projections without passive water conservation factors) by 1.3 MGD in 2065.

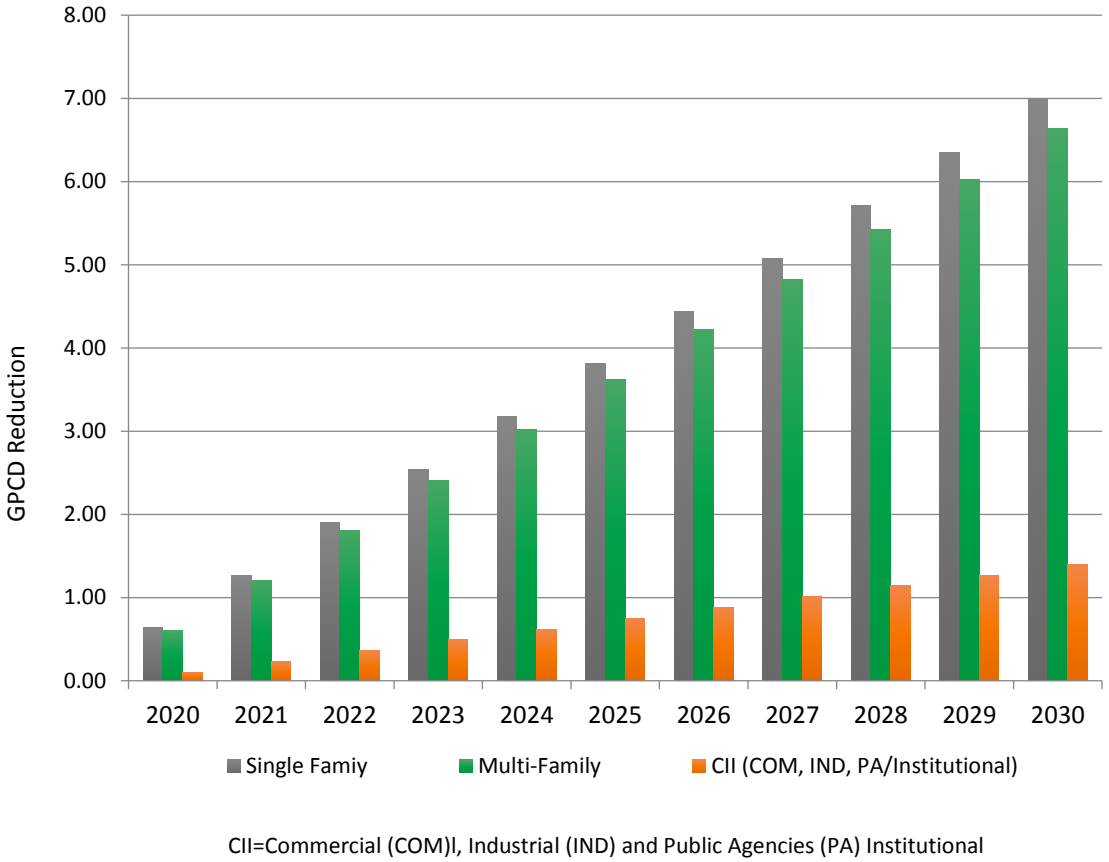


Figure 5. Example of Potential Demand Reduction from Required Code and Voluntarily Installed Efficient Indoor Fixtures and Appliances
Long Range Water Resources Plan Update

Looking ahead, given normal fixture replacement rates, it is estimated that it will take roughly 30 to 40 years — sometime between 2048 and 2058 — for the existing U.S. stock of installed fixtures to be replaced with more water-efficient technology that meets or exceeds current WaterSense and Energy Star standards to result in indoor SFR use averaging 35 GPCD, if not less due to future efficiencies that cannot now be anticipated. If the current growth rate in Cary continues at its current rate, a corresponding fixture replacement rates and water efficiency gains would be expected. Aggressive fixture replacement programs that result from long-term conservation programs and drought response strategies would further accelerate replacement rates and future water savings.

Lastly, there also exists the possibility that some now unforeseen home-based water-using fixtures could emerge to increase future home water use, despite currently anticipated savings from more efficient fixtures. While such a scenario seems unlikely, it is possible.

3.2 Water Loss Values Benchmarking with National Trends

The AWWA *M36 Manual, Water Audits and Loss Control Programs* (2016) recommends that water systems perform annual water loss audits to assess their system efficiency. The AWWA has a free water audit software tool that can be used to assess the volumes and values of non-revenue water, including

real and apparent losses. The water audit software calculates performance indicators that can be used as metrics for tracking over time. In addition, the AWWA has published data sets of water systems' water audit results that can be used for benchmarking and comparison to other water systems. These published water audits have all been through a validation process where a third-party evaluates the reliability of the data. This water audit validation process is described in the WRF Report 4639, *Level 1 Water Audit Validation* (2017).

The Town has been through the process of filling out the audit, but not the validation process, which is recommended before using the water audit results for comparing metrics, assessing performance, or identifying improvements. A Level 1 validation should happen annually. The Town should plan to conduct a more detailed Level 2 or 3 validation initially, and then move to a Level 1 validation annually. At a minimum of every 5 years, the Town should repeat the Level 2 or 3 audit.

Strategic Conservation Program Considerations

The Town remains committed to sound water resource management principles – including water efficiency. Over 94.5 percent of customers surveyed in 2017 agreed that efficient water use is critical to the community's future (CH2M, 2017b). ***The Town continues to see water use efficiency gains and should seek to maintain and even improve upon the water efficiency gains and associated customer conservation-aware mindset achieved to date.*** To accomplish this, outreach programs, Town ordinances, and Town policies should continue to support water efficiency while at the same time recognizing that some efficiency gains are expected through household replacements of appliances with more up-to-date technology including water efficiency.

Essentially, two categories of water-savings are available: (i) internal operations water loss reductions, and (ii) customer reductions in usage.

4.1 Internal Operations: System Water Loss Reduction and Efficiency Measures

As stated, the Town should complete a water loss audit using AWWA methodology on an annual basis and have a Level 1 validation performed. The process should include all affected team members internal to the Town, such as:

- Treatment and distribution operations
- Customer service
- Finance
- Meter management and reading
- Leadership

Regular meetings before and after the audit is completed should take place to explain the data needed, how it is used, and what the results of the water audit mean. This will build endorsement for the process and promote collaboration internal to the Town to reduce water losses to an economically sustainable level, as needed.

4.2 Customer Reductions: Customer Water Efficiency Measures

The 2017 Water Services Survey Report and water use analysis suggest four major priorities for customer water conservation within the Town going forward (CH2M, 2017b). These include:

- Public engagement and community building
- Outdoor and seasonal water use (irrigation)
- Commercial, industrial, and institutional water use
- New development and new construction

These water conservation priorities, public information and engagement, incentives and policies, and regulations, are discussed in the sections that follow.

4.2.1 Water Conservation Visioning for Public Engagement

The 2017 Customer Service Survey results indicate that most of Cary's customers feel that the Town's water supplies and conservation programs are adequate. Most respondents also indicated that water use efficiency is crucial for the Town's future. However, there was a general lack of awareness about the Town's current water sources, water use policies and regulations, and customers' household water use (CH2M, 2017b). In addition to public information and messaging about water resources and conservation included in the 2013 Conservation Program Evaluation (CH2M, 2013) and current 2040 Cary Community Plan ("Imagine Cary") initiative and other water conservation materials provided to the public via the Town's website, and existing communications, going forward, the Town could build on its initiative to engage community members about water management strategies. This would help to integrate the 2018 LRWRP Update and future water efficiency measures with the 2040 Cary Community Plan.

Several strategies could be used to engage the community in shaping the Town's future Water Conservation Program. Implementation examples are also listed.

- **Water Task Force** - Appoint a broad spectrum of community members to advise the Town on water conservation goals and measures. Potentially, the Town's existing Environmental Advisory Board could be charged with this. A task force charter would be established to define the scope, timeframe, and reporting requirements of their work. The scope could be broad (How does water management fit into the Town's vision? or What quantitative conservation goal ought the Town adopt?) or fairly narrow (Which conservation measures and policies does the Town want to adopt?). A potential process framework is available in AWWA Manual 52, *Water Conservation Programs—A Planning Manual* (AWWA, 2010). Examples of successful task forces with targeted, focused objectives include:
  - The City of Waukesha, Wisconsin met with their stakeholder committee three times for input into the preferred portfolio of water conservation measures.
  - The Southern Nevada Water Authority's Integrated Resource Planning Advisory Committee met monthly over a 2-year period to address everything from funding to water conservation to water quality.

Task Force Example Membership
• Neighborhood associations • Small business • Large business • Industrial customer • Home builders • Real estate community • Affordable housing advocates • Environmental groups • University professors • Building managers

- **Town Hall Meetings** – Another strategy to engage the public is to provide venues for information-sharing and dialogue through open house community conversations.

4.2.2 Targeted Customer Outreach and Monitoring using Aquastar Data and Customer Metrics

The Town could identify and then work with a small group of the largest water users to gain an understanding of specifically how they use water. Starting work with the top 10 percent of residential water users is suggested because they can use on average as much as two to three times the average single-family residential customer in the service area. The ongoing monitoring metrics outlined in the 2017 Water Use Analysis TM include suggestions and methods for using Aquastar data to quickly identify and track customer usage groups (CH2M, 2017a). The top 10 percent of commercial, industrial and institutional (CII) water users could also be included.

4.2.2.1 Outdoor and Seasonal Water Use

On an annual basis, approximately 15 percent of water demand within Cary's service area is for outdoor uses. During peak days, the volume doubles, with 30 percent being for outdoor usage — primarily irrigation — creating an opportunity for water use reductions (CH2M, 2017a). While the data show that outdoor water use is decreasing, additional improvement is achievable and could result in reduced peak water use in the future. In addition to the Town's ongoing information materials and existing water waste, rain sensor, and watering schedule ordinances, other strategies to reduce outdoor use could be implemented. These include:

- **Public Information and Engagement:**
  - **Educational Material** - Continue to provide information on low-water using and drought-tolerate plant materials, efficiently utilize resources such as those available from North Carolina State University and other sources, and use updated material designs and branding while conducting outreach via methods identified in the 2017 customer survey as most likely to reach customers.

    One way this could be accomplished is through the publication of a quarterly newsletter or other fact sheet that is distributed to customers electronically and potentially through bill inserts. An example is the Water $aver newsletter published quarterly by Cobb County Water System. Distributed via email, the newsletter shares local efficiency program news and national water use statistics from EPA's WaterSense program (Cobb County Water System, 2018).
  - **Partner with Organizations with Mission Overlap** - Partner with businesses, universities, and other city departments to create demonstration gardens in high-traffic areas; Master Gardeners or similar organization to conduct landscape audits or landscaping classes; universities or the state to develop an irrigator training and water conservation certification program.
  - **Leverage Technology to Communicate with Customers** – Aquastar generates data that could be used by customers to monitor or set targets for their water use. Responses to the 2017 customer survey suggest that customers surveyed are not favorably inclined for individual customized messages generated by Aquastar. However, Aquastar could be used to generate letters to customers outside their typical consumption pattern or higher than other customers with the same size lot. This could save staff time for calls that are currently made when customer leaks are suspected. Over time, it is expected that technology use patterns and preferences may shift such that customized messages from Aquastar are welcomed by customers. Customer preferences should continue to be surveyed.

    Other strategies may be available such a voluntary email Listserv™ or similar group email program to generate weekly messages about irrigation or other water conservation tips. Similarly, confirmation emails sent by the Town's DigiPay system could be modified to include conservation messages. This leverage may increase the Town's ability to efficiently reach more customers and more often than relying on telephone calls as the main method of outreach.

    San Antonio Water System's WaterSmart pilot online tool is an example of a tool designed for customers to compare their water use to other customers with similar profiles, such as yard size and number of household residents. Customers can also sign up for alerts about unusual water usage, receive via email monthly WaterSmart Home Water Reports, and receive customized recommendations for efficient water use. This tool has proven effective in producing a response of reduced water use, however it is dependent on the customer's willingness and frequency of use (San Antonio Water System, 2018a). Comparatively, the Town is currently working to continue to increase its customers' usage and viewing of Aquastar data. The WaterSmart Home Water Report format and outreach via email may be most applicable to the Town's needs and

customer preferences in the short term, while the mobile dashboard may be more of a longer-term goal.

- **Expansion of Irrigation Audit Program** – Addition of a residential irrigation consultation program such as conducted by San Antonio Water System could augment the Town's current audit program, providing support to residents in programming irrigation systems to meet policies as well as advice on efficiency and even getting rid of the system all together (San Antonio Water System, 2018b).

- Incentives:
  - **Technology Partnerships** - Partner with vendors and technology companies, including those that are part of EPA's WaterSense program, to research and demonstrate efficiency, operability, and ease of use of irrigation technology or other water-saving practices. Partnerships could include in-kind support, study design and data review, or financial support for technology pilot or testing projects. Additionally, the Town could be a bridge between North Carolina State University and other universities and companies to conduct research.

- **Policies and Regulations**:
  - **Alternate Day Water Schedule** – As noted, the Town has exceeded its initial water conservation goal. Should future conditions result in demand greater than that projected or in the event of water shortage, the Town could consider more restrictive outdoor water schedules beyond that currently listed in its Water Shortage Response Plan. The current alternate day watering ordinance establishes three days per week that customers can irrigate with hose and sprinkler connections and automated irrigation systems, using an odd and even address approach. Currently, no automated watering is allowed on Mondays. Many communities and utilities around the country have adopted year-round no more than twice per week watering schedules, and a few allow only once-per-week watering. Opportunities for the Town include:
    - The Town could consider a no more than two days per week watering schedule, allowing one weekday and one weekend day for residential customers (for example, Sundays and Thursdays, and Saturdays and Wednesdays), with nonresidential customers on two weekdays (for example, Tuesdays and Fridays) to provide an additional spread of irrigation demand on the water system throughout the course of a week and reduce peak usage. Continuing the Town's current ordinance, no automated watering would be allowed on Mondays.
    - Over half of the survey respondents indicated that they do not irrigate their grass, and the number of irrigation permits (with required separate meters) for new construction is down as compared to previous periods. Programs to encourage the use of warm season grasses that require less water and are drought tolerate could maintain limited outdoor water use.
    - The Town's Water Shortage Response Plan currently establishes no more than one day per week during Stage I, with an estimated savings between 6 and 13 percent (Town of Cary, 2015). Based on Cary's water-savings estimates in the current water shortage plan, a preliminary estimate of the potential savings of implementing a no more than twice per week schedule could be expected to save between 3 and 6 percent.
  - **Other Policies to Address Outdoor Water Use** – These concepts are included in the Redevelopment and New Construction section of this TM.

4.2.2.2 Commercial, Industrial, and Institutional Water Use

Historically, the Town's Water Conservation Program focused primarily on SFR use – which continues to be the customer class with the highest aggregated water use. While representing a smaller volume of

overall demand as a sector, the CII customer classes include the highest individual water-using customers. Focusing conservation program attention on these high water-using customers provides an opportunity to achieve use reductions with a minimal investment of resources. Strategies to reduce ICI use include:

- **Public Information and Engagement**:
  - **Water Use Sector Working Groups** – Some utilities engage small working groups focused on specific ICI water uses. For example, New York City established the Water Challenge to Hotels to reduce water use in the hospitality industry. Cary could build on the hotel-focused audits previously conducted with a "hotel challenge" to further drive water use reductions and could set a timetable for repeating audits, such as every 4 or 5 years. Similarly, other groups could be convened with the green industry, restaurants, universities, golf courses, cooling tower users, car washes, and other ICI customers or geographically with RTP South customers.
  - **Key Accounts Customer Outreach** – Research potential opportunities for the top 10 users to enhance water use efficiency, and conduct one-on-one stakeholder meetings with these key accounts.
  - **Water Use Best Practices and Audits** – Provide information regarding best practices for commercial activities and how to conduct water use audits in nonresidential facilities. This could be a dedicated space on the website or a speakers' series led by experts on topics, such as cooling towers or other commercial facilities. Selected examples of existing guides for information are listed herein, with websites listed in Attachment 1:
    - Alliance for Water Efficiency
    - Texas Water Development Board: Water Conservation Best Management Practices
    - EPA WaterSense for Commercial Buildings
- **Incentives**:
  - **Award and Recognition Program** - Similar to the hotel water challenge, the Town could develop a recognition program for businesses that voluntarily adopt water efficiency measures, begin using reclaimed water, or are continually good water stewards. Many businesses and industries in RTP have sustainability goals, and this could further support their efforts. Recognition could be provided during City Council meetings, at an annual awards breakfast, with a "blue seal of approval," or through recognition in a business utility district. Potential opportunities to build from existing programs include:
    - The City of Raleigh presents annual Environmental Awards in a number of categories, including conservation. These popular awards could be mirrored or an effort to work at the Wake County level could be made with nonprofit partnerships, such as WakeUP.
    - Cary could consider expanding its Hometown Spirit award to include sustainability awards to reflect the goals of the Imagine Cary plan, including a water conservation category.
- **Policies and Regulations**:
  - **Annual irrigation inspection for large landscapes** – Similar to annual back-flow prevention inspections, the Town could implement requirements that large irrigation systems be inspected a minimum of once per year. These inspections could be conducted by licensed plumbers and irrigators hired by the customer or staff if adding a new program is compatible with the Town's staffing plans. Another option for implementation used by some utilities is a partnership with a group such as Master Gardeners to provide large landscape audits so balance staff resource allocations across programs. Some utilities go so far as to require that the customer provide proof of annual inspections similar to that required for backflow protector inspections. That

extra step is not recommended for the Town in the near-term but could become a long-term goal.

- **Code review** – Review plumbing and building codes, and amend if necessary to ensure that requirements specify up-to-date, water-efficient technology.
- **Other Policies** – Included in the Redevelopment and New Construction section of this technical memorandum.

4.2.3 Redevelopment and New Construction

The Triangle region is experiencing rapid growth. During the 2017 Customer Service Survey, approximately 43 percent of the respondents have lived in Cary for 5 years or less. Redevelopment is occurring in the downtown areas at a significant pace. Population projections indicate that the population could reach over 200,000 people. Housing and commercial facilities to accommodate this projected growth are anticipated through a combination of redevelopment, remodeling, and new construction. Additionally, The Cary 2040 Community Plan envisions additional green space throughout downtown adding to the existing open space (Town of Cary, 2017).

The potential for redevelopment adds uncertainty regarding water demands. It also offers opportunity. While the Town has seen a decline in residential irrigation system usage, redevelopments involving a mix of land uses are likely to install irrigation systems for common areas. Implementing water efficiency strategies during site development and construction is far more cost-effective than retrofitting after construction is complete. This applies to both indoor water use and outdoor use. Strategies to reduce redevelopment use include:

- **Public Information and Engagement**:
  - **Developer, Home Builders, and Real Estate Associations and Remodelers Council Working Group** – Develop a working group within the development community to explore ways to incorporate water efficiency into redevelopment projects and new construction (this could also be part of the Task Force work noted previously).
  - **Triangle Parade of Homes** – Identify builders that embrace water efficiency as a possible market differentiator, and work with them to showcase highly efficient homes and mixed-use developments.
  - **Partner with Planning and Economic Development Departments** – Identify potential Innovation Centers or pilot projects for new commercial projects to explore water-saving techniques, such as net-zero water strategies. Some developers and builders have identified “net zero” and/or low energy and water impacts as part of their vision, as a market differentiator or as way to reduce future operating costs and may be interested in implementing such innovations. They may also be interested in marketing “low maintenance” outdoor spaces through use of warm season grasses and landscape plantings that require both less water and less maintenance.
  - **Water-efficient Design Standards Learning Series** – Provide information regarding best practices for new construction including lawn and landscape design strategies. This could be a dedicated space on the website, brochures in the permitting office, or a luncheon speakers’ series. A few examples of existing guides for references include:
    - National Institute of Building Sciences Whole Building Design Guide
    - Texas Water Development Board: Water Conservation Best Management Practices
    - EPA WaterSense for Commercial Buildings
    - U.S. Green Building Council

- **Incentives**:
  - **Water Connection, Tap Fee, and Permit Fee Waivers** – Impact fees, also known as tap, connection, or capital recovery fees, are assessed for new developments to recover the cost of offsite facilities and capital investments to provide water service. Such fees are generally based on average usage based on meter or lot size. Implementation or enforcement provisions would be included in the contract and could include repayment at the then-current rate if water used exceeded the agreed upon volume or rate. Some examples include:
    - Washington County Water Conservancy District (Utah) reduces impact fees for property owners who sign a voluntary legally-binding easement to limit outdoor water use (Washington County, 2018).
    - City of San Antonio and San Antonio Water System (Texas) provide partial or full impact fee waivers to promote infill development in certain areas through the Inner City Reinvestment and Infill Policy. The policy was adopted to facilitate implementation of the City's redevelopment vision. A similar policy to promote water efficiency within the rapidly developing Cape Fear River basin could be explored (City of San Antonio, 2018).
    - Cary could consider expanding the reduced tap fee for reclaimed water connections for those that use reclaimed water for nondrinking purposes other than irrigation (for example, cooling towers, toilet flush, industrial processes).
  - **Stormwater Best Management Practices Incentives** – The Town's Land Development Ordinance encourages low-impact development and other stormwater control measures (SCM). The recent system development fee changes have led North Carolina utilities to revisit and rethink their impact fees. Incentives to accelerate implementation of such strategies could include annual fee credits trading (such as in Washington, DC, and Philadelphia, Pennsylvania) or cost-sharing for pilot projects (such as in Raleigh). Other incentives often involve land use variances, such as allowing increased floor area ratios or reduced parking requirements. SCMs, such as rainwater harvesting, permeable pavement, and rain gardens that contribute water use efficiency could be prioritized.
    - Cary could explore credits for redevelopments or new developments that reduce water demands by meeting some uses with stormwater.
    - Cary could develop measures and corresponding incentives in partnership with its stormwater team so that appropriate site-specific measures are implemented.
- **Policies and Regulations**:
  - **Land Use Development Standards** – The Cary 2040 Community Plan articulates an approach to land use regulation that focuses on goals and allows flexibility to meet the goals (Town of Cary, 2017). The Town could establish water use goals for redevelopment and prepare "a menu" to implement.
    - Potential outdoor water use policies: A suite of potential development standards have been adopted across the county. Some of these include utility service extension requests that trigger an assessment of opportunities for onsite water reuse and other methods to reduce water demand; establishment of limitations on irrigated areas for new residential construction (for example, a percentage of total turf area or active walking and play areas only).
  - **Water Budget Standards** – Irrigation water budgets and irrigation system plan reviews are currently part of commercial developments. Establishing the same clear expectations for water budgets for mixed use redevelopments will help establish water efficiency expectations.

- **Building Code and Plumbing Standards** – National water-efficient plumbing standards were adopted in the U.S. Energy Policy Act of 1992 (EPAct 1992), which established minimum efficiency standards for toilets, showers, urinals, and faucets manufactured in the U.S. after 1994. Nine states – and some cities - have adopted plumbing standards with higher efficiency standards (NCSL, 2015). Cary could adopt building codes that require new construction or remodeling to install fixtures and appliances that meet EPA WaterSense standards. Additional modifications to the plumbing code may be needed to provide for use of air conditioning condensate, gray water or rainwater, or other onsite reuse for residential and commercial properties. To reduce water loss, an option for the Town to consider is leak inspection and repair requirements.
    - Leak inspection and repair (including customer service lines) and fixture replacement prior to property resale or lease. This can be an effective way to help reduce system water losses, while also accelerating the installation of high-efficiency fixtures and equipment.
- **Sub-metering of Multifamily and Mixed-use Units** –
    - Current land use trends in the Town indicate that the downtown redevelopment will continue to result in increased mixed use and MFR units being constructed. Water service policies should be examined to confirm that they meet the needs of changing land use and development patterns, including meter installation protocols.
    - Many utilities require individual meters for each unit in multifamily housing and mixed-use developments. Some examples include Boone (North Carolina) and San Diego (California). The Town could explore current restrictions and regulations for the North Carolina Utility Commission to investigate current regulations regarding submetering and consider if legislative changes might be beneficial. At a minimum, the Town could encourage sub-metering during the development process.

Conclusions

The Town has achieved significant water savings since the inception of its conservation program in the 1990s and has exceeded its initial conservation goals. Changes in community development patterns, the 2017 adoption of the Town's Community Plan, and anticipated continued growth in the community suggest that the time is right to refocus the Water Conservation Program on maintaining awareness of the value water and water use efficiency, establishing development standards and policies so current conservation efficiencies are not eroded and preparing response and resilience measures that could be implemented if future demands exceed, or future supplies are less than, projections.

The Town continues to see water use efficiency gains and should seek to maintain and even improve upon the water efficiency gains and associated customer conservation-aware mindset achieved to date. As customers shift to online bill pay, customer awareness of how much water they use is declining. Outreach methods to target this are needed, in addition to continuing education of the Town's available water resources and programs. Increasing awareness of customer water usage and citizen participation (a weakness identified in the survey) is a short-term goal, while also working toward a longer-term goal of recognizing the benefits of implementation of additional AquaStar functionality to reach customers and drive water usage behavior changes.

How much water can be saved by these strategies, and how they will impact future demands, needs to be determined as part of a more detailed study that is typically undertaken in the development of a water conservation plan that is outside the scope of this update. It is estimated that with the Town's current programs, and expected water conservation gains expected through continued technology improvements in household appliances, that the Town will see measurable reductions in future water demands on the scale of approximately 1 MGD in 2065 compared to if these programs were not in place.

Opportunities for the Town to support changing land use, development, and building codes can have wide-ranging market impacts, such as redevelopment costs, resale value, affordable housing, and resource use. Therefore, an inclusive and deliberative process that includes stakeholders in policy formulation and implementation timelines is often an effective approach to developing successful and widely accepted policies. Figure 6 provides an overview of the process. Table A-1 provides more detailed summary of strategic Water Conservation Program considerations.

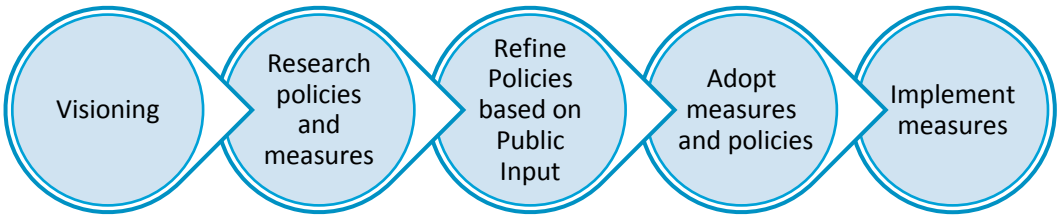


Figure 6. Water Conservation Plan Update Phasing
Long Range Water Resources Plan Update

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Table A-1. Strategic Water Conservation Program Considerations Summary

Long Range Water Resources Plan Update

	2- 4 Years			4 Years and Beyond	
	Public Engagement/ Information	**Incentives**	**Policies/ Regulations/ Measures**	**Public Engagement**	**Incentives and Policies, Regulations, and Measures**
Internal Operations	-	-	• Water Audit - Validate AWWA Water Audit with Level 2 or 3 processes, and then move to Level 1 annually • Staff Training - Continue to train staff across departments on water use reduction and conservation	-	• Water Audit – Conduct detailed Water Audit, including validation processes
Water Conservation Visioning	• Task Force – Appoint a Task Force (potentially Environmental Advisory Board) to explore the vision for water conservation and steps needed (if any) so that water management supports the Cary Community 2040 Plan • Metrics - Use Town Hall meetings, surveys, and other strategies to gauge community support for the vision	-	-	• Task Force - Reconvene a Task Force during future LRWRP or Conservation Program updates	-
Outdoor Water Use	• Public Information - Continue to provide water conservation information on the website, BUD, and other methods • Partnerships - Develop partnerships for demonstration gardens, landscaping, and irrigation classes or workshops • Conservation Certification - Begin discussions about developing an irrigator training and water conservation certification program • Aquastar Data -Leverage data generated by Aquastar to communicate water use information to customers • Leverage DigiPay - Leverage communication opportunities with customers currently using DigiPay to provide conservation information	• Conservation Recognition - Consider water conservation award and recognition program	• Irrigation Schedule - Consider no more than twice a week irrigation schedule • Landscape Audits - Consider increasing the number landscape audits for residential and nonresidential customers (potentially with partners to augment staff) • Technology Partnerships - Partner with vendors and technology companies, including those that are part of EPA's WaterSense program, to research and demonstrate efficiency, operability, and ease of use of irrigation technology or other water-saving practices	• Conservation Certification - Partner with others to implement an irrigator training and water conservation certification program • Outdoor Water Use Engagement - Use strategies and engagement processes (e.g., Task Force, Working Groups, Town Hall meetings) to change outdoor water use	• City Code Amendments - Considering amending land development, building, and plumbing code if innovative technologies previously piloted make sense for Cary
Commercial, Industrial, and Institutional (CII) Water Use	• CII Working Groups - Engage water use sector working groups to explore water-efficient technologies and strategies for various industries	• Conservation Recognition - Consider water conservation award and recognition program	• CII Conservation Policies - Working with the public (e.g., Water Task Force, Water Use Sector Groups, stakeholders, and the general public), refine policies and measures for adoption • Adopt CII Measures - Adopt policies and measures for which there is general support	• CII Conservation Water Use - Use strategies and engagement processes (e.g., Task Force, Working Groups, Town Hall meetings)	• CII Conservation Policies - Adopt policies and measures requiring more time to develop
Redevelopment and New Construction	• Developer Engagement - Use strategies and engagement processes (e.g., Task Force, Working Groups, Town Hall meetings) to engage developers, builders, real estate community and related stakeholders	• Conservation Recognition - Consider water conservation award and recognition program • Land Development Ordinances - Consider land development ordinance incentives (e.g., impact fee waivers, fee credits)	• Redevelopment Policies - Working with the public (e.g., Water Task Force, Water Use Sector Groups, stakeholders, and the general public), refine policies and measures for adoption • Adopt New Construction Measures - Adopt policies and measures for which there is general support (e.g., submetering for mixed-use and multifamily residential units) • Innovation Showcase - Work with Economic Development Committee, Planning department and others to identify "Innovation Center"		• Redevelopment/ New Construction Policies - Adopt policies and measures requiring more time to develop

Notes:
- = not applicable; AWWA = American Water Works Association; EPA = U.S. Environmental Protection Agency; LRWRP = Long Range Water Resources Plan

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