Coon Creek Watershed District

Ditch 39 Subwatershed Community Survey

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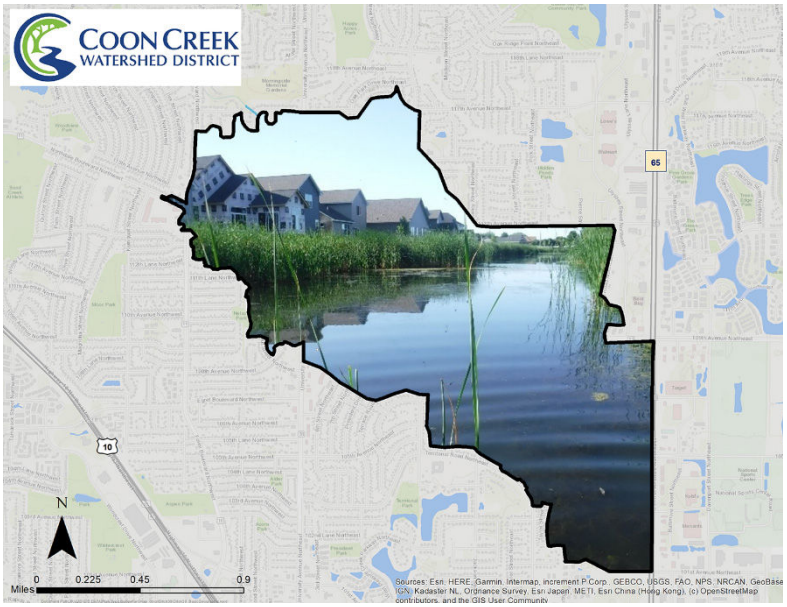

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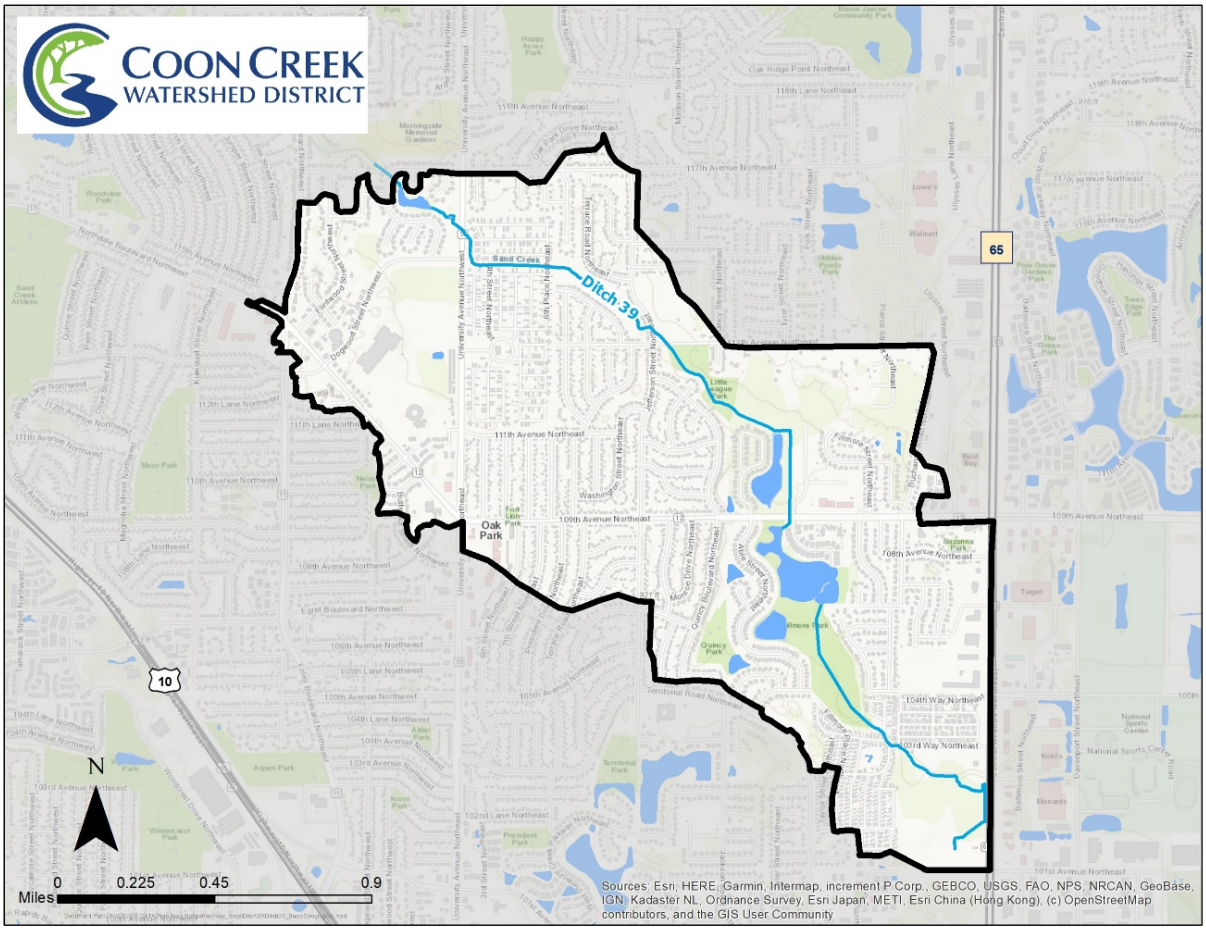
Introduction

Recent water quality monitoring by the Coon Creek Watershed District (CCWD) shows Ditch 39 with elevated levels of both *E. coli* bacteria and phosphorus after storms in a highly residential area, suggesting runoff pollution from dog and yard waste. Therefore, CCWD is interested in determining education or outreach needs in the Ditch 39 subwatershed to encourage behaviors that reduce these pollutants. Since CCWD has not targeted education or outreach efforts with this subwatershed community before, CCWD contracted with Wilder Research (Wilder) in 2021 to implement a survey of residents who live in the Ditch 39 subwatershed (Figure 1) about their behaviors, experiences, and knowledge about behaviors that lead to water pollution.

1. Map of the Ditch 39 subwatershed area



In addition to asking about behaviors and experiences, the mailed survey included a section to measure residents' sense of community and personal efficacy. Individual actions (or inactions) of residents in the subwatershed can contribute to the pollution of Ditch 39, creating spikes in pollutants from precipitation runoff. In natural resource literature, this is what is known as a collective action problem because individual actions aggregate to influence landscape-wide ecology (Niemiec et al., 2020). Collective action problems have been identified across the natural resource literature including in weed control (Lubeck et al., 2019), wildlife deterrence (Nesbitt et al., 2021), and fire management (Canadas et al., 2016).

If the elevated levels of *E. coli* and phosphorous is at least in part caused by the aggregated effect of individual behaviors, CCWD can play a role in shifting individual behaviors to affect pollution through different engagement methods. Research has shown individuals are more willing to take action in collective action problems if they believe their individual actions can make a difference (Niemiec et al. 2016, Fishbein & Ajzen, 2011) and if they share a sense of community with those around them (Niemiec et al., 2020, Lubeck et al., 2019, Niemiec et al., 2016). Wilder Research and CCWD wanted to understand more about how residents' sense of community and personal efficacy could help inform education and outreach strategies. To do this, we included questions to measure both of these dimensions.

Methods

To conduct the mail survey, Wilder received a list of all household addresses in the Ditch 39 subwatershed from CCWD, as determined using the "Address Points" data set from Anoka County GIS data. The subwatershed area spans across portions of both Blaine and Coon Rapids. However, CCWD and Wilder decided to only survey residents in Blaine because the Coon Rapids portion was dominated by a middle school and commercial properties. Additionally, the parts of Ditch 39 that showed elevated pollutants indicated the source of these pollutants was from the Blaine area of the subwatershed. In total 3,119 households, including apartment dwellers, are located within the Blaine portion of the subwatershed. Wilder randomly selected 2,600 households to receive an invitation to participate in the survey. In September 2021, an initial survey packet was mailed to selected households with a cover letter explaining the reasons for the survey and a business reply envelope. Follow-up postcards were mailed one week later to remind people to complete the survey. A second survey packet was sent two weeks after the postcard, and data collection was closed about 2 weeks after the second survey packet was sent out.

Overall, 438 people responded to the survey. This is a response rate of 18%, an expected rate for a paper survey using this methodology.

Limitations

The self-administered mail survey methodology was selected to optimize the available budget and time resources while still gathering information critical to answering the research questions. However, the mail survey methodology and this survey tool have limitations, including:

- *Limited in-depth data.* For self-administered surveys without participant incentives, it is important that most questions are easy-to-read, close-ended, and the survey is kept as short as possible. This limits the amount of in-depth qualitative data that can be collected. A higher cost and more time intensive mixed-method study would likely yield a higher response rate, more extensive quantitative data, and greater in-depth qualitative data.
- *Respondents likely only included English speakers*. To keep costs lower, the survey was only administered in English. Although there are few non-English speakers in these communities, it is likely that community-members with limited English language proficiency did not participate.
- *Social desirability*. The survey asked questions about how residents dealt with dog and yard waste, and respondents may have answered questions that skewed their behaviors toward more socially desirable responses. Because these behaviors are self-reported we cannot know if or how biased responses are.

- *Margin of error and representativeness of Ditch 39 area community*. With 438 respondents, our sample's margin of error is no more than 5%. However, we cannot guarantee that the sample is representative of the Ditch 39 area community.

  Mailed surveys, such as the Ditch 39 survey, will typically return a sample of respondents that skews more heavily toward older, female, White, English-speaking, high income, and high education individuals than exists in the actual population. One way to increase response rate, which can lead to a more representative sample, is by providing a survey incentive and increasing survey outreach materials. Another way to deal with this is by weighting the survey data so that its demographics reflect the population demographics. However, that may require a larger sample size and more information about respondents and the full population. Due to the small number of demographic questions on the survey, we are unable to perform a strong comparison of the sample to the broader community in terms of education, family status, and other demographic characteristics.

  A different approach would be to conduct follow-up interviews and focus groups with specific populations that had lower representation in the survey. This could be an effective way to understand nuances and additional information from populations of interest, and could be considered in the future.

  Every study has limitations. Given the cost and time constraints, this methodology was an effective way of exploring community members' perceptions at this point in time. It is also a helpful way to plan for educational outreach strategies.

Findings

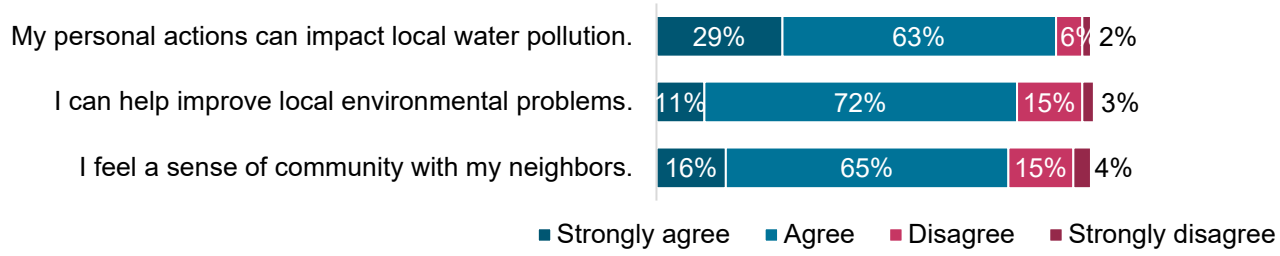
Below are the findings from the survey. Detailed data tables for each question in the survey are included in the Appendix.

Sense of community and personal efficacy

The majority of survey respondents reported they believed they could help improve local problems (11% strongly agree, 72% agree), and their personal actions can impact local water pollution (29% strongly agree, 63% agree).

Additionally, a majority of survey respondents reported they felt a sense of community with their neighbors. Sixteen percent reported they strongly agreed they felt a sense of community with their neighbors, and 65% agreed they felt a sense of community. However, that leaves about 1 in 5 survey respondents (19%) who reported they do not feel a sense of community with their neighbors.

2. Motivating factors of behavior change (N=429-419)



Dogs and dog waste

Dog waste, along with waste from wild animals, can increase bacteria levels in surface water systems. We asked survey respondents how often they saw dog waste when they were out in their neighborhood, in a local park, or when using nearby trails. Fourteen percent indicated they saw dog waste "most of the time," while a third said they saw it "sometimes," and another third saw it "rarely" (Figure 3).

3. How often do you see dog waste (dog poop) when you are out in your neighborhood, local park, or using nearby trails?

(N=438)	N	%
Most of the time	62	14%
Sometimes	150	34%
Rarely	168	38%
I have not noticed dog waste	58	13%

Respondents were also asked about their own dogs and dog habits. Forty-eight percent of respondents had a dog or walked a dog in the past year. Of those, 41% said they picked up dog waste in their yards every day, 40% said they picked up dog waste once a week, and the remainder picked up dog waste less frequently (Figure 4).

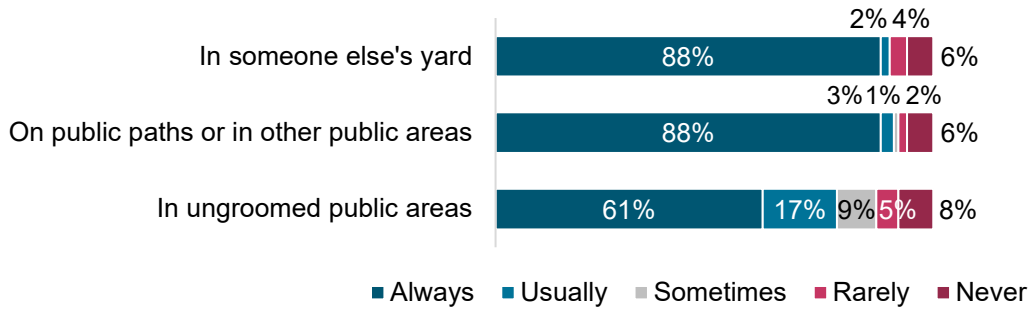
4. How often do you pick up dog waste in your own yard?

(N=204)	N	%
Every day	83	41%
Once a week	81	40%
Once a month	10	5%
Less than once a month	8	4%
Never	20	10%

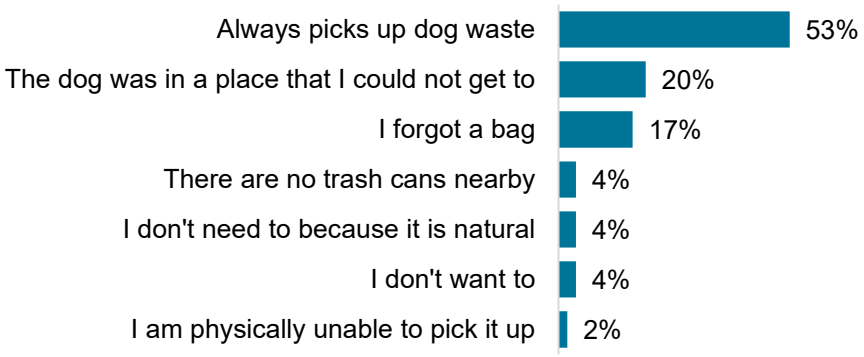
Note: Two people indicated that they own a dog but do not have a yard.

Respondents who reported they had a dog or walked a dog in the past year were then asked about their habits with walking dogs. Respondents were asked how often they picked up after their dog when the dog poops in someone else's yard, on public paths or in other public areas, and in ungroomed public areas. The vast majority of people (88%) indicated that they always pick up their dog waste in someone else's yard or on public paths or in other public areas; 61% indicated they always pick up their dog waste in ungroomed public areas (Figure 5).

5. When you are walking a dog, how often do you pick up the dog's waste in the following places? (N=196-199)



6. If you do not pick up dog waste, what are some of the reasons that you do not pick up waste on walks? (N=206)



Note: Respondents could select multiple responses, so percentages do not sum to 100.

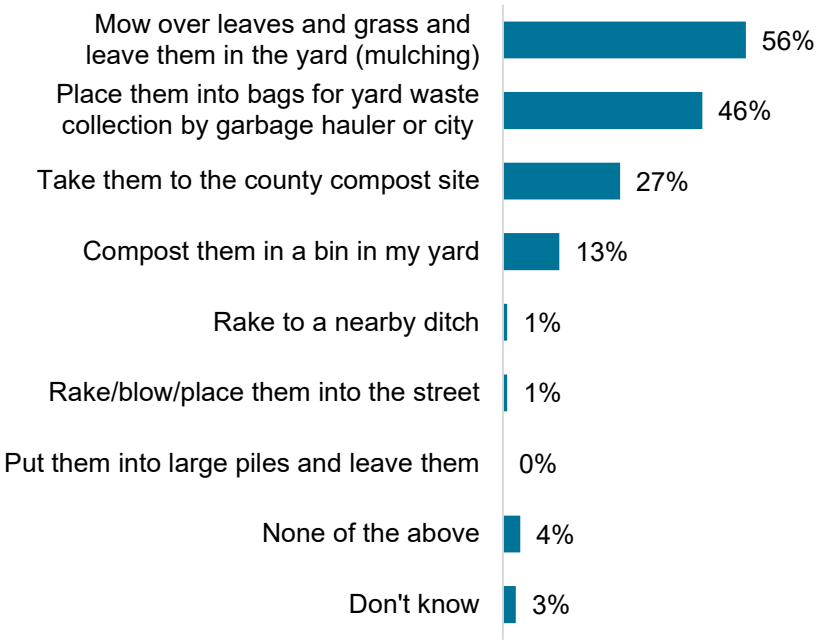
Yard care and home impacts

Dealing with yard waste

Yard waste, in particular leaves and grass clippings that flow into stormwater systems, can also have a negative impact on water quality. Respondents were asked how yard waste is dealt with and any barriers they faced when dealing with yard waste. The vast majority of survey respondents reported they deal with yard waste themselves (79%), and a few respondents said they pay for someone else to deal with it (12%), or their building manager or HOA deals with it (10%). Most respondents reported they dealt with leaves and grass clippings by mowing over them and leaving them on the yard (56%; Figure 7). About half of respondents reported placing leaves and grass clippings into bags for yard waste collection (46%), and about a quarter reported taking them to the county compost site (27%). Very few residents reported dealing with their leaves in ways that contribute to water pollution. This indicates that many residents are already following best practices for dealing with leaves and grass clippings from their yard.

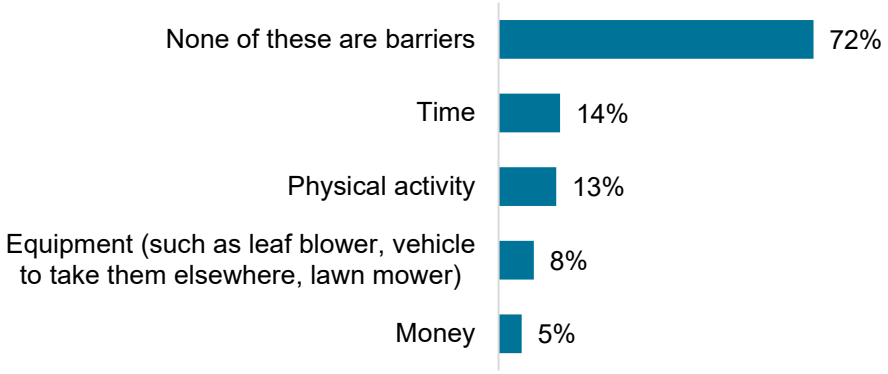
We asked residents about barriers in dealing with leaves or grass clippings in their yard, including time, money, physical activity, and equipment. The vast majority of survey respondents said none of these were barriers (72%; Figure 8). Of those that had barriers, time (14%) and the physical activity (13%) were the most common barriers.

7. How are leaves or grass clippings in your yard dealt with? (N=432)



Note: Respondents could select multiple responses, so percentages do not sum to 100.

8. Barriers to yard care (N=432)



Note: Respondents could select all that apply, so percentages do not sum to 100. If respondents selected none of these are barriers, they could not select other options.

Flooding

Respondents were also asked how flooding effects their home. Fourteen percent of residents reported that their street floods (Figure 9).

9. Does flooding impact you in any of the following ways?

(N=437)	N	%
My street floods	60	14%
My yard will have standing water	34	8%
My house or other building on my property floods	10	2%
I don't know	25	6%
None of the above	321	73%

Note: Respondents could select all that apply, so percentages do not sum to 100. If respondents selected don't know, or none of the above, they could not select other options.

Stormwater knowledge

CCWD was also interested in what residents know about stormwater to gauge their understanding of surface water systems and potential pollutants. The majority of respondents had heard of the term "stormwater" and reported they had a good idea about its definition (63%, Figure 10).

10. Have you heard of the term "stormwater"?

(N=437)	N	%
Yes, and I have a good idea about what it means	277	63%
Yes, but I'm not sure what it means	107	25%
No	53	12%

Connection with Coon Creek Watershed District and water issues

Coon Creek Watershed District was interested in learning how many residents of the watershed had already heard about them and the most common ways people learned about their organization. Fifty-eight percent of respondents had not heard of Coon Creek Watershed District. Of those who had heard of CCWD, the most common way was through a city or community newsletter (30%; Figure 11).

11. How did you hear about the Coon Creek Watershed District?

(N=430)	N	%
City or community newsletter	131	30%
Community event (ex. the Blaine WorldFest, Farmers Market, etc.)	16	4%
I got a Coon Creek Watershed District development permit	16	4%
Sand Creek trail	14	3%
Website search	10	2%
Social media	6	1%
Other	30	7%
I have not heard about CCWD	250	58%

Note: Respondents could select all that apply, so percentages do not sum to 100. Respondents who selected "I have not heard about the Coon Creek Watershed District" could not select any other responses.

We asked respondents how they would like to hear about water issues in their community, and overwhelmingly, they said they would prefer city newsletters as a mode of communication (81%; Figure 12).

12. How would you like to hear about water issues?

(N=435)	N	%
City newsletters	351	81%
Email	81	19%
Facebook	45	10%
Neighborhood meetings	28	6%
YouTube	13	3%
Instagram	8	2%
Twitter	4	1%
I do not want any information	34	8%

Note: Respondents could select all that apply, so percentages do not sum to 100.

We asked respondents if they would like this information in a language other than English. Almost all respondents said no, they would not (98%). However, the survey was conducted in English, so it likely did not capture those who primarily speak other languages. In looking at data from Minnesota Compass, compiled from the US Census Bureau 2017 American Community Survey Estimates, 17% of Blaine residents speak a language other than English. Only 7% of Blaine residents report that they speak English less than "very well" (Minnesota Compass, 2015-2019). While these data represent the city of Blaine, rather than the neighborhood around Ditch 39 Pleasure Creek area, some materials in other languages may still be helpful in designing education and outreach campaigns.

Demographics

The vast majority of respondents identified as White or Caucasian (90%), and 10% of respondents identified as people of color, including identifying with two or more races. Two percent of respondents identified as Hispanic/ Latino/a/e. Respondents could report as many races or ethnicities as they chose. According to Anoka County GIS data, people of color comprise 21% of the subwatershed, and 5% of the population is of Hispanic origin. This suggests our survey responses missed residents of color in the subwatershed. However, this type of discrepancy is typical of mailed surveys which tend to have more respondents who are older and whiter than the general population. Additional outreach to these communities would be beneficial.

Most survey respondents have lived in the area a long time, with 68% indicating they have lived there for longer than 10 years (Figure 13).

13. How long have you lived in the area?

(N=432)	N	%
Less than 6 months	13	3%
6 months to a year	9	2%
More than a year to 5 years	68	16%
More than 5 years to 10 years	50	12%
More than 10 years	292	68%

Note: Five people indicated that they preferred not to answer

The largest age group of respondents was age 65 to 74 (27%), followed by 75 and older (21%), and 55 to 64 (17%; Figure 14). According to Anoka County GIS data, 5% of residents in the Ditch 39 subwatershed are 75+, and 9% are 65-74. This indicates our survey reached a disproportionately large number of older residents.

14. What is your age group?

(N=410)	N	%
18-24	4	1%
25-34	29	7%
35-44	55	13%
45-54	59	14%
55-64	69	17%
65-74	109	27%
75+	85	21%

Note: 22 people indicated that they preferred not to answer

Recommendations

CCWD could consider the following recommendations when designing education and outreach materials and strategies.

- The high levels of personal efficacy and sense of community in the Ditch 39 subwatershed suggest that residents of the area would be receptive to outreach or interventions encouraging behavior change.
- However, about one fifth of respondents said they did not feel a sense of community with their neighbors. We believe this is a big enough proportion that it should be taken into consideration when designing outreach. This population may not respond to outreach that frames the water pollution as a community problem and, instead, may need more individualized outreach attempts.
- Many respondents believed they can solve local environmental problems and their actions make a difference in local water pollution. This indicates that this population might be willing to change behaviors because they believe their actions affect local water pollution.
- The majority of people said they were prompt in picking up dog waste in their own yards (within one week). However, about 1 in 5 respondents said they picked up dog waste less than once a week. This constitutes a sizeable population of dog owners that may be affecting water quality. This population may be a good target for outreach.
- The majority of people also said they always picked up waste in other people's yards or in public areas. Fewer people picked up waste in ungroomed areas. It may be helpful to make the case about the importance of picking up after your dog in ungroomed areas in educational materials.
- The main reason people cited for not picking up dog waste is that the dog waste was in a place they could not get to, or forgetting a bag. This could indicate that having more bag stations available might be helpful.
- The majority of households maintained their yards in ways that minimize water pollution, including mulching the leaves and having their yard waste hauled. This indicates the population that may need outreach about yard care behaviors is small, making it more difficult to reach out to them. To reach this population, it might be helpful to leverage the high sense of community and personal efficacy in the area, and have community liaisons who can easily identify the people who might need this type of education. Community liaisons could also help residents with barriers care for their lawns.
- While most respondents reported some level of understanding of stormwater, additional education could bolster a more comprehensive understanding of what the term means and the implications of stormwater runoff.

- The majority of respondents who had heard about CCWD were familiar with it because of a city or community newsletter. The majority of respondents also indicated they would like to find out about water issues through city newsletters. While there may be some connection between these responses and respondent bias, this still indicates that city newsletters would be preferred and effective ways of communicating messages to residents. Additionally, many respondents said they would like information through email, followed by Facebook.
- The majority of survey respondents were older and White, so more consideration of and outreach to younger residents and communities of color would be important. Based on population data, these residents make up a considerable portion of the subwatershed area, and information about their behaviors, knowledge, and preferences is important to enact inclusive change within the subwatershed.

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Appendix

A1. I feel a sense of community with my neighbors.

I feel a sense of community with my neighbors.	Overall (N=429)	
	N	%
Strongly Agree	69	16%
Agree	280	65%
Disagree	65	15%
Strongly Disagree	15	4%

A2. I can help improve local environmental problems.

	Overall (N=419)	
	N	%
Strongly agree	46	11%
Agree	300	72%
Disagree	62	15%
Strongly disagree	11	3%

A3. My personal actions can impact local water pollution.

	Overall (N=422)	
	N	%
Strongly agree	124	29%
Agree	264	63%
Disagree	26	6%
Strongly disagree	8	2%

A4. Does flooding impact you in any of the following ways? (Check all that apply)

	Overall (N=437)	
	N	%
My yard will have standing water	34	8%
My house or other structure on my property floods	10	2%
My street floods	60	14%
I do not know	25	6%
None of the above	321	73%

Note: Respondents could select all that apply, so percentages do not sum to 100. If respondents selected don't know or none of the above, they could not select other options.

A5. Have you heard of the term 'stormwater'?

	Overall (N=437)	
	N	%
Yes, and I have a good idea about what it means	277	63%
Yes, but I'm not sure what it means	107	25%
No	53	12%

A6. How often do you see dog waste (dog poop) when you are out in your neighborhood, local park, or using nearby trails?

	Overall (N=438)	
	N	%
Most of the time	62	14%
Sometimes	150	34%
Rarely	168	38%
I have not noticed dog waste	58	13%

A7. Do you have a dog(s) or have you walked a dog(s) in the past year?

	Overall (N=434)	
	N	%
Yes	208	48%
No	226	52%

A8. How often do you or did you pick up dog waste in your own yard?

	Overall (N=204)	
	N	%
Everyday	83	41%
Once a week	81	40%
Once a month	10	5%
Less than once a month	8	4%
Never	20	10%
I do not have a yard	2	1%

A9. In general, when you are walking a dog, how often do you pick up the dog's waste in someone else's yard?

	Overall (N=199)	
	N	%
Always	176	88%
Usually	3	2%
Rarely	8	4%
Never	12	6%

A10. In general, when you are walking a dog, how often do you pick up the dog's waste on public paths or in other public areas (boulevard grass, mulch, pavement, etc.)?

	Overall (N=199)	
	N	%
Always	176	88%
Usually	6	3%
Sometimes	2	1%
Rarely	3	2%
Never	12	6%

A11. In general, when you are walking a dog, how often do you pick up the dog's waste in ungroomed public areas (off a trail or in a natural area)?

	Overall (N=196)	
	N	%
Always	120	61%
Usually	34	17%
Sometimes	17	9%
Rarely	10	5%
Never	15	8%

A12. What are some reasons that you do not pick up waste on walks? (Check all that apply)

	Overall (N=206)	
	N	%
I always pick up dog waste on walks	109	53%
I forgot a bag	34	17%
There are no trash cans nearby	9	4%
I don't want to	9	4%
I don't need to because it's natural	8	4%
I am physically unable to pick it up	5	2%
The dog waste was in a place that I could not get to	41	20%
None of the above	16	8%

Note: Respondents could select all that apply, so percentages do not sum to 100. If respondents selected none of the above, they could not select other options.

A13. Generally, who deals with leaves or grass clippings, in your yard?

	Overall (N=438)	
	N	%
I/We deal with it myself/ourselves	344	79%
I/We pay for someone else to deal with it (either a company or individual)	54	12%
My building manager, property owner, or HOA service deals with it	45	10%
No one deals with it	2	0%
I don't know	1	0%
None of the above	4	1%
I do not have a yard	1	0%

Note: Respondents could select all that apply, so percentages do not sum to 100. If respondents selected don't know, none of the above or I do not have a yard, they could not select other options. Due to rounding percentages may not sum to 100.

A14. How are leaves or grass clippings in your yard dealt with? (Check all that apply)

	Overall (N=432)	
	N	%
Place them into bags for yard waste collection by garbage hauler	197	46%
Compost them in a bin in my yard	55	13%
Mow them and leave them in the yard (mulching)	242	56%
Take them to the county compost site	116	27%
Rake/blow/place them in the street	3	1%
Rake to a nearby ditch	4	1%
Put them into large piles and leave them	2	0%
I do not know	12	3%
None of the above	16	4%

Note: Respondents could select all that apply, so percentages do not sum to 100. If respondents selected don't know or none of the above, they could not select other options. Due to rounding percentages may not sum to 100.

A15. Are any of the following barriers for dealing with leaves or grass clippings from your yard? (Check all that apply)

	Overall (N=432)	
	N	%
Time	61	14%
Money	23	5%
Physical activity	57	13%
Equipment (such as leaf blower, vehicle to take them elsewhere, lawn mower)	35	8%
None of these are barriers	312	72%

Note: Respondents could select all that apply, so percentages do not sum to 100. If respondents selected "None of these are barriers", they could not select other options.

A16. Have you heard about the Coon Creek Watershed District through any of the following sources? (Check all that apply)

	Overall (N=430)	
	N	%
I have not heard about the Coon Creek Watershed District	250	58%
Community event (ex. Blaine WorldFest, Farmers Market, etc.)	16	4%
City or community newsletter	131	30%
School information	0	0%
Sand Creek trail	14	3%
I got a Coon Creek Watershed District letter or development permit	16	4%
Website search	10	2%
Social media	6	1%
Other	30	7%

Note: Respondents could select all that apply, so percentages may not sum to 100.

A17. How would you like to hear information about water issues or your local environment? (Check all that apply)

	Overall (N=435)	
	N	%
City newsletters	351	81%
Email	81	19%
Neighborhood meetings	28	6%
Facebook	45	10%
Instagram	8	2%
YouTube	13	3%
Twitter	4	1%
None of the above	16	4%
I am not interested in information about this	34	8%

Note: Respondents could select all that apply, so percentages do not sum to 100. If respondents selected "None of the above" or "I am not interested in information about this", they could not select other options.

A18. Would you like this information in a language other than English?

	Overall (N=432)	
	N	%
No	422	98%
Yes, Spanish	3	1%
Yes, Hmong	2	<1%
Yes, other	5	1%

Note: Due to rounding, percentages do not sum to 100.

A19. How long have you lived in the area?

	Overall (N=438)	
	N	%
Less than 6 months	13	3%
6 months to a year	9	2%
More than a year to 5 years	68	16%
More than 5 years to 10 years	50	12%
More than 10 years	292	68%

Note: Five people indicated that they preferred not to answer.

A20. Which one or more of the following describes you? (Check all that apply)

	Overall (N=405)	
	N	%
Black or African American	7	2%
African native, including Oromo, Somali, Ethiopian	5	1%
Asian, including Southeast Asian	16	4%
Hispanic or Latino/a/e	6	1%
Native American	12	3%
White or Caucasian	375	93%
Other	2	0%

Note: Respondents could select all that apply, so percentages do not sum to 100.

A21. Racial background, re-coded to eliminate duplicative counts[1]

	Overall (N=399)	
	N	%
Black, African American or African native only	9	2%
Asian, including Southeast Asian only	13	3%
Native American only	2	1%
White or Caucasian only	360	90%
Two or more races	15	4%

[1]To compare the race and ethnicity data we collected in the survey to existing race and ethnicity provided by CCWD, we combined some racial and ethnic categories to match the categories in the existing data. Additionally, we pulled out respondents who identified with only a single race or ethnicity to better compare to existing data, and created a new category for respondents who reported two or more races.

A22. Are you Hispanic/Latino/a/e?

	Overall (N=404)	
	N	%
Yes	6	2%
No	398	99%

To compare the race and ethnicity data we collected in our survey to existing data sources provided by CCWD we ran the frequency of respondents who identified as Hispanic/Latino/a/e.

A23. What is your age group?

	Overall (N=410)	
	N	%
18-24	4	1%
25-34	29	7%
35-44	55	13%
45-54	59	14%
55-64	69	17%
65-74	109	27%
75+	85	21%

Note: Twenty two people indicated they preferred not to answer.

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