

Capitol Region Watershed District

*A study of resident attitudes and behaviors
related to water quality*

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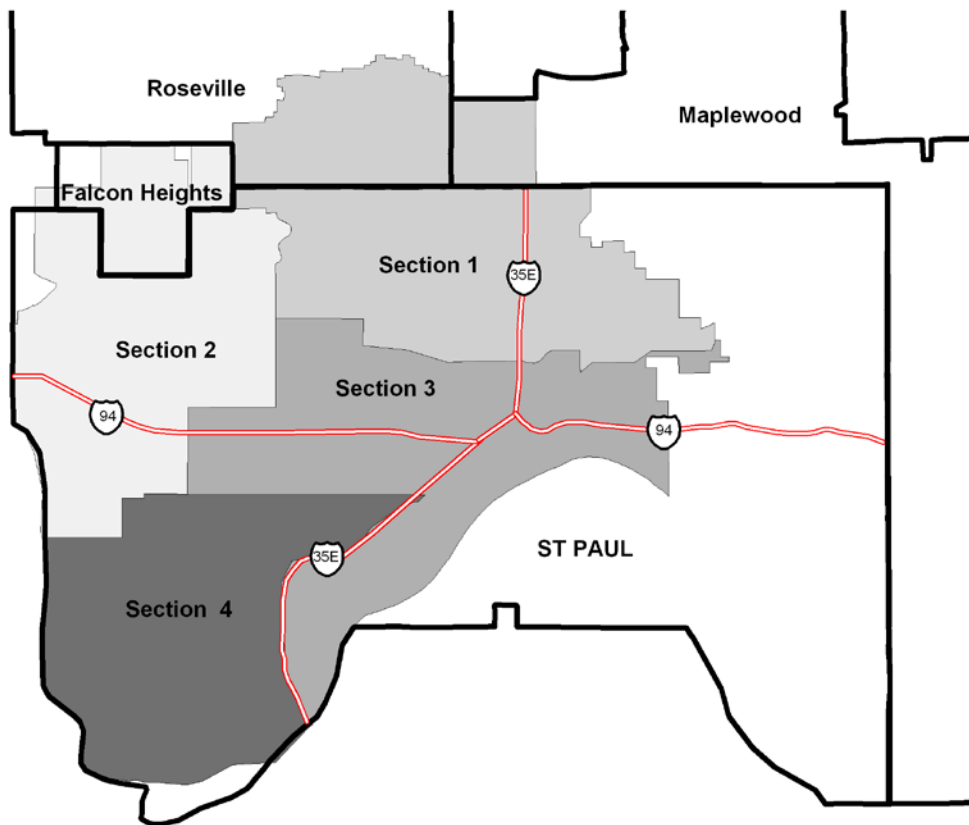
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Background

The Capitol Region Watershed District is a local government entity that is responsible for managing and protecting a portion of the lakes, creeks, and wetlands in the Mississippi River Basin. The District spans 40 square miles and includes parts of Falcon Heights, Lauderdale, Maplewood, Roseville, and St. Paul (see Figure 1). Specifically, their mission is to protect, manage, and improve local water resources. They monitor stormwater quality, issue erosion permits to development sites, and promote best practices for reducing stormwater runoff and water pollutants by providing water quality improvement grants and educational programming to District residents.

1. District map



In April 2009, Capitol Region Watershed District (CRWD) contracted with Wilder Research to conduct a survey and focus group with District residents to better understand their attitudes and household practices related to lake and stream water quality. Eleven residents who completed the survey also participated in a focus group discussion. The results of this study will be used to help inform CRWD staff and board members in making decisions about future programming, outreach, and policy.

Data methods and analysis

Research methods

Wilder Research worked in cooperation with Capitol Region Watershed District staff and board members to design a resident survey. To conduct the survey, Wilder Research obtained a sample of phone numbers for 4,000 randomly selected single-family housing units located within the geographic boundaries of the Capitol Region Watershed District. Residents living in a home with a yard cared for by its occupants (determined by a pre-survey screening question) were considered eligible to complete the survey. Those living in a home without a yard or living in a home where occupants were not responsible for making decisions about landscape care were ineligible for this survey. Between July and September 2009, Wilder contacted 970 households and completed interviews with 400 eligible adults, resulting in a 51.3 percent response rate. In order to better capture the attitudes and behaviors of residents under age 35 (who are more likely to be cell-phone only, and therefore underrepresented in the original sample), a letter was mailed to 1,000 randomly selected single-family unit households in the District without listed telephone numbers inviting them to contact Wilder Research and participate in the survey. Using this approach, Wilder completed an additional 43 interviews with eligible adults living in the District.

Participants were asked questions about their knowledge and opinions on water quality issues and behaviors related to lawn and garden care, downspout drainage, and car washing. They were also asked about perceived barriers to participating in practices that can reduce residential runoff. (For a complete survey instrument, see appendix.)

In September 2009, Wilder also conducted a focus group with 11 watershed residents (5 men and 6 women) in order to explore in-depth many of the topics included in the survey, as well as the appeal of possible designs for a community leaf raking program and a downspout redirection program. Participants were also asked about their preferences for receiving information about topics related to water quality. Focus group participants were recruited from the pool of individuals who completed the telephone survey. All of the people who participated in the focus group indicated on the survey that they were “very concerned” about the pollution of our lakes and streams and had two or more perceived barriers to participating in practices that can reduce residential runoff.

Focus group participants were asked the following questions:

- What concerns you most about pollution in our lakes and the Mississippi?

- What have you heard about pollution in our lakes and the Mississippi?
- What do you think are the biggest sources of lake water pollution in the Saint Paul area?
- When you hear the word “compost” what actions come to mind?
- When you hear the words “yard waste” what images come to mind?
- When you hear the word “runoff” what images come to mind?
- What do you think individual residents can do to help reduce pollution in our lakes and the Mississippi?
- We learned in our survey that many residents don’t do these things or do them as often as they should. What do you think are reasons why residents don’t do these things?
- What do you think might encourage residents to start doing these things or to do them more often?
- If you were to look for information about the topics we discussed today, where would you go?
- If you were to receive information about how residents can help reduce pollution in our lakes and the Mississippi River, how would you like this information presented to you?

Participants also completed an exercise with note cards. The purpose of the exercise was to identify participants’ perceptions and preferences regarding possible designs for a community leaf raking program and a downspout redirection program. After discussing them as a group, participants were asked to write down which program designs they preferred and why. (For complete discussion guide, see appendix.)

Data analysis

The responses of participants in the listed telephone number group did not differ significantly from participants in the unlisted telephone number group. For purposes of analysis, data collected from the two samples are combined (N=443). These data were analyzed for differences among geographic subsections of the District and also for differences based on gender, age, and household income. Data for the four geographic subsections of the District are included in the body of the report. (For subsection boundaries, refer to Figure 1.) Results for this survey have a sampling error of 5 percent for the District as a whole. Instances in which respondent groups differed by 10 percentage points or more are described in the text of the “Findings” section. Overall differences among demographic groups are discussed in the “Programming considerations” section of this report.

The focus group (N=11) was designed to capture the depth and range of attitudes among District residents who are very concerned about water quality and perceive multiple barriers to participating in the practices that can reduce residential runoff. This target group was selected based on their high potential for change over time if intervention were to occur. Caution should be used when interpreting focus group results, since these results may not be representative of all Capitol Region Watershed District residents.

Participant characteristics

The demographic characteristics of survey participants closely matched those of the population of homeowners in the Capitol Region Watershed District; however, lower-income residents were slightly underrepresented (see Figure 2). The distribution of respondents by geographic subsection is also noted in Figure 2. For a pictorial representation of survey coverage, see appendix.

The focus group was gender-balanced and included: a range of ages, residents from all sections of the District, and nearly all income groups. All members of the focus group were White; however, the majority of homeowners in the District are White. The diversity of the focus group provided a broad range of perspectives (see Figure 3).

2. Survey respondents

N=443	2009 Survey respondents	2005-2007 Saint Paul homeowners¹	2005-2007 Maplewood homeowners¹	2005-2007 Roseville homeowners¹
Gender				
Male	39%	-	-	-
Female	61%	-	-	-
Age				
18-34	10%	16%	9%	7%
35 and over	90%	84%	91%	93%
Income				
Under \$50,000	20%	36%	31%	34%
\$50,000 to \$99,999	42%	39%	38%	37%
\$100,000 or more	38%	25%	31%	29%
Race				
White	91%	86%	93%	95%
Person of color	9%	14%	7%	5%

¹ Data for homeowners in Saint Paul, Maplewood, and Roseville are from the 2005-2007 American Community Survey estimates published by the U.S. Census Bureau.

2. Survey respondents (continued)

N=443	2009 Survey respondents	2005-2007 Saint Paul homeowners¹	2005-2007 Maplewood homeowners¹	2005-2007 Roseville homeowners¹
Tenure				
Owner	95%	-	-	-
Renter	5%	-	-	-
Watershed area				
Section 1	27%	-	-	-
Section 2	21%	-	-	-
Section 3	19%	-	-	-
Section 4	33%	-	-	-

¹ Data for homeowners in Saint Paul, Maplewood, and Roseville are from the 2005-2007 American Community Survey estimates published by the U.S. Census Bureau.

3. Focus group participants

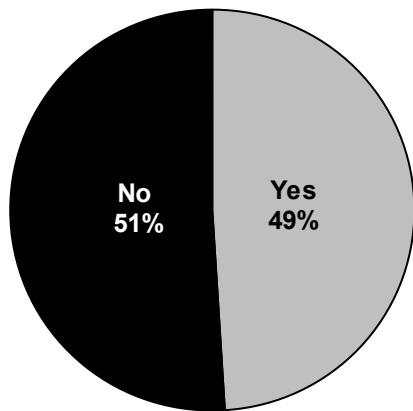
N=11	Number
Gender	
Male	5
Female	6
Age	
35-44	1
45-54	4
55-64	3
65 and over	3
Income	
Less than \$10,000	1
\$10,000 to \$29,999	2
\$30,000 to \$49,000	2
\$50,000 to \$69,000	2
\$70,000 to \$99,000	3
Unknown	1
Watershed area	
Section 1	5
Section 2	1
Section 3	2
Section 4	3

Findings

Level of awareness and concern

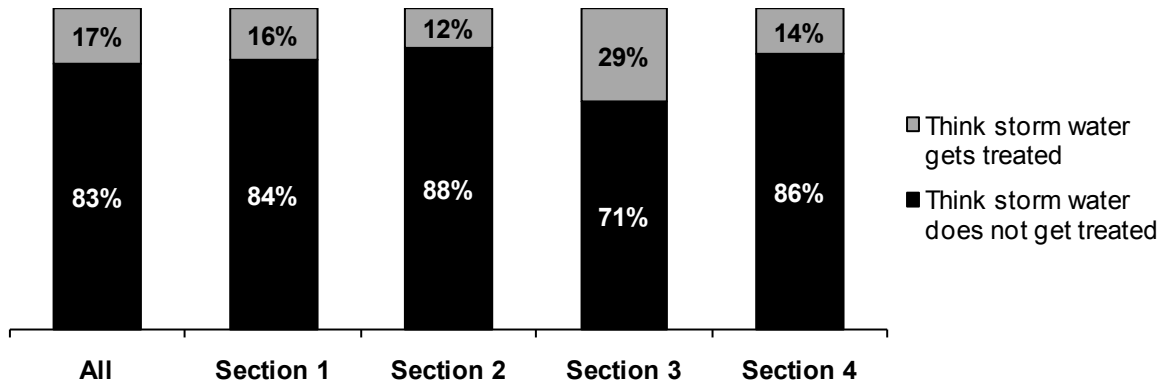
Half of survey respondents (49%) said they had previously heard of the Capitol Region Watershed District. This was true for respondents across all sections of the District, suggesting that several residents are familiar with the organization and/or the Watershed District in which they live.

4. Residents' awareness of Capitol Region Watershed District



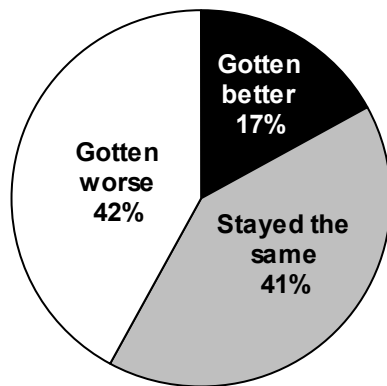
Survey data indicate that many District residents are aware that stormwater does not get treated before it enters local lakes and streams. The majority of survey respondents (83%) correctly answered that rainwater that runs into storm drains does not go to a water treatment facility. However, respondent answers to this question varied across the District (see Figure 5). More than one-quarter (29%) of respondents in Section 3 believe that rainwater *does* get treated before entering local lakes and streams. In addition, focus group respondents frequently mentioned the contamination of drinking water – an indication that the flow of stormwater and drinking water are not completely separate in the minds of residents.

5. Residents' awareness of stormwater management



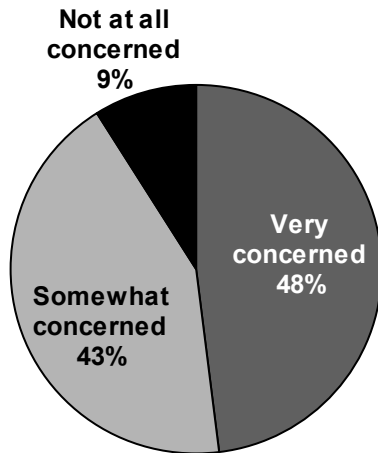
Survey respondents were asked to give their opinion on whether or not the quality of lakes and streams in the Saint Paul area has improved over the last five years. Data suggest that District residents are split on this issue. Forty-two percent of respondents think that water quality in the District has declined over the past five years, whereas 41 percent think that things have stayed the same. Less than one in five respondents (17%) think that the quality has improved over the last five years.

6. Residents' perception of water quality over the last five years



According to survey results, the pollution of local lakes and streams is a major concern among District residents. Nearly half of respondents (48%) said they are very concerned about the issue and an additional 43 percent said they are somewhat concerned. Nine percent said they are not at all concerned (see Figure 7). In addition, 92 percent of respondents either agree or strongly agree that preserving the quality of local lakes and streams is one of the most important issues our region faces.

7. Residents' level of concern about water pollution



Focus group participants provided some insight as to why residents are concerned about the pollution of lakes and streams. They mentioned the following:

- Ability to support wildlife
- General aesthetics
- Industrial and agricultural pollution
- Swim-ability and fish-ability of lakes

Some of their comments illustrate these points:

My concern is aesthetics. This area is so much cleaner than other metro areas. It has to be clean for wildlife and not smell.

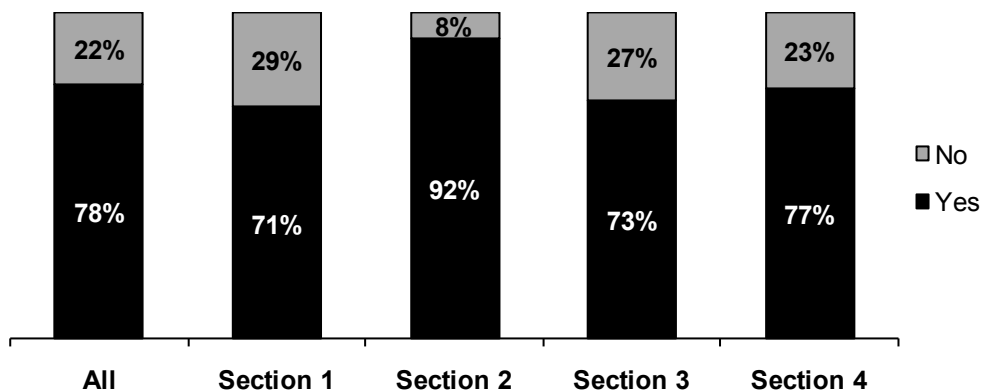
I'm interested in safety. [You] want be able to just feel safe and that your health is not in jeopardy if you want to take a plunge or pull a fish out of it.

A lot of agricultural pollution. A lot of people over-fertilize their lawns and it leads to all this algae.

In addition to questions about awareness and concern, survey respondents were asked whether or not they would be willing to pay a property tax increase of \$3.00 next year to improve local lakes and the Mississippi River. (Currently, each taxpayer household pays \$15.00 annually for water maintenance and improvement.) Nearly all respondents (95%) indicated that someone in their household was responsible for paying property taxes. Of those living in taxpayer households, more than three-quarters (78%) said that they would

be willing to pay the \$3.00 increase. It is worth noting that respondent attitudes did vary across the District. The proportion of respondents who would be willing to pay the tax increase ranged from 71 percent in Section 1 to 92 percent in Section 2.

8. Residents' willingness to pay a \$3.00 property tax increase to protect water quality

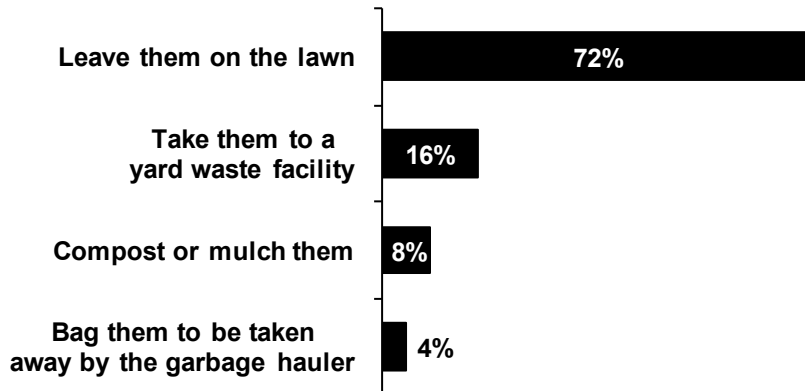


Landscape care behaviors

Grass clippings and leaves that enter storm drains are a major source of water pollution. To better understand the problem, survey respondents were asked a series of questions about their yard waste. The majority of respondents (72%) said they usually leave their grass clippings on the lawn after mowing their yard and 16 percent said they take them to a yard waste facility. The remainder said they either use the clippings for compost or mulch or bag them for pick-up by their garbage hauler. When it comes to fallen leaves, the majority (62%) said they usually take them to a yard waste facility and 15 percent said they use them for compost or mulch. The remainder said they either bag them for pick-up by their garbage hauler or leave them on the lawn. A small number of respondents (5) said they use a lawn care service that removes them.

However, yard waste disposal practices appear to vary somewhat across the District. In Sections 3 and 4, about 20 percent of respondents said they take their grass clipping to a yard waste facility, compared to 11 percent of respondents in Sections 1 and 2 (see Figure 9). With respect to leaf disposal, the proportion of respondents who said they use a yard waste facility ranged from 51 percent in Section 1 to 65 percent in Section 4.

9. Residents' grass clipping removal practices



Overall, data suggest that almost two-thirds (62%) of District residents practice the Capitol Region Watershed District's preferred behavior of leaf disposal (take to a yard waste facility) and nearly three-quarters (72%) of residents practice their preferred behavior of grass clipping disposal (leave them on the lawn). The removal of leaves and grass clippings from public sidewalks and streets was not addressed in the survey. Focus group participants offered a few reasons why some residents do not take their leaves to a yard waste facility:

It is a lot of work to gather up all of your yard waste and bring it to facility. For many elderly residents this can be a physical hardship, some residents do not own a vehicle large enough to transport the waste, and some people simply do not have the motivation to do the work that it requires.

Yard waste facilities have inconvenient and/or irregular hours – it is difficult to catch them at a time when they are open.

Sometimes we haul our leaves to the site. Sometimes I think about what are the [environmental] trade-offs of polluting with our gasoline hauling the leaves there versus getting the leaves there.

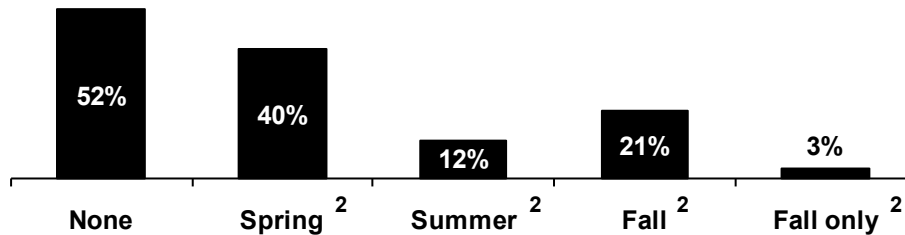
It would be nice if people could leave their [yard waste] items on the curb for a recycle truck. It should be more convenient.

I think a lot of people just don't care. It's not a priority in their lives.

In addition to yard waste removal, survey respondents were also questioned about the use of fertilizer on their lawn and garden. Almost half (49%) indicated that they use fertilizer on their lawn or garden, although fertilizer use among respondents in Section 3 was somewhat lower (33%). Survey results show that many respondents use fertilizer in more than one season. Among those who do fertilize, the majority fertilize in the spring.

Slightly over half fertilize during the spring and the fall. Only 3 percent of all respondents said use fertilizer in the fall only – an indication that this is not a common practice among District residents.¹

10. Residents' use of fertilizer



According to focus group participants, social pressures and lack of knowledge are two reasons why the practice of “fall only” fertilization is so low.

There are social pressures to have a nice lawn if you live in a neighborhood where everybody [else] has a nice lawn.

I think a lot of people really don't know what the 'right' behaviors are.

Survey respondents were also asked to indicate whether or not they participate in the following “green” landscape care practices: mulching, composting, use of a rain barrel, rain garden installation, and use of native plants. Seventy percent of survey respondents said they mulch, 66 percent said they have native plants or shrubs installed in their yard, 47 percent said they compost, 11 percent said they use a rain barrel, and 9 percent said they had installed a rain garden. Participation in these “green” landscape care practices varies somewhat across the District. Respondents in Section 1 were less likely to mulch than respondents in other sections of the District. Additionally, the proportion of respondents who said they compost ranged from 37 percent in Section 1 to 59 percent in Section 2. Native plant installation ranged from 61 percent in Section 1 to 71 percent in Section 4. The use of rain barrels and rain gardens was similarly low across all sections of the District (see Figure 11). These numbers may not be consistent with observed behaviors in the District. In addition, there may be some social desirability among respondents to “be green.” Therefore, it is suggested that readers use caution when interpreting these data about “green” landscape care practices.

¹ Fertilizer runoff pollutes lakes and streams and can cause algae over growth. During the fall months, plants are focused on root growth and absorb more fertilizer. In the spring time, plants are focused on shoot growth and absorb less fertilizer. This unabsorbed fertilizer runs into storm sewers when it rains and when residents' water their lawns.

11. Residents' participation in "green" landscape care practices

	All survey respondents N=441	Section 1 N=118	Section 2 N=94	Section 3 N=82	Section 4 N=147
Use mulch	70%	60%	77%	71%	72%
Have native plants	66%	61%	70%	61%	71%
Participate in backyard or site composting	47%	37%	59%	51%	44%
Use a rain barrel	11%	9%	13%	13%	10%
Have a rain garden	9%	9%	9%	11%	9%

Focus group participants commented on many of these green practices and provided some insight as to why composting was a common practice among survey respondents. When asked what actions come to mind with the word "compost," some participants associated the word with backyard composting, but others associated it with taking yard waste to a compost facility. As a result, the proportion of residents who participate in backyard composting is unknown. Focus group participants also discussed why some District residents do not practice the "green" landscape care practices mentioned above.

- Participants demonstrated a lack of knowledge about the benefits of rain gardens.
- Lower income participants, including seniors on fixed incomes, viewed rain barrels and compost bins as too expensive. The lack of opportunities to learn more about them was also mentioned.
- Participants also cited inconvenience, lack of knowledge, and unpleasant smells as reasons for not composting.
- Pressure to have a green lawn was seen as a possible barrier to native plant installation.

Some of their comments illustrate these points:

I don't know the first thing about installing a rain garden in my yard. I'm not sure if it's worth my time to make one.

I tried to sign up for a workshop to make a rain barrel and they were already filled.

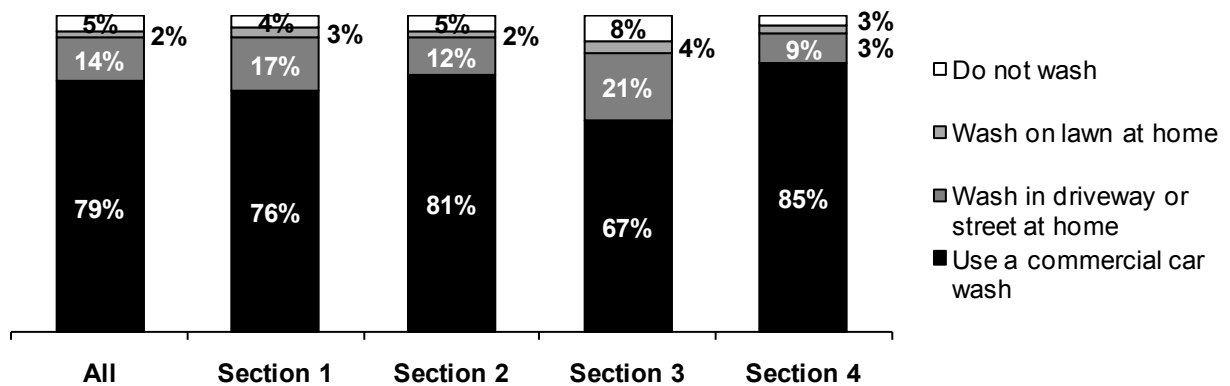
I would use a rain barrel if they weren't so terribly expensive. I think they are a great idea. My neighbor has two of them.

I think [residents] have a perception that the perfect lawn is lush grass. We just let ours go and have a mix of grasses and clover – it is fairly drought resistant.

Other behaviors related to water quality

In addition to lawn and garden care, survey respondents were asked about other household behaviors that influence the quality of local lakes and streams. Washing a vehicle on an impervious surface, such as a driveway, is one residential behavior that produces runoff. Only 14 percent of all survey respondents said that they usually wash their vehicles in the driveway or street at home. However, survey results indicate that car washing practices vary across the District. Twenty-one percent of survey respondents in Section 3 said they usually wash their vehicles in the driveway or street, compared to 9 percent of respondents in Section 4. Just over three-quarters (79%) of survey respondents said they usually use a commercial carwash.² While data suggest that the majority of residents are already engaged in the preferred method for washing vehicles, participation rates across the District range from 67 percent in Section 3 to 85 percent in Section 4.

12. Residents' car washing practices



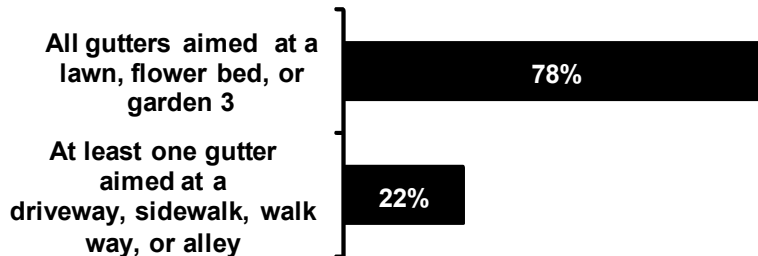
On a related note, many focus group participants associated runoff and water pollution with automobiles. Impervious parking lots, car soap bubbles, oil leaks, driveway and roadway salt, and washer fluid were all mentioned.

Downspout discharges from gutters on residential homes and garages can also influence the quality of local lakes and streams by contributing to runoff when aimed at impervious surfaces such as driveways, walkways, and alleyways. Nearly all survey respondents (96%) indicated that they live in a home with gutters. Among those with gutters, 22 percent said that they have at least one gutter directed toward a driveway, sidewalk, walkway or alley. The remaining 78 percent said their gutters are directed toward a lawn,

² According to the Capitol Region Watershed District, the use of a commercial carwash is the best way to avoid soap runoff.

flower bed or garden – an indication that most watershed residents have their gutters directed toward permeable surfaces.³

13. Direction of residents' gutter downspouts



When focus group participants were asked about redirecting gutter downspouts, group members agreed that their primary concern was having a dry basement. Having an impervious surface around the house was considered desirable because it can help protect basement walls from water damage. Additionally, participants living on small city lots felt they had little control over neighbors' gutters aimed at their walkways. However, they did view redirecting gutters on residents' garages as a viable option for reducing rainwater runoff. According to participants, lack of knowledge (about both rainwater runoff and gutter installation), cost, and concern about possible water damage are some reasons why residents may be reluctant to redirect their gutter downspouts.

Additional analysis of barriers to reducing runoff

Focus group data suggest that lack of knowledge, cost, and inconvenience are the three main factors that prevent watershed residents from engaging in behaviors that can reduce runoff. Survey data also support this finding. Half of survey respondents (50%) said they feel these behaviors require special knowledge or expertise, one-third (35%) said these practices take too much time and effort, and one-quarter (27%) said these things cost too much money. Additionally, one in five survey respondents (22%) said they did not know that runoff from their yard could harm local lakes and streams. Survey results indicate that the degree to which residents experience these barriers is similar across the District, with the exception of cost. Nearly one-third (32%) of respondents in Section 1 reported a cost barrier, compared to 16 percent of respondents in Section 2.

³ Directing gutter downspouts toward permeable surfaces such as lawn grass, gardens, or other vegetative ground cover can reduce stormwater runoff.

14. Residents' barriers to practicing runoff reducing behaviors

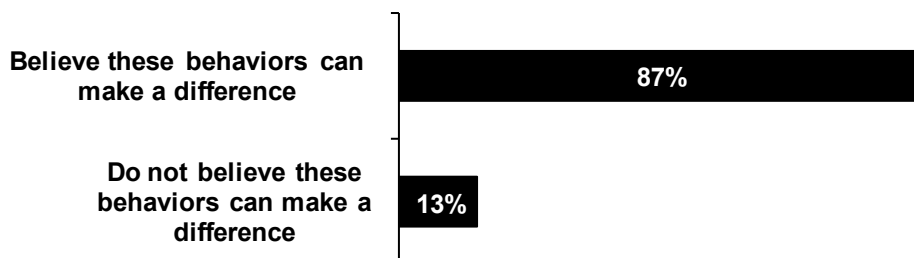


To better understand how residents who self-reported concern think about the issue of residential runoff, focus group participants were asked what they view to be the biggest sources of water pollution in the Saint Paul area. In addition to industrial pollution, they mentioned lawn chemicals, leaves, asphalt runoff, acid rain, and automobile pollutants. However, when asked how individuals can help reduce pollution in local lakes and streams, participants failed to mention either downspout redirection or removing leaves from the street. These data suggest that even though some residents are informed about the problem, they may not be aware of all the things property owners can do to reduce residential runoff.

Motivating residents to reduce residential runoff

The majority of District residents believe that their actions can make a difference in the quality of local lakes and streams. Only 13 percent of survey respondents felt that using less fertilizer, keeping yard waste off the sidewalk and street, redirecting gutter downspouts, and participating in other runoff reducing behaviors would not make much difference.

15. Residents' perceived effectiveness of runoff reducing behaviors



Focus group participants were asked what might encourage residents to participate in these behaviors that reduce residential runoff or do these behaviors more often. Some felt that strategies that rely on positive reinforcement would be most effective, while others preferred negative reinforcement strategies. Listed below are focus group participants' suggestions.

- Local businesses should offer product disposal. For example, the local store that sells paint should take back the unused paint.
- There should be a cost-incentive to do the right thing. Solutions should tie in good habits with paying less.
- Provide visual reminders about composting and yard waste, i.e., neighborhood signs.
- Instate a penalty for people who rake leaves into the street. Use parking enforcement police to ticket offenders.
- Teach school children about these behaviors so that they grow up knowing about them.
- Educate adults so that they are aware of the consequences of their actions.
- Change residents' perceptions of what behaviors are socially acceptable, thus creating social pressure to do the right thing.

Some comments that illustrate participants' attitudes about motivating other residents to take action:

I think convenience and education are the two key things.

I think you have to focus on the positive. Any time you want large groups of people to change you have to make them want to do it. Forcing them or scolding them almost never works.

I think hitting people in their pocket books is the quickest way to do it. In Seattle, they weigh their garbage and they pay by the pound. [We're not] going to reward you, but if you don't do it, it is going to cost you more money. I think being positive only goes so far.

Preferences for receiving information

Focus group participants were asked where they might go for additional information about reducing residential runoff and how they prefer to receive information. Some said they would rely on an Internet search engine. Others said they would first try visiting the Capital Region Watershed District web site, their city's web site, the Minnesota Department of Natural Resources web site, or the Minnesota Pollution Control Agency web site. Some participants said they had no idea where to search for additional information about water quality issues or reducing runoff. When asked how they would like information presented to them, some participants said they would like to receive a brochure or newsletter in the mail while others indicated that they would probably just throw it out, because they already receive too much mail. For many older participants, a mail piece was preferable. Other communication suggestions included:

- Recruit block club leaders to educate residents and neighbors
- Ask neighborhood organizations or district planning councils to distribute information
- Use the different civic groups to get out the word, such as the Boy Scouts or Girls Scouts. It could provide an opportunity for these youth to meet their badge requirements
- Provide a seminar for area homeowners
- Post announcements on community bulletin boards
- Include information in monthly water/sewer bill
- Produce a documentary to be aired on public television (TPT)

Program design preferences

At the time of the study, Capitol Region Watershed District staff expressed interested in implementing two new programs designed to reduce residential runoff: a downspout redirection program and a community leaf raking program. To better understand which program designs are likely to be most effective, the possibilities were introduced to focus group participants. For each program, participants were asked to discuss the appeal of four possible designs as a group and then write down their personal preference on a note card. Discussion revealed a potential demand for the downspout redirection program if it were free to residents, but design preferences and demand for the community leaf raking program were less clear. Below is a summary of their feedback.

Downspout redirection program

OPTION A: Residents are able to contact a technician to redirect their gutter downspouts for free.

Most participants (7) agreed that out of the four possible program designs, this would be the best option. People liked the idea that it was free and that the work would be done by a technician. Some participants did express concern about who the technician would be and whether or not the work would be of high quality, but most assumed that Capitol Region Watershed District (CRWD) would hire a qualified technician. Several people said they would even be willing to pay the technician up to \$20 for their services; one person said they would be willing to pay up to \$100. Participants' willingness to pay is an indicator that a small fee might be a viable option, if CRWD is unable to supply a qualified technician at no expense.

A technician and supplies for free is a [good] option for more complicated problems and senior citizens.

I like [this program]. The resident might need a [professional] to do it right.

I think this would get the most participation and follow through. The work would get done and not be contingent on whether nor not the homeowners thought it was worth the cost or had the money to pay.

OPTION B: Residents redirect their gutter downspouts and receive a \$10 coupon for supplies from a hardware store.

Participants liked the idea of an incentive, but some felt that \$10.00 would not be nearly enough money to cover the cost of supplies needed for repairs. Some participants were confident that they could do the job themselves, but others said they would need to hire a technician. Three participants liked this program design best, but it was suggested that educational information on how to redirect downspouts would need to be paired with the coupon in order for it to be effective.

Other program ideas

One participant suggested that Capitol Region Watershed District hire a qualified technician to conduct a free assessment of what redirection work could be done, but not do the actual work. This would be an opportunity to educate residents about the issue, but would be less costly. Focus group members seemed very receptive to this idea; two participants liked this program design best.

The two other proposed designs for the downspout redirection program were not appealing to participants. For more information about these designs, see the focus group discussion guide in the appendix.

Community leaf raking program

OPTION A: Residents pledge to rake leaves out of the street and the street gutters in front of their home and receive free lawn bags.

Six participants agreed that out of the four possible program designs this would be the best option. People liked this idea because it offers an incentive of some value. One participant suggested that Capitol Region Watershed District recruit block club leaders to collect pledges. Participants felt that collecting pledges door-to-door would provide an opportunity to educate residents and create some social pressure to do the right thing.

It might work in neighborhoods with smaller yards.

I would pledge to rake the leaves out of the storm sewer if I lived on the corner.

It might work well for the people who are already doing it, but I don't know if it would persuade the people who are not [already] doing it.

OPTION B: Residents pledge to rake leaves out of the street and street gutters in front of their home and receive signage that advertises their good work. This could be a window decal, yard bags with a message, a lawn sign, or something else.

Two participants liked this idea best because it recognizes neighbors who do rake leaves out of the gutter and provides an opportunity to educate other residents about the problem.

OPTION C: Capitol Region Watershed District pays students or other community volunteers a small stipend to rake leaves out of the street and the street gutters in front of residents' homes.

This program design was appealing to elderly participants, for which raking is a hardship. However, participants expressed doubt about whether Capitol Region Watershed District needed to pay volunteers – there are several scouting and church youth groups looking for community service projects.

Other program ideas

One participant proposed that Capitol Region Watershed District install signs, not in private yards, but on public fixtures in the neighborhood that educate people about the effect of leaves on water quality and remind people to rake leaves out of the gutter. Some

people seemed receptive to this idea and felt that it would spark discussion among residents. Two participants liked this program design best. Additionally one participant suggested that the barrier most residents face is not the inconvenience of raking the leaves, but rather the inconvenience of transporting the leaves to a yard waste facility.

The other proposed design for the community leave raking program was not appealing to participants. For more information about this design, see focus group discussion guide in the appendix.

Programming considerations

Differences in attitudes and behaviors vary based on demographics

Residents' attitudes and behaviors are likely to differ somewhat based on household income, age, and gender. CRWD staff and board members may want to consider these differences when setting priorities for education and outreach. Differences based on household income were most prevalent. A list of all demographic differences identified in the data is included in the appendix.

There is a high level of resident support for water quality protection

Survey data indicate that the preservation of water quality is very important to Capitol Region Watershed District residents. In addition, data suggest that the majority of residents are likely to support a \$3.00 property tax increase to protect local lakes and the Mississippi River, if proposed. CRWD staff and board members may want to consider sharing report findings with local elected officials and keep in mind residents' high level of support when considering policy changes in the future.

Lack of knowledge, inconvenience, and cost barriers need to be addressed

Most residents believe their actions *can* make a difference in the quality of local lakes and streams. If existing barriers are reduced or eliminated, it is likely that more residents would practice the behaviors that reduce residential runoff.

According to study data, lack of knowledge, inconvenience, and cost are the three main barriers residents face. Lack of knowledge and cost are primary barriers when it comes to downspout redirection and rain garden installation. Current fertilization practices and failure to remove leaves from the street are also the result of lack of knowledge. Cost is the primary barrier when it comes to using rain barrels, and inconvenience appears to be the main reason why residents do not use yard waste facilities as frequently as they should. CRWD staff and board members may want to consider prioritizing "barrier reduction" when making decisions about programming and the use of resources.

"Fall-only" fertilization is not practiced by the majority of residents

Unlike the use of a commercial car wash and aiming gutter downspouts at permeable surfaces, "fall only" fertilization is not widely practiced by the majority of watershed residents. CRWD staff and board members may want to consider focusing on this area in order to maximize behaviors that reduce nutrient loading.

Increasing partnerships with local government, local businesses, and other community organizations may be beneficial

Several focus group participants indicated that they would likely visit the web sites of the Capitol Region Watershed District, Minnesota Pollution Control Agency, Minnesota Department of Natural Resources, or their city if they wanted to find out more information about reducing water pollution and residential runoff. For those who are unfamiliar with the Capitol Region Watershed District (an estimated 50% of residents), the other entities mentioned are likely to be trusted sources. In addition, some of the outreach strategies they proposed would involve partnership with city governments (inclusion of educational information in residents' water bills), local businesses (creating new hazardous waste disposal programs), youth groups (providing leaf raking services to elderly residents), and neighborhood organizations (utilizing block club leaders to educate residents). CRWD staff and board members may want to consider partnering with local governments and community organizations in the District to educate residents about the behaviors that can reduce residential runoff, since residents are likely to turn to sources they know and trust.

Incorporate study feedback in leaf raking and downspout redirection program designs

Focus group discussion revealed a potential demand for the downspout redirection program if it were free to residents. Participants also showed interest in having a qualified technician conduct a free assessment of what redirection work could be done, but not do the actual work. In addition, several participants said they would be willing to pay a technician up to \$20 for their services. CRWD staff and board members may want to consider these other program options if resources are limited.

Design preferences and demand for the community leaf raking program were less clear. Having volunteers rake the leaves out of the street for free was appealing to elderly participants, since raking is a physical hardship, but others preferred to do the work themselves and receive free lawn bags as an incentive. Additionally, some participants showed interest in having neighborhood signage that educates residents about the issue.

The challenge of transporting the leaves to the yard waste facility was raised. Focus group data suggest that a variety of responses may be needed in order to encourage widespread participation in removing leaves from streets and storm drains. CRWD staff and board members may want to consider a program that includes multiple strategies.

Appendix

Survey instrument

Focus group discussion guide

List of demographic differences

Map of survey coverage

Survey instrument

Case ID: _____

**Capitol Region Watershed District
Summer 2009 Survey
Activity code: 71068
Code Name: Walter Conroy**

INTRO

My name is _____. I am calling from Wilder Research in St. Paul. IF NEEDED: THIS IS NOT A SALES CALL. We're asking area residents a few questions about their opinions on water quality. The information we're collecting will be used to improve local lakes and the Mississippi River. Can I confirm that you live at this address?

IF YES, CONTINUE.

IF NO: We are only surveying people who live in the Capitol Region Watershed District. Thank you for your time.

Does your home have a yard that someone in your household is responsible for taking care of?

IF YES, CONTINUE.

IF NO: We are only surveying people who live in a home with a yard that is cared for by the occupants. Thank you for your time.

We are only surveying adults. May I please speak with an adult in the household age 18 or older?

IF YES, CONTINUE.

IF NO: When would be a good time to call back and talk to an adult about the survey? SET APPOINTMENT, FIND OUT WHO WE SHOULD WE ASK FOR, GET OTHER/BETTER NUMBER

IF PERSON ON THE PHONE IS NOT THE RESPONDENT, REPEAT INTRO WHEN R COMES TO THE PHONE. OTHERWISE, CONTINUE.

REPEAT INTRO AS NEEDED.

We want to hear about your opinions on water quality and your experiences with household activities that can affect water quality. This information will be used by the Capitol Region Watershed District which manages and protects natural waters in your city. This survey is completely voluntary and confidential and will only take 5 to 10 minutes. Is now a good time to do the survey?

IF YES: If there are any questions you do not want to answer, just let me know and we'll skip them.

IF NO: Would there be a better time or a different number where we could call you back to do the survey? SET APPOINTMENT, FIND OUT WHO WE SHOULD WE ASK FOR, GET OTHER/BETTER NUMBER

IF REFUSED: May I ask the reason you do not want to participate?

IF R STILL REFUSES, RECORD REASON AND END SURVEY: Thank you for your time.

IF NEEDED FOR CONCERNS OR QUESTIONS ABOUT CAPITOL REGION WATERSHED DISTRICT: You may contact Elizabeth Storey. Her phone number is 651-644-8888 and her email address is elizabeth@capitolregionwd.org.

**Capitol Region Watershed District
Summer 2009 Survey**

First of all, I am interested in hearing your opinions about water quality in the Saint Paul area, including the city in which you live.

1. In general, how concerned are you about the pollution of our lakes and streams? Would you say you are...
- Very concerned,1
 - Somewhat concerned, or2
 - Not at all concerned?
 - Refused7
 - Don't know8
2. Over the past five years, do you think the quality of lakes and streams in the Saint Paul area has...
- Gotten better,1
 - Gotten worse, or2
 - Stayed the same?3
 - Refused7
 - Don't know8

Please tell me how much you agree or disagree with the following statement.

3. When it comes to important issues, preserving the quality of our lakes and streams is one of the most important issues our region faces. Would you say you...
- Strongly agree,1
 - Agree,2
 - Disagree, or3
 - Strongly disagree?4
 - Refused7
 - Don't know8

Next, I want to ask you about some activities you might do to care for your lawn or garden.

4. Do you use fertilizer on your lawn or garden?
- Yes1
 - No.....(GO TO Q. 6).....2
 - Refused(GO TO Q. 6).....7
 - Don't know(GO TO Q. 6).....8

5. When do you usually fertilize your lawn or garden? (MARK ALL THAT APPLY.)
- Spring, March through early Jun 1
 - Summer, mid-June through early August 2
 - Fall, late August through November 3
 - Refused 7
 - Don't know 8
6. What do you do with the grass clippings that are generated from mowing your lawn? Do you usually...
- Leave them on the lawn, 1
 - Bag them to be taken away by the garbage hauler, 2
 - Take them to a yard waste facility, or 3
 - Do something else with the clippings? (Specify: _____) .. 4
 - Refused 7
 - Don't know 8
 - Not Applicable 9
7. What do you do with the leaves that drop from your trees? Do you usually...
- Leave them on the lawn, 1
 - Bag them to be taken away by the garbage hauler, 2
 - Take them to a yard waste facility, or 3
 - Do something else with the leaves? (Specify: _____) ... 4
 - Refused 7
 - Don't know 8
 - Not Applicable 9
8. Do you currently participate in any of the following lawn and garden care practices?

	Yes	No	REF	DK
a. Do you mulch? (IF NEEDED: Apply organic matter, such as bark or wood chips to your garden beds in order to conserve soil moisture.)	1	2	7	8
b. Do you compost? (IF NEEDED: Allow yard waste and organic household waste to decompose in a bin and then add it to your garden beds.)	1	2	7	8
c. Do you use a rain barrel? (IF NEEDED: Use a water tank to collect rainwater from rooftops and gutters which can then be used to water garden beds.)	1	2	7	8
d. Do you have a rain garden installed in your yard? (IF NEEDED: A rain garden is a planted depression that allows rainwater runoff from roofs or paved areas to be absorbed into the ground.)	1	2	7	8
e. Do you have native plants or shrubs installed in your yard? (IF NEEDED: Native plants are species that are indigenous to Minnesota and require little maintenance.)	1	2	7	8

Now I have a question about your understanding of storm water management.

9. When it rains, rain water runs into storm drains in the street. Do you think this water gets treated at a water treatment facility before it enters our lakes and streams?
- Yes 1
 - No..... 2
 - Refused 7
 - Don't know 8

Next, I would like to ask you few questions about your outside water use.

10. Which location best describes where the rain gutters on your home are directed? Would you say...
- A driveway, sidewalk, walkway, or alley, 1
 - A lawn, flower bed, or garden, or 2
 - Some place else? (Specify: _____) .. 3
 - IF VOLUNTEERED: My house does not have rain gutters..... 4
 - IF VOLUNTEERED: I have gutters directed toward both driveway, etc. and lawn, etc. 5
 - Refused 7
 - Don't know 8

11. Does your household own any motor vehicles such as cars, trucks, or motorcycles?
- Yes 1
 - No..... (GO TO Q. 13)..... 2
 - Refused (GO TO Q. 13)..... 7
 - Don't know (GO TO Q. 13)..... 8

12. Where do you usually wash your motor vehicles? Would you say...
- At a car wash, 1
 - In your driveway at home, 2
 - On your lawn at home, or 3
 - Some place else? (Specify: _____) .. 4
 - IF VOLUNTEERED: I do not wash my vehicle 5
 - Refused 7
 - Don't know 8

13. “Runoff” is rainwater that does not get absorbed into the ground, but goes into storm drains that lead directly to our lakes and streams. This water picks up pollutants along the way that harm our lakes and rivers. Earlier, I asked you about some outdoor activities related to runoff. Now I would like to ask you about reducing runoff. There are many things residents can do: use less fertilizer, keep yard waste off the sidewalk and street, and install a rain garden are just a few. I am going to read you a list of common reasons why people **don’t** take steps to reduce runoff. Please tell me how much **you** agree or disagree with each statement:

(REPEAT PROBE AS NEEDED: such as installing a rain garden, keeping leaves and grass off sidewalks and streets, and directing gutters away from paved surfaces)	(Would you say that you...)					
	Strongly agree,	Agree,	Disagree, or	Strongly disagree?	REF	DK
a. I feel these things take too much time and effort.	1	2	3	4	7	8
b. I feel these things cost too much money.	1	2	3	4	7	8
c. I feel these things require special knowledge or expertise.	1	2	3	4	7	8
d. I feel these things will not make much difference in our lake water quality.	1	2	3	4	7	8
e. I did not know that runoff from my yard could harm our lakes.	1	2	3	4	7	8

14. Are you or someone else in your household responsible for paying the property taxes at this address?

Yes 1
 No.....(GO TO Q. 16).....2
 Refused(GO TO Q. 16)..... 7
 Don’t know(GO TO Q. 16)..... 8

15. Currently, \$15 of your property taxes each year go toward maintaining lakes and streams in your area. Would you be willing to pay a property tax increase of \$3 per *next* year to improve our local lakes and the Mississippi River? Your taxes WILL NOT be affected based upon your response to this question.

Yes 1
 No..... 2
 Refused 7
 Don’t know 8

16. (DO NOT READ UNLESS NECESSARY): What is your gender?

Male 1
 Female..... 2
 Refused 7

17. If I may ask, what is your age?

- 18-24 1
- 25-34 2
- 35-44 3
- 45-54 4
- 55-64 5
- 65 and over 6
- Refused 7

18. What is your race or ethnicity? (INTERVIEWER: DO NOT READ CHOICES. MARK YES OR NO FOR EACH)

	Yes	No	DK	REF
a. American Indian	1	2	8	9
b. Asian/Pacific Islander	1	2	8	9
c. Black/African American	1	2	8	9
d. White/Caucasian	1	2	8	9
e. Hispanic/Latino	1	2	8	9
f. Some other race (Specify: _____)	1	2	8	9

19. For statistical purposes, it would be helpful to know which income category is closest to your total household income before taxes in 2008, including income from all sources and all members of your household. Was it...

- Less than \$10,000, 1
- \$10,000 to under \$30,000, 2
- \$30,000 to under \$50,000, 3
- \$50,000 to under \$70,000, 4
- \$70,000 to under \$100,000, or 5
- \$100,000 or more? 6
- Refused 7
- Don't know 8

20. Prior to this survey, had you ever heard of the Capitol Region Watershed District?

- Yes 1
- No 2
- Refused 7
- Don't know 8

21. We would like to talk to residents more in-depth about water quality issues and household activities that affect water quality. Would you be interested in participating in a focus group with other area residents? You would receive \$20 incentive for your participation if you are selected to participate.

- Yes 1
- No..... 2
- Refused 7
- Don't know 8

IF YES: Someone from Wilder Research may contact you in the next couple of months about this focus group.

Can you tell me your first name so we'll know who to ask for when we call?

_____ (Insert name)

22. Would you be interested in receiving information from the Capitol Region Watershed District about ways to prevent or reduce water runoff? They offer grants to homeowners interested in installing water quality projects in their yard.

- Yes 1
- No..... 2
- Refused 7
- Don't know 8

IF "YES": Do you have an email address that they can send information to? IF R DOES NOT HAVE AN EMAIL ADDRESS CONFIRM MAILING ADDRESS.

(RESPONDENT'S EMAIL ADDRESS) _____

IF "NO," CONTINUE.

Thank you for your time. We appreciate you sharing your opinions with us. For more information about protecting water resources in your area, you can visit the Capitol Region Watershed District online at (SPELL OUT ADDRESS) www.capitolregionwd.org

Interviewer Name: _____

Date: _____

Interviewer Employee # _____

Time: _____
(24 hour clock)

INTERVIEWER

Do you have comments about this case? Please include anything that you think the supervisor or the coder should know about this case. If you are unsure how to code a particular response, note the item name and the problem here.

Focus group discussion guide

1. What concerns you most about pollution in our lakes and the Mississippi? What have you heard about pollution in our lakes and the Mississippi?

GENERATE LIST.

2. What do you think are the biggest sources of lake water pollution in the Saint Paul area?

GENERATE LIST.

3. When you hear the word “compost” what actions come to mind?

GENERATE LIST. THIS QUESTION IS INTENDED TO GET AT WHAT COMPOSTING MEANS TO PEOPLE.

4. When you hear the words “yard waste” what types of things come to mind?

GENERATE LIST. THIS QUESTION IS INTENDED TO GET AT WHETHER OR NOT “YARD WASTE” CAN BE USED AS A BLANKET TERM FOR SOME OF THE NATURAL WATER POLLUTANTS PRODUCED BY HOMEOWNERS SUCH AS GRASS CLIPPINGS, LEAVES, SOIL, AND FERTILIZER.

5. When you hear the word “runoff” what images come to mind?

GENERATE LIST. THIS QUESTION IS INTENDED TO GET AT WHAT RUNOFF MEANS TO PEOPLE.

6. What do you think individual residents can do to help reduce pollution in our lakes and the Mississippi?

GENERATE LIST. IF NO ONE MENTIONS IDEAL BEHAVIORS, INTRODUCE THEM.

7. We learned in our survey that many residents don’t do these things or do them as often as they should. What do you think are reasons why residents don’t do these things?

GENERATE LIST. ASK ABOUT SPECIFICS.

8. What do you think might encourage residents to start doing these things or do them more often? What do you think might motivate people to do these things?

GENERATE LIST. ASK ABOUT SPECIFICS.

9. Because leaves are major source of pollution in our lakes and the Mississippi River, the Capital Region Watershed District is interested in starting a program to reduce the amount of leaves that enter street gutters in the fall. They are considering several possible program designs and would like to know how you feel about them.

EXPLORE PROGRAM DESIGNS.

A. Residents pledge to rake leaves out of the street and the street gutters in front of their home and receive free lawn bags.

B. Residents pledge to rake leaves out of the street and street gutters in front of their home and receive signage that advertises their good work. This could be a window decal, yard bags with a message, a lawn sign, or something else.

D. Residents pay students or other community volunteers a small stipend to rake leaves out of the street and street gutters in front of their home.

HAND OUT NOTE CARDS. **In a few words, jot down which program design appeals to you most and why.**

WHAT DO YOU THINK ABOUT THIS ONE?

C. Capitol Region Watershed District pays students or other community volunteers a small stipend to rake leaves out of the street and the street gutters in front of residents home. DOES THIS PROGRAM DESIGN HAVE ANY DISADVANTAGE OVER THE OTHERS?

10. Runoff is water that does not get absorbed into the ground, but runs into the storm drains in the street. Because runoff is a major source of pollution in our lakes and the Mississippi River, the Capital Region Watershed District is interested in starting a program to reduce the amount of runoff produced by dwellings with gutters. Specifically, they want residents to redirect their gutter downspouts away from paved areas and toward their lawn or other planted areas such as a garden or flowerbed. They are considering several possible program designs and would like to know how you feel about them. EXPLORE PROGRAM DESIGNS.

B. Residents redirect their gutter downspouts and receive a \$10 coupon for supplies from a hardware store.

C. Residents purchase needed supplies, but pay a technician to redirect their gutter downspouts for a small fee.

D. Residents pay a technician to redirect their gutter downspouts for a small fee that includes any needed supplies.

HAND OUT NOTE CARDS. In a few words, jot down which program design appeals to you most and why

WHAT DO YOU THINK ABOUT THIS ONE?

A. Residents are able to hire a technician to redirect their gutter downspouts for free.
DOES THIS PROGRAM DESIGN HAVE ANY DISADVANTAGE OVER THE OTHERS?

**11. If you were to look for information about the topics we discussed today, where would you go? If you were to receive information about how residents can help reduce pollution in our lakes and the Mississippi River, how would you like this information presented to you?
PROMPT IF NECESSARY: WHAT SOURCES WOULD YOU TRUST MOST? HOW WOULD YOU LIKE THE INFORMATION PRESENTED TO YOU? HOW DO YOU FEEL ABOUT BROCHURES? COMMUNITY DISPLAYS? WEB SITES?**

Attitude and behavior differences by demographic group

Survey data show that residents' attitudes and behaviors are likely to differ somewhat based on household income, age, and gender. Below is a list of observed differences.

Income

In comparison to higher-income respondents (household income of \$50,000 or more), lower income respondents (household income of less than \$50,000) were:

- Less likely to have previously heard of the Capitol Region Watershed District
- More likely to believe that stormwater gets treated before entering lakes and streams
- Less likely to be aware that residential runoff can cause water pollution
- Less willing to pay a \$3.00 property tax increase next year to protect local lakes and the Mississippi River
- More likely to see cost as a barrier to practicing behaviors that can reduce residential runoff
- More likely to have gutter downspouts aimed at impervious surfaces
- Less likely to mulch, compost, and/or have native plants in their yard
- More likely to leave their grass clippings on the lawn
- More likely to bring their leaves to a yard waste facility

Age

In comparison to older respondents (age 35 and over), younger respondents (under age 35) were:

- Less likely to be "very concerned" about the pollution of local lakes and streams
- Less likely to have previously heard of the Capitol Region Watershed District
- More likely to see cost as a barrier to practicing behaviors that can reduce residential runoff
- Less likely to mulch and/or have native plants in their yard

- More likely to have gutter downspouts aimed at impervious surfaces
- Less likely to use fertilizer on their lawn or garden

Gender

In comparison to male respondents, female respondents were:

- More likely to view lack of knowledge and expertise as a barrier to practicing behaviors that can reduce residential runoff
- More likely to believe that the quality of local lakes and streams has gotten worse over the past five years
- More likely to agree that preserving the quality of our lakes and streams is one of the most important issues our region faces
- Less likely to feel that practicing behaviors that can reduce residential runoff takes too much time and effort

Survey coverage map

