

# Swift Run Survey Results

This survey was sent out in June-July 2015 to 302 residents of the Swift Run neighborhood in Ann Arbor. The purpose of the survey was to find out what the Swift Run neighbors think about their water resources, how and why they value them, and if they are willing to change their behavior to protect their local water. The questions are designed to identify:

- Connections between stormwater and pollution;
- The level of concern about pollution;
- Individual practices that contribute to nonpoint source pollution;
- Individual characteristics and barriers to behavior change;
- Understanding of the role between stewardship and water quality;
- Trusted sources of information;
- Preferred method(s) for receiving information.

The Social Indicator Planning and Evaluation System (SIPES) for nonpoint source management tool was used for this survey using a five wave mailing process. The second wave, which included the survey, had a \$2 bill attached to the cover letter. This served as an incentive for recipients to fill out the form.

Number of recipients mailed	<b>302</b>
Undeliverable/Returned to sender	19
Total surveys received in mail	283
Surveys mailed in	117
Online surveys filled out	28
Total number of responses	145
Number of incomplete surveys submitted (responses not entered or deleted from SIPES)	5
Number of complete Surveys	140
<b>Total Response Rate</b> (Among those that received the survey. Includes incomplete but submitted surveys) 145/283	<b>51.2%</b>

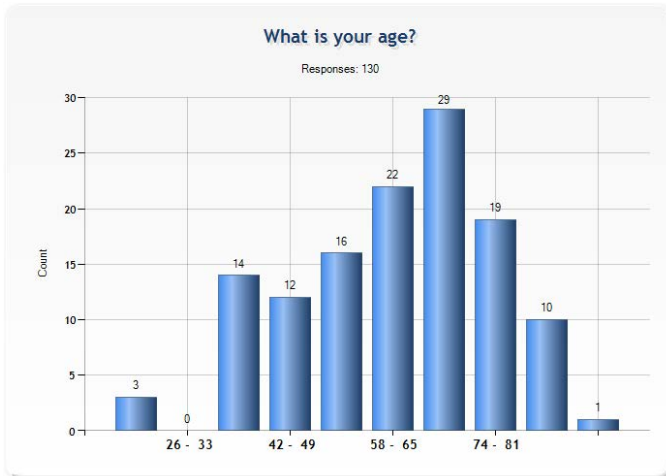
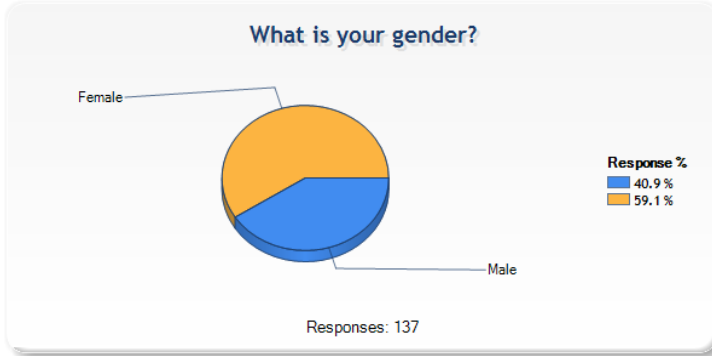
The 51.2% response rate is just under the project's response rate goal of 53%. Estimates of percentages were computed at the  $\alpha=.05$ , 95% confidence level.

## SUMMARY

- This target neighborhood is supportive of good water quality and environmental restoration and protection, and expresses a willingness to engage in improvement activities.
- The Swift Run neighborhood is strongly rooted and not transient. Most residents take care of their own lawns.
- There is a large percentage (43%) of people do not know where rain water drains from their property (yet only 12% think it goes to sewer.) There is a need to educate this neighborhood on rainwater flow
- Residents have a general understanding of the importance of water resources, but lacking in specific information on problems and solutions.
- Residents trust HRWC and their neighbors for information and education. They mostly get information from flyers and the Internet.
- There is a solid constituency that would be willing to move forward with rain garden installations, and potentially other BMPs
- Residents are somewhat constrained by economics and technical knowledge, and age (much less of a factor), but these constraints can be overcome.
- Since neighbors find out information by word of mouth, it would be most helpful to have those who plant rain gardens communicate their effort with neighbors. For example, place signs about the benefits of rain gardens.
- The most noted constraints were time and money (followed by information and equipment). Overall, the constraints to creating rain gardens are modest and can be overcome with education and assistance (either technical or \$)

## DEMOGRAPHICS

### About You



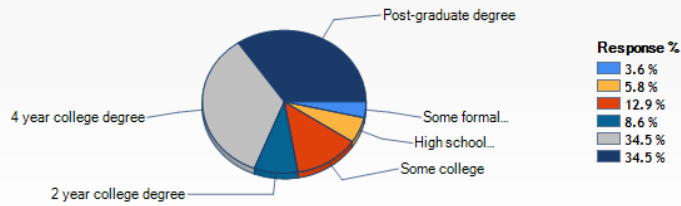
#### Summary:

The majority of respondents are college educated.

The average age of the group is 58 and the median age is 57. Age and education are higher than the average age reported by Census district. Our respondents were highly educated, on average. The higher overall age is likely associated with noting "physical limitations to implementing a rain garden."

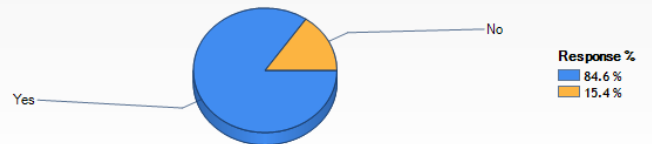
Analyses are performed using unweighted data.

### What is the highest grade in school you have completed?



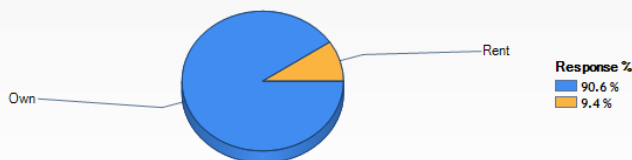
Responses: 139

### Do you make the home and lawn care decisions in your household?



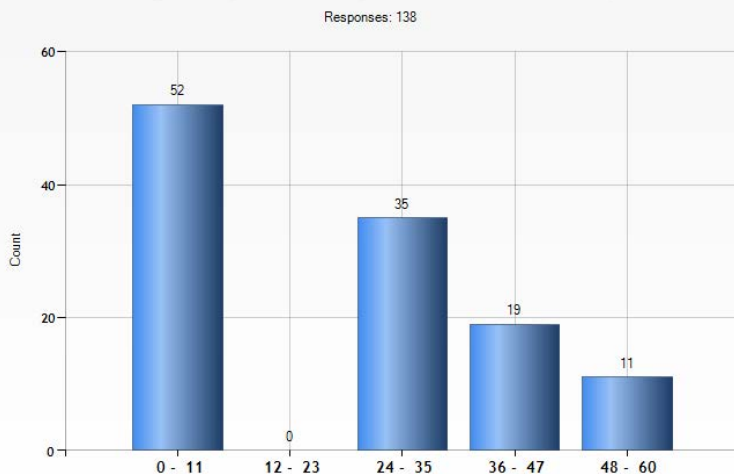
Responses: 136

### Do you own or rent your home?



Responses: 139

### How long have you lived at your current residence (years)?



Responses: 138

### Summary

The sampled population has a 91% homeownership to 9% renting split; the Census estimates for this area estimate a 60%-40% split. People who own were more likely to fill out the survey.

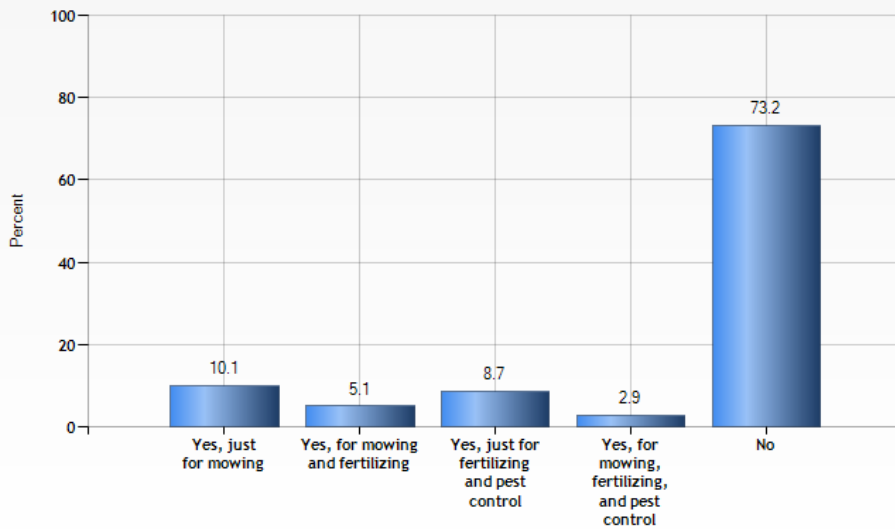
Most (+85%) of respondents have the authority to make decisions on lawn care.

The average length of time for living in a home is 21.4 years and the median is 19.5 years.

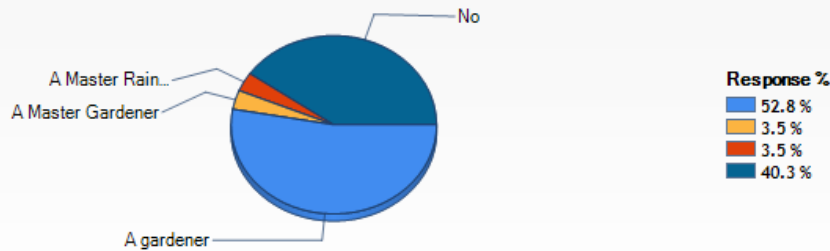
Long-term residents may have already invested in the "look and feel" they want for their yards.

### Do you use a professional lawn care service?

Responses: 138



### Are you a gardener?

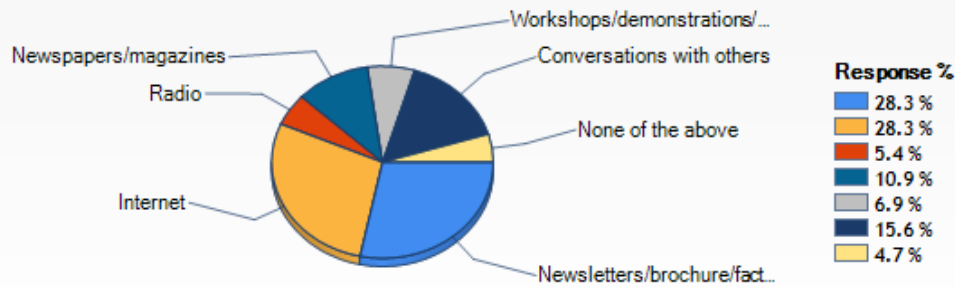


Responses: 139

#### Summary

Most, almost 75% of respondents, take care of their own yards. An additional 10% use only a mowing service and take care of the rest. About 17% use a professional lawn service to apply fertilizers and/or for pest control. More than half say they garden but 40% say they do not—even though most take care of their lawns. 53.6% of respondents considered themselves to be either a gardener or master gardener.

## Where are you likely to seek information about water quality issues?



Responses: 137

## Information Sources

People get information about water quality from a number of different sources. To what extent do you trust those listed below as a source of information about soil and water?

Question #	Not at all (1)	Slightly (2)	Moderately (3)	Very much (4)	Am not familiar (9)	Mean (SD)	Valid Responses / Total Responses
8. Huron River Watershed Council	8.8	11.8	25	38.2	16.2	3.11 (1.01)	114 / 136
1. Local government	11.5	12.9	43.2	26.6	5.8	2.9 (0.95)	131 / 139
3. Environmental groups	10.3	21.3	33.1	29.4	5.9	2.87 (0.98)	128 / 136
2. State environmental agency	13	15.2	37	27.5	7.2	2.85 (1)	128 / 138
7. Neighbors / friends	14.1	26.7	39.3	13.3	6.7	2.56 (0.92)	126 / 135
4. Local garden center	17.2	23.9	37.3	14.2	7.5	2.52 (0.97)	124 / 134
6. Local community leader	24.4	29.6	24.4	4.4	17	2.11 (0.89)	112 / 135
5. Lawn care company	41.7	26.5	18.9	3.8	9.1	1.83 (0.9)	120 / 132

### Summary

The best ways to reach this target group is for nonprofits to reach out via Internet and newsletters/flyers. Also, people said that talking to others is one of the top ways they get information. Since almost half said they didn't know anyone with a rain garden, it will be beneficial if those who implement a rain garden communicate it with neighbors (such as placing a sign in their yard). HRWC is the most trusted source of water quality related information, and earned the highest percentage of "Very Much" ratings and the lowest percentage of "Not at all" ratings. HRWC is also the least known of the entities presented.

**Question 1**

**Rating of Water Quality**

*Overall, how would you rate the quality of the water in your area?*

Question # ↓ ↑	Poor (1) ↓ ↑	Okay (2) ↓ ↑	Good (3) ↓ ↑	Don't Know (9) ↓ ↑	Mean ↓ ↑ (SD) ↓ ↑	Valid Responses ↓ ↑ / Total Responses ↓ ↑
2. For eating locally caught fish	16.9	19.9	8.8	54.4	1.82 (0.74)	62 / 136
3. For swimming	19	28.5	17.5	35	1.98 (0.75)	89 / 137
5. For fish habitat	11.2	20.1	20.1	48.5	2.17 (0.77)	69 / 134
1. For canoeing / kayaking / other boating	7.3	15.3	47.4	29.9	2.57 (0.68)	96 / 137
4. For picnicking and family activities	8.2	17.9	55.2	18.7	2.58 (0.67)	109 / 134
6. For scenic beauty	4.4	15.4	69.9	10.3	2.73 (0.55)	122 / 136

Among the respondents who did not check “don’t know” (about half), most feel that the water is in ‘poor to okay’ condition for eating fish while about half also say the water is in ‘okay to good’ condition for fish habitat. Most of those that did not respond ‘don’t know’ think the water is in ‘okay’ condition for swimming. Almost half of the respondents who did not respond with ‘don’t know,’ say that the water was in ‘good’ condition for boating. The water rated highest in quality (good) for picnicking and scenic beauty.

In general, most people think that water quality is not good for fish or swimming but it is okay/good for boating and scenery.

Calculation of Mean: example Scenic Beauty

136 \* 4.4%= **5.984**

136\*15.4%= **20.944**

136\* 69.9%= **95.064**

136\*10.3%=14.008 (don’t know answers are excluded)

5.98 + 20.944 + 95.064=122 (rounded)

(5.984 \* 1) + (20.944 \* 2) + (95.064\*3)/122

$$5.984 + 41.888 + 285.192 = 333.064$$
$$333.064 / 122 = 2.73$$

## Question 2

### Your Water Resources

1. Of these activities, which is the most important to you? (Responses: 105)

19% For canoeing / kayaking / other boating

5.7% For eating locally caught fish

6.7% For swimming

10.5% For picnicking and family activities

14.3% For fish habitat

43.8% For scenic beauty

2. Do you know where the rain water goes when it runs off of your property? (Responses: 137)

43.1% No

56.9% Yes

3. If you answered 'Yes' above, where does your rain water drain to?

Among the top water activities, scenic beauty was rated the highest with canoeing/kayaking/boating coming in second, followed by fish habitat. These findings may reflect the age of the audience. Few respondents prioritized eating locally caught fish and swimming as being important activities.



Twenty-eight submitted and completed surveys checked more than one activity as being important for question 2.1. They were supposed to pick just one activity. We counted and computed the weight of each category for each respondent's choice (1/# of choices made):

number of surveys	Canoeing/kayaking/other boating	For Eating Locally Caught Fish	For Swimming	For picnicking and family activities	For fish habitat	For scenic beauty
1	0.20		0.20	0.20	0.20	0.20
2		0.33			0.33	0.33
3	0.33			0.33		0.33
4		0.33		0.33	0.33	
5				0.50		0.50
6		0.33			0.33	0.33
7		0.50			0.50	
8		0.33			0.33	0.33
9		0.50				0.50
10					0.50	0.50
11	0.50					0.50
12	0.33			0.33		0.33
13				0.50		0.50
14	0.50				0.50	
15	0.50					0.50
16				0.50		0.50
17	0.50				0.50	
18				0.33	0.33	0.33
19			0.50	0.50		
20	0.25			0.25	0.25	0.25
21					0.50	0.50
22				0.33	0.33	0.33
23	0.50	0.50				
24	0.20		0.20	0.20	0.20	0.20
25			0.50	0.50		
26				0.50		0.50
27					0.50	0.50
28				0.50		0.50
<b>Total</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>6</b>	<b>6</b>	<b>8</b>

These results differ slightly. While scenic beauty is still the most important activity among this group, the second most important activity is fish habitat and picnicking. The

boating activities are listed as fourth most popular. When people were told to pick only one activity, boating was ranked second.

From the first Rating of Water Quality question, scenic beauty and canoeing/kayaking/boating were among the top two highest water quality rated categories. They are also the most favored activities for those who answered properly.

A large percentage (43%) of people do not know where rain water drains to from their property. Among those who say they do:

Into the ground	7%	<b>Other Creek</b>	<b>4%</b>
Rain Garden	1%	<b>Huron River</b>	<b>29%</b>
Near-by Lake	1%	<b>Swift Run to Huron</b>	<b>7%</b>
Near-by drain	16%	Sewer	12%
<b>Swift Run Creek</b>	<b>23%</b>		

The bolded choices, representing 63%, are generally correct or at least indicate that people understand that stormwater flows into our rivers and streams. This represents 27% of the total 137 respondents. Therefore, there is a clear need to communicate that stormwater run-off goes directly into the creek and to the river.

See the Appendix for each open ended response to question 2.3 Your Water Resources.

### Question 3

## Water Impairments

*Below is a list of water pollutants and conditions that are generally present in water bodies to some extent. The pollutants and conditions become a problem when present in excessive amounts. In your opinion, how much of a problem are the following water impairments in your area?*

Question # ↓↑	Not a Problem (1) ↓↑	Slight Problem (2) ↓↑	Moderate Problem (3) ↓↑	Severe Problem (4) ↓↑	Don't Know (9) ↓↑	Mean ↓↑ (SD) ↓↑	Valid Responses ↓↑ / Total Responses ↓↑
3. Phosphorus	3.6	3.6	13.9	11.7	67.2	3.02 (0.97)	45 / 137
2. Nitrogen	3.6	3.6	13.1	8	71.5	2.9 (0.97)	39 / 137
5. Trash or debris in the water	11.7	16.1	21.9	13.9	36.5	2.6 (1.03)	87 / 137
4. Bacteria and viruses in the water (such as E.coli / coliform)	11.8	6.6	13.2	8.8	59.6	2.47 (1.14)	55 / 136
6. Flow Alteration	8.8	7.3	10.9	6.6	66.4	2.46 (1.09)	46 / 137
1. Sedimentation (dirt and soil) in the water	11.7	13.9	18.2	5.8	50.4	2.37 (0.98)	68 / 137

Most respondents checked 'Don't know' regarding how bad these pollutants and conditions are for the creek. For example, for Nitrogen, 98 out of 137 people didn't know enough to express an opinion. Because of these small sample sizes, population inferences cannot be made. This represents an educational opportunity to connect respondents with Swift Run Creek's specific impairment issues.

Question 4

**Sources of Water Pollution**

The items listed below are sources of water quality pollution across the country. In your opinion, how much of a problem are the following sources in your area?

Question # ↓ ↑	Not a Problem (1) ↓ ↑	Slight Problem (2) ↓ ↑	Moderate Problem (3) ↓ ↑	Severe Problem (4) ↓ ↑	Don't Know (9) ↓ ↑	Mean ↓ ↑ (SD) ↓ ↑	Valid Responses ↓ ↑ / Total Responses ↓ ↑
2. Excessive use of lawn fertilizers and/or pesticides	3.6	11.5	31.7	20.9	32.4	3.03 (0.84)	94 / 139
5. Stormwater runoff from streets and/or highways	8.7	9.4	31.9	13.8	36.2	2.8 (0.94)	88 / 138
6. Street salt and sand	5.8	12.9	33.1	10.8	37.4	2.78 (0.84)	87 / 139
1. Discharges from industry into streams and lakes	6.5	18.8	17.4	13.8	43.5	2.68 (0.97)	78 / 138
4. Stormwater runoff from rooftops and/or parking lots	11.6	10.9	30.4	8.7	38.4	2.59 (0.95)	85 / 138
8. Littering/illegal dumping of trash	5.8	28.3	19.6	11.6	34.8	2.57 (0.89)	90 / 138
3. Grass clippings and leaves entering storm drains	10.1	22.3	29.5	5.8	32.4	2.46 (0.85)	94 / 139
7. Waste material from pets	9.4	24.5	17.3	5	43.9	2.32 (0.86)	78 / 139

For this question, 30-40% of those who responded said they didn't know how much the sources of pollution listed affect our water quality. Among those who rated the problems' level of severity, lawn fertilizers/pesticides are believed to be the biggest problem, followed by stormwater runoff from streets and street salt/sand. People think that industrial discharge is a moderate problem, ranking more problematic than stormwater from rooftops/parking lots. For these categories, most thought the problem is 'moderate.' Grass clippings and leaves in drains are considered a slight to moderate problem, and less of a problem than littering/dumping. These ranked higher (more of a problem) than waste material from pets. This question was subject to a high "don't know" response rate.

Question 5

**Consequences of Poor Water Quality**

*Poor water quality can lead to a variety of consequences for communities. In your opinion, how much of a problem are the following issues in your area?*

Question # ↓ ↑	Not a Problem (1) ↓ ↑	Slight Problem (2) ↓ ↑	Moderate Problem (3) ↓ ↑	Severe Problem (4) ↓ ↑	Don't Know (9) ↓ ↑	Mean ↓ ↑ (SD) ↓ ↑	Valid Responses ↓ ↑ / Total Responses ↓ ↑
6. Excessive aquatic plants or algae	12.2	15.8	19.4	18.7	33.8	2.67 (1.08)	92 / 139
3. Contaminated fish	10.1	14.5	15.9	10.9	48.6	2.54 (1.04)	71 / 138
2. Polluted swimming areas	20.3	14.5	21.7	7.2	36.2	2.25 (1.03)	88 / 138
4. Reduced beauty of lakes or streams	20.9	27.3	23.7	5.8	22.3	2.19 (0.92)	108 / 139
5. Reduced opportunities for water recreation	25.9	18	20.1	6.5	29.5	2.1 (1.01)	98 / 139
7. Lower property values	36	14.4	4.3	2.9	42.4	1.55 (0.84)	80 / 139
1. Contaminated drinking water	55.1	9.4	5.1	5.1	25.4	1.47 (0.89)	103 / 138

Many respondents, 22-49% depending on the problem mentioned, said they didn't know how serious declining water quality is for their community. Among those who responded, algae ranked number one for biggest problem, followed by contaminated fish and polluted swimming areas. We know from question 2.1 that people listed eating fish and swimming as lower in interest level for activities. Therefore, even though many people do not personally eat fish or swim, they value these activities as important for their community. Most people thought reduced beauty and reduced water recreation are slight to moderate problems. Boating and scenic beauty were considered the most important activity from question 2.1. Over half respondents are not concerned about contaminated drinking water—10% think their water has moderate to severe problems.

Question 6

**Practices to Improve Water Quality**

Please indicate which statement most accurately describes your level of experience with each practice listed below.

Question # ↓ ↑	Not relevant for my property (9) ↓ ↑	Never heard of it (1) ↓ ↑	Somewhat familiar with it (2) ↓ ↑	Know how to use it; not using it (3) ↓ ↑	Currently use it (4) ↓ ↑	Mean (SD) ↓ ↑	Valid Responses / Total Responses ↓ ↑
2. Keep grass clippings and leaves out of the roads, ditches, and gutters	9.4	2.2	6.5	5.8	76.3	3.72 (0.7)	126 / 139
1. Use a mulching lawn mower	8	2.2	8	14.5	67.4	3.6 (0.75)	127 / 138
5. Properly dispose of pet waste	39.4	2.2	6.6	7.3	44.5	3.55 (0.83)	83 / 137
3. Follow pesticide application instructions for lawn and garden	30.4	1.4	6.5	17.4	44.2	3.5 (0.75)	96 / 138
7. Plant trees/shrubs	12.2	2.2	13.7	13.7	58.3	3.46 (0.84)	122 / 139
4. Use phosphate free fertilizer	35.1	6.1	10.7	18.3	29.8	3.11 (1)	85 / 131
6. Use rain barrels	14.6	3.6	20.4	51.1	10.2	2.79 (0.7)	117 / 137
8. Restore native plant communities	18.2	5.1	32.1	22.6	21.9	2.75 (0.93)	112 / 137

Most respondents, the largest majority for any survey answer, say they keep grass and debris away from roads and gutters. Fewer but still a majority say they use a mulching mower. So, even though less than 30 respondents said they know stormwater runoff goes directly to the creek (question 2.3), most keep the access points clear of debris.

While 44% say they follow instructions for fertilizer and pesticide use, 30% say this question is not relevant for their property (most properties have yards). This could be driven by them not using pesticides or using a professional service. A majority know about rain barrels but don't know how to use them so this is an educational opportunity. Half of respondents are familiar with native plants but not growing them (or don't know if they are growing them.) Native plant gardening is an educational opportunity as well, which are probably more constrained by physical abilities and availability.

Question 7

**Specific Constraints of Practices**

**Rain Garden** : A garden that uses native plants to absorb and filter stormwater collected off a roof, parking lot, sidewalk, or driveway.

1. How familiar are you with this practice? (Responses: 138)

- 3.6% Not relevant
- 20.3% Never heard of it
- 44.9% Somewhat familiar with it
- 18.8% Know how to use it; not using it
- 12.3% Currently use it

2. If the practice is not relevant, please explain why.

User Responses	
1	I have severe back problems and ca not do much gardening anymore.
2	Do not know how or what plants to use
3	Woods
4	Woods
5	Have no gutter on my house
6	In the process of planting
7	Only 200 ft of lawn, no practical way to deal with roof and lot runoff
8	I do not do any planting
9	Would like to have one

3. Are you willing to try this practice? (Responses: 132)

- 36.4% Yes or already do
- 53% Maybe
- 10.6% No

76% of respondents said they are somewhat familiar to very familiar with rain gardens. 89% said they are willing or already use the practice. More specifically, 17 respondents said they use rain gardens in one questions and 48 said they already do or are willing to try it.

Question 8

*How much do the following factors limit your ability to implement this practice?*

Question # ↓ ↑	Not at all (4) ↓ ↑	A little (3) ↓ ↑	Some (2) ↓ ↑	A lot (1) ↓ ↑	Don't Know (9) ↓ ↑	Mean ↓ ↑ (SD) ↓ ↑	Valid Responses ↓ ↑ / Total Responses ↓ ↑
11. Hard to use with my farming system	67.7	1.6	3.9	0.8	26	3.84 (0.55)	94 / 127
8. Insufficient proof of water quality benefit	47.7	9.4	10.9	2.3	29.7	3.46 (0.88)	90 / 128
9. Desire to keep things the way they are	49.2	11.7	17.2	10.2	11.7	3.13 (1.1)	113 / 128
10. Physical or health limitations	48.1	8.4	20.6	11.5	11.5	3.05 (1.14)	116 / 131
7. The features of my property make it difficult	28.1	14.1	13.3	14.8	29.7	2.79 (1.19)	90 / 128
12. Lack of equipment	31	15.9	14.3	18.3	20.6	2.75 (1.2)	100 / 126
4. Don't know how to do it	21.9	21.1	29.7	20.3	7	2.48 (1.08)	119 / 128
6. Cost	14.6	15.4	23.1	30	16.9	2.18 (1.11)	108 / 130
5. Time required	14.5	14.5	22.1	38.2	10.7	2.06 (1.12)	117 / 131

The biggest hurdles for creating rain gardens are time, money, and knowledge, in this order. About half say they are not or only slightly constrained by their physical abilities or by the lack of equipment (56.5 and 46.9 respectively)



## Question 9

### Making Decisions for my Property

*In general, how much does each issue limit your ability to change your management practices?*

Question # ↓ ↑	Not at all (4) ↓ ↑	A little (3) ↓ ↑	Some (2) ↓ ↑	A lot (1) ↓ ↑	Don't Know (9) ↓ ↑	Mean ↓ ↑ (SD) ↓ ↑	Valid Responses ↓ ↑ / Total Responses ↓ ↑
1. Personal out-of-pocket expense	10.1	18.8	27.5	37.7	5.8	2.02 (1.02)	130 / 138
4. Lack of available information about a practice	23.9	14.9	26.9	23.9	10.4	2.43 (1.15)	120 / 134
3. Not having access to the equipment that I need	23.3	23.3	20.3	16.5	16.5	2.64 (1.09)	111 / 133
2. My own physical abilities	29.5	23.7	22.3	20.1	4.3	2.65 (1.13)	133 / 139
10. The need to learn new skills or techniques	32.4	19.9	21.3	18.4	8.1	2.72 (1.15)	125 / 136
7. Don't know where to get information and/or assistance about those practices	32.4	20.6	20.6	16.9	9.6	2.76 (1.13)	123 / 136
9. Not being able to see a demonstration of the practice before I decide	42.6	15.4	14	16.2	11.8	2.96 (1.18)	120 / 136
5. No one else I know is implementing the practice	46.7	7.4	11.9	15.6	18.5	3.05 (1.22)	110 / 135
8. Concerns about resale value	50	10.3	11.8	14	14	3.12 (1.17)	117 / 136
6. Approval of my neighbors	59.6	14	7.4	5.9	13.2	3.47 (0.91)	118 / 136

Again we see cost and information as barriers to change respondents “management practices.” Almost half (42.4%) say that there are some to a lot of issue with their physical ability in making decisions regarding their property. This differs slightly from question 8 where about half said they didn’t have physical limitations. Respondents also say they need equipment and skills—but most don’t need to see a demo of the practice. Half are not concerned about resale value or approval from neighbors so any inhibitors for them are internal ones. Also, almost half say that they don’t know anyone who has a rain garden.

## Thank You

1. Please use the space below for any additional comments about this survey or water resources in your community.

### Summary of open comments

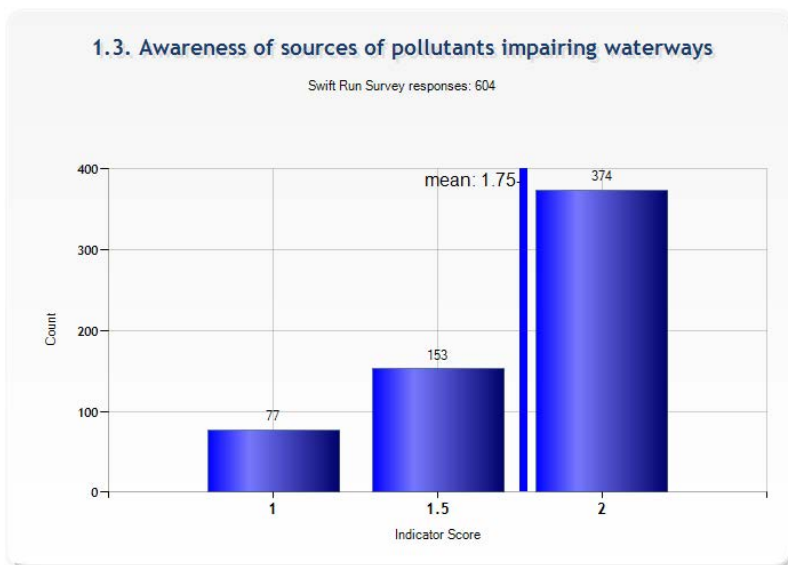
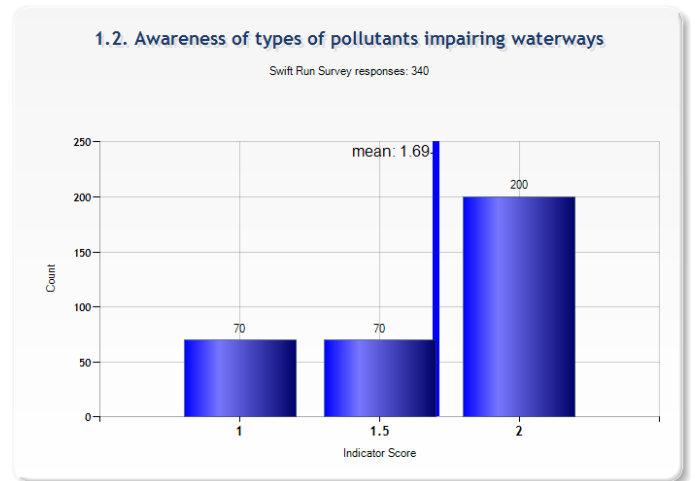
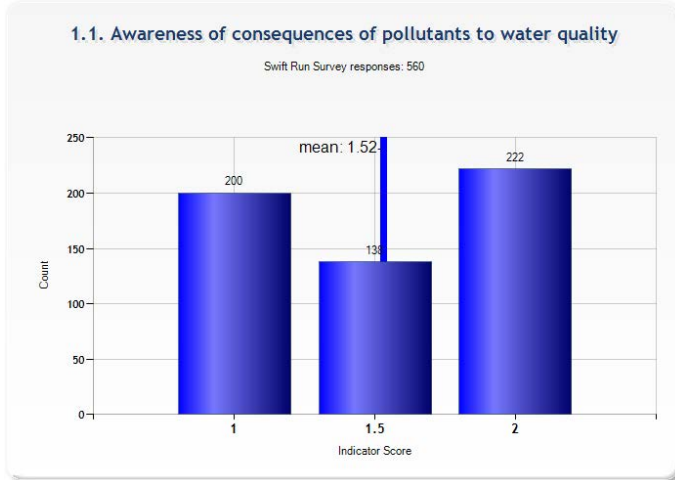
Out of the 43 respondents who submitted an open comment:

Don't know about issues to answer questions	1	2.3%
Already behave in ways that support the environment	11	25.6%
Expressed that they are aware of water issues and care about them	7	16.3%
Indicated that they want more information about rain gardens/how to protect water	11	25.6%
Are against this project in some way	4	9.3%
Other	9	20.9

In general, half of the 43 open ended question respondents care enough about water quality to have changed, or will change, their behavior. This group represents 32% of all respondents. See Appendix to view all responses.

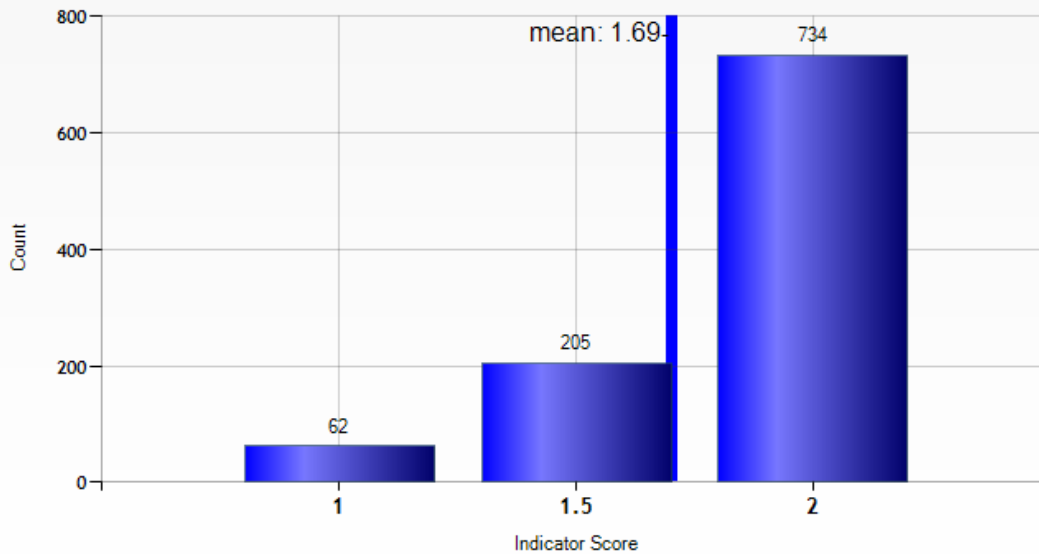
# SOCIAL INDICATORS SCORE

## AWARENESS



### 1.4. Awareness of appropriate practices to improve water quality

Swift Run Survey responses: 1,001

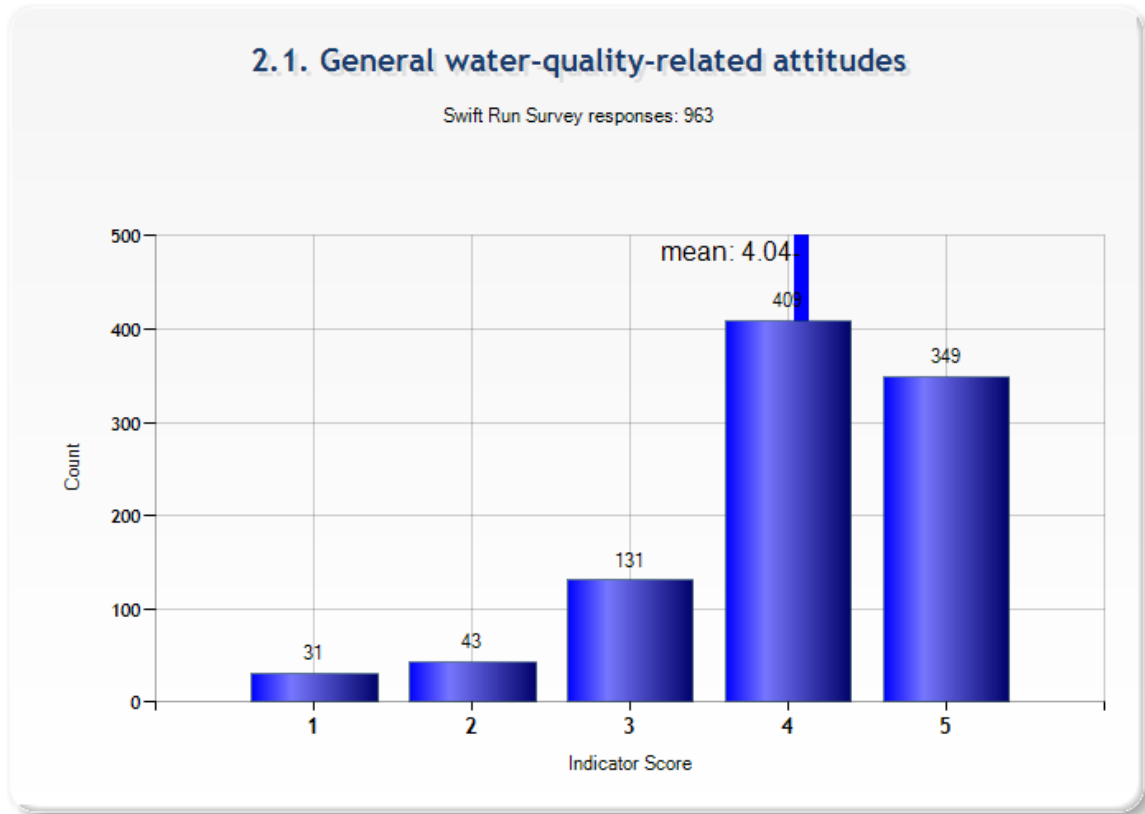


Value range 1-2, less aware to more aware.

Overall, respondents are at least somewhat familiar of appropriate practices to improve water quality than unaware. More specifically, this group is generally in the range of “Somewhat Familiar” regarding gently sloping vegetated areas adjacent to impervious surfaces intended to reduce impacts of sheet flow and velocity of stormwater and help improve its water quality. Since the awareness score is relatively high, knowledge of the practices does not appear to be a big constraint to implementation.

AWARENESS						
Ind. #	Indicator	Mean	SD	Valid Responses	Total Responses	View Graph
1.1	Awareness of consequences of pollutants to water quality (value range 1-2, less aware - more aware)	1.52	0.43	560	831	<a href="#">Bar graph</a>
1.2	Awareness of types of pollutants impairing waterways (value range 1-2, less aware - more aware)	1.69	0.4	340	821	<a href="#">Bar graph</a>
1.3	Awareness of sources of pollutants impairing waterways (value range 1-2, less aware - more aware)	1.75	0.36	604	970	<a href="#">Bar graph</a>
1.4	Awareness of appropriate practices to improve water quality (value range 1-2, less aware - more aware)	1.69	0.32	1,001	1,234	<a href="#">Bar graph</a>

## ATTITUDES

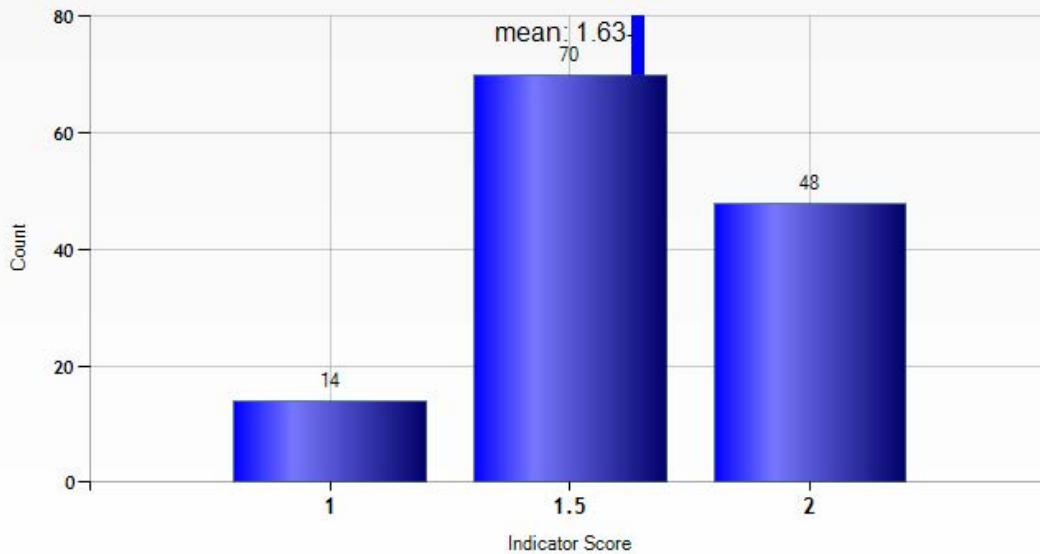


Value range 1-5, less positive – more positive

With a mean of 4.04, the Swift Run residents have a positive attitude toward their local water. They appreciate water and care about its health.

## 2.2. Willingness to take action to improve water quality

Swift Run Survey responses: 132

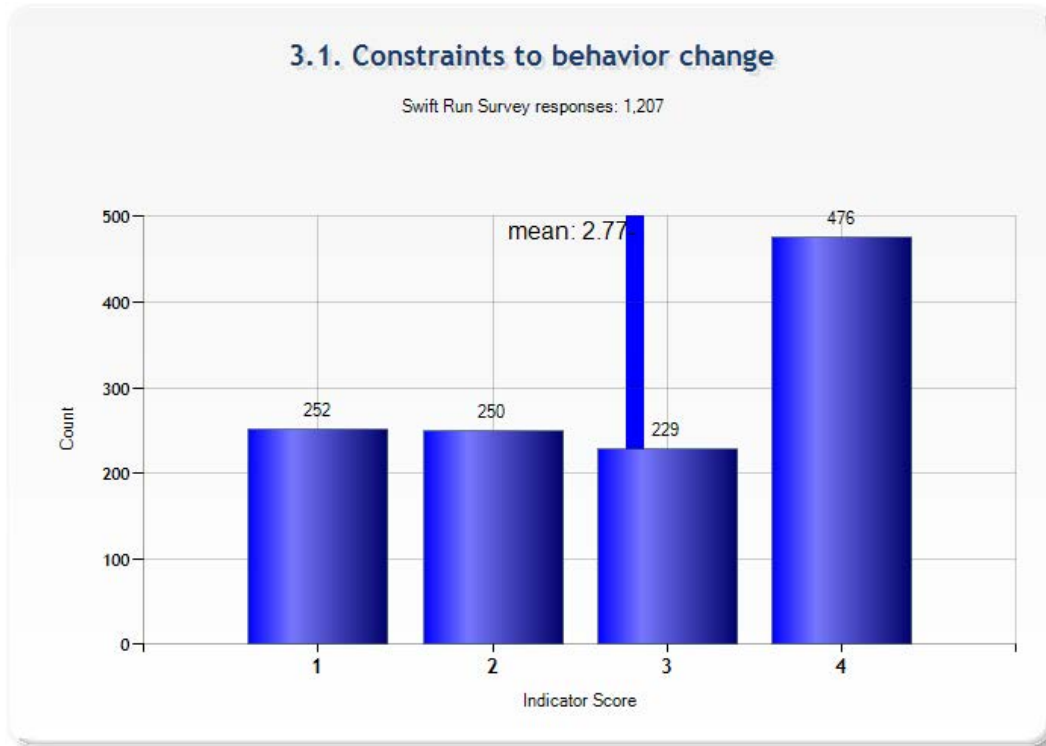


Range 1-2, 1 is less positive.

With a 1.63 mean result, this response group is more willing (a 'Maybe' or above) to take action to improve water quality. This is a positive result, as it indicates that a group that may take action if encouraged and/or given resources on how to protect its local water.

ATTITUDES						
Ind. #	Indicator	Mean	SD	Valid Responses	Total Responses	View Graph
2.1	General water-quality-related attitudes (value range 1-5, less positive - more positive)	4.04	0.98	963	963	<a href="#">Bar graph</a>
2.2	Willingness to take action to improve water quality (value range 1-2, less positive - more positive)	1.63	0.32	132	132	<a href="#">Bar graph</a>

## CONSTRAINTS

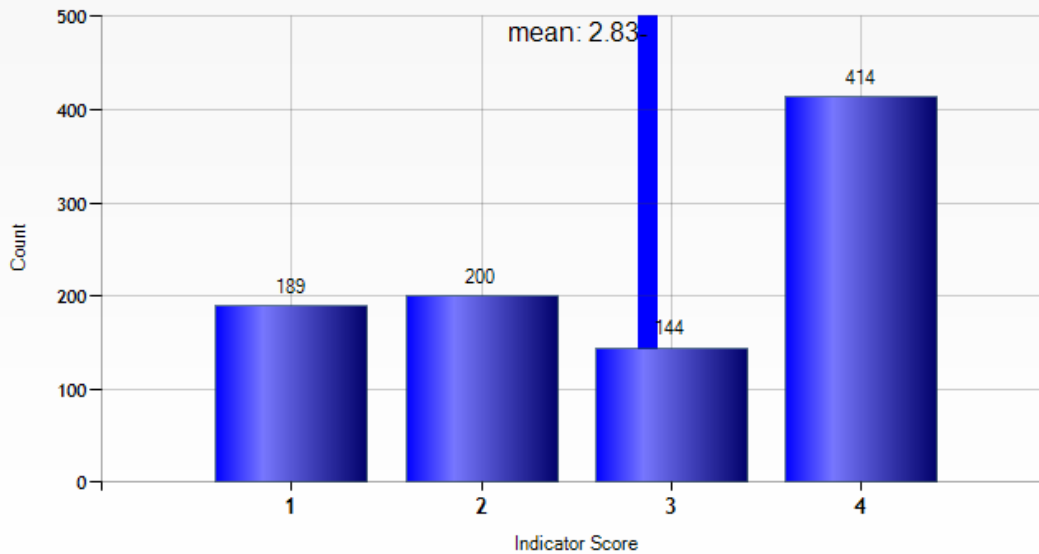


Range 1-4, 1 is most constrained and 4 is least constrained.

Over 58% of the responses indicate little or no constraints to changing behaviors for water quality benefits. Resources (time and money) were the main constraint to change.

### 3.2. Constraints to adopting key practices

Swift Run Survey responses: 947



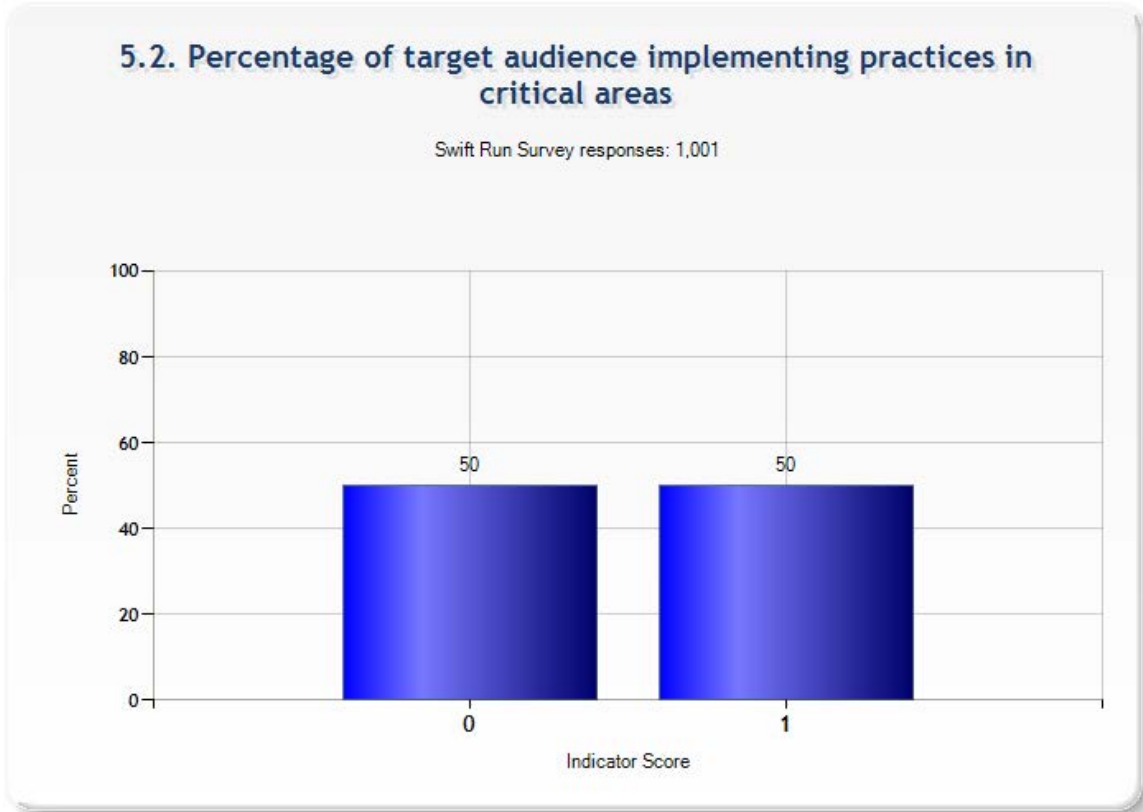
Range 1-4, 1 is most constrained, 4 is least (not at all) constrained

Based on specific constraints identified, a mean of 2.83 indicates that 59% of the respondents can move forward with installing rain gardens or other stormwater management practices.

<b>CONSTRAINTS</b>						
Ind. #	Indicator	Mean	SD	Valid Responses	Total Responses	View Graph
3.1	<a href="#">Constraints to behavior change</a> (value range 1-4, more constraint - less constraint)	2.77	1.18	1,207	1,359	<a href="#">Bar graph</a>
3.2	<a href="#">Constraints to adopting key practices</a> (value range 1-4, more constraint - less constraint)	2.83	1.19	947	1,157	<a href="#">Bar graph</a>



## BEHAVIOR



This measure is based on “Practices to Improve Water Quality (please indicate which statement most accurately describes your level of experience with each practice listed below)” and ‘How familiar are you?’ with rain gardens. Only those who responded who are currently using the practices listed were measured. Among those, about half are using methods that protect water quality from stormwater.

<b>BEHAVIOR</b>					
Ind. #	Indicator	Percent	Valid Responses	Total Responses	View Graph
5.1	Percentage of critical area receiving treatment	<i>Calculated off-line.</i>			
5.2	<a href="#">Percentage of target audience implementing practices in critical areas</a>	34.33	1,001	1,234	<a href="#">Bar graph</a>
5.3	Ordinances in place that will reduce nonpoint source stressors	<i>Calculated off-line.</i>			

**APPENDIX. SUPPLEMENTARY TABLES**

A. Question 2.3 Your Water Resources. Individual Responses

If you answered "Yes" above, where does your rain water drain to?

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**If you answered 'Yes' above, where does your rain water drain to?**

<b>User Responses</b>	
1	Swift run drain
2	To Swift Run Creek
3	street
4	Swift Run primarily or Sewer??
5	swift run
6	storm drain on Belvidere that runs straight to Swift Run
7	Huron River
8	Swift Run Creek - greater than South Pond
9	the Swift Run
10	The Huron River
11	Down storm drains, eventually to the Huron River
12	Into the River
13	Huron River
14	sewer- storm drain
15	City of Ann Arbor charges for water going to storm drain
16	Drains at the front of my yard {?}
17	Huron River
18	Into the ground. we live on a gravel road
19	street
20	Sewer grates on street-local streams run off

21	Rain water floods the backyard nearest the creek that runs behind the property- does not appear to drain anywhere. In time is dries up.
22	The creek behind my house which eventually goes into the Huron River
23	The creek behind our house and the stormwater system
24	Huron River
25	Paved Roads- gutters- underground to huron river local creek
26	street
27	Creek along Creek Rd. Thence to Huron River
28	Huron River, and ultimately to the great lakes
29	Swift Run to the Huron River, but on the Charing Cross 60 percent of the road runoff come right down my drive way- floods the back yard and freezes into dangerous ice all winter. This is a big concern for us.
30	Mallets Creek
31	Sewer
32	Sewer system
33	Storm sewer to creek to river
34	Swift creek
35	Sewer
36	into drains that say they drain to the watershed
37	storm sewer
38	creek, to the Huron River
39	Into the storm sewer, then I do not know
40	Swift Creek
41	The ditch then down into the river near Zach Rd
42	in my yard
43	Into swift run creek. It borders two sides of my property, I do not know where the street drains dump.

44	Storm Drain, creek, Huron River, Lake Erie, Ocean
45	Huron River
46	Drain holes on the side of street, where collect rain water
47	Into storm sewer or into creek in back of house
48	Next creek east of mallets, Swith?
49	into our lake {lake forest}
50	Storm Sewer
51	Huron River, Lake Erie then Atlantic
52	Swift Run
53	What does not absorb to group, down to the end of our road into storm drains. Frankly, the recently put in ditches collect next to nothing. No road drainage due to road slope not being altered.
54	Swift Run Drain
55	Into my garden. I have directed teh run off from both halves of my roof into my garden. One is a rain garden approx 135 square feet. The other feeds into an irrigation ditch for plants.
56	into ground and storm drains
57	storm drain, huron river
58	Storm drain, swift run
59	into rainwater drain
60	Lawn then to road {unpaved} to city storm system
61	huron River
62	into the creak along side our property
63	the creek at the end of Pittsview, west of the street by Packard
64	Storm sewer, Local creek

65	Swift run then huron river
66	Street drain outside house, then the river
67	Loving Branch Watershed Stream
68	Swift run- City runoff drains
69	most to ground water. in heavy rains some off drive way and side walk. Major street run off into drain to swift run at the end of the block.
70	Huron River
71	Huron River
72	Swift run, Huron River
73	Lakes and Rivers
74	Creek then Huron River
75	drains in the street by the curves
76	our neighbors yard
77	Down into the creek that runs across Creek Drive

## **B.. End of Survey Additional Comments.. Individual Responses**

**Please use the space below for any additional comments about this survey or water resources in your community.**

<b>User Responses</b>	
1	This survey seems to be aimed at those who are already aware of water quality issues. I do not know enough to have strong opinions on most of the questions.
2	A good portion of my property is undergoing succession to form a native plant communities. Some neighbors may think it trashy, but I can justify my changes for many environmental and esthetic reasons. Perfect "beautiful" lawns are bad for the environment and should be discouraged. That statement includes the manicured grass of golf courses and other recreational areas. {These are somewhat less bad if no pesticides or fertilizers used.} Also to be discouraged are "things" that contribute to overpopulation of our area or the world as a whole. More people leads to more pollution, etc. I think the relationship is perfectly clear!
3	Swift Run is in my backyard. Ive cleared out the buckthorn and planted the embankments with appropriate native plants. It looks nice and I can help anyone else who wants to help restore this nice stream. I see mallards, muskrats, and an occasional snapping turtle using the stream. This year, thanks to abundant rain, it has flowed almost continuously.
4	We live near the creek on Creek Drive. Id like to see someone come around maybe once a year to make sure there is no accumulation of fallen branches-twigs that block the flow of the creek. I did call the city earlier this spring about this problem. In general the creek flows well when the level is high but its a good idea to keep an eye on it.



5	<p>We try to practice safe lawn techniques for our little corner of the Huron River Watershed, including bagging-mulching, not applying fertilizer or weed killer, and using phosphate free laundry and dish soap. We would like to do more and we are planning to implement a rain garden, but the small amount saved off the water bill does not seem to justify the expense of time and finances. While I think it is important for homeowners to do their share, I feel the biggest burden to the watershed is the large amounts of business and homeowners that rely on professional lawn services. Maybe they are practicing environmentally friendly methods, but I find that difficult to believe that they all are. I would like to see A2 have a greater part in regulating and or licensing the small businesses that perform these services. It is my guess that getting these lawn professionals on board would make a vastly greater impact on the watershed than any homeowner targeted education program possibly could. Maybe a statewide mandate that lawn service providers must educate their customers on their chemicals they use and apply and the impact on the watershed and the wildlife {e.g. bees, birds, and the fishes}</p>
6	<p>As a renter putting in a rain garden is not an option for me. My landlord probably would not mind but we are looking to buy a house. When we do it will be as Green as we can affordably make it.</p>
7	<p>Recommend updating the survey design - layout and faces-fonts are not user friendly, among other things.</p>
8	<p>Unless it is a 100 year rain, only water off my property goes down the drive way of my 2 acre lot. Unpaved Pittsview Dr. and Charing Cross put silt into the Run after every rain.</p>
9	<p>I am concerned about how my answers and others answers will be used. I am also concerned about the biases in the questions-survey will affect the results.</p>



10	<p>A conversation would probably be a better way to interchange information on this. Last question about extent of my trust in various sources of information is interesting because I am leery of the bias of those attached to the environmental movement. Anxiety about water issues can be a little over-done and I do not want to get into that kind of mindset. Scientific facts and evidence should drive our decisions as well as practical-engineering-cost considerations. Thanks for the survey. Frankly, I am wondering what this is all about. What kind of changes are you contemplating for my neighborhood?</p>
11	<p>This survey gave me a lot more things and issues that I did not know especially chemicals that should not be in our river.</p>
12	<p>I regard water quality a high priority regardless of the cost. Knowing that business and corporate mentality will not voluntarily practice environmentally non-impact methods, I support measures to FORCE these practices. Knowing Ann Arbor City Council allowed the dumping of totally toxic dioxin from business on Wagner Rd, I also know Ann Arbor will not enforce environmental responsibility.</p>
13	<p>I read the information on line RE - This Project. I will NOT participate in anyway. No rain garden at my location. i will raise every possible objection to any "vegetative bump-outs" in front of my house. {how are the snow plows supposed to navigate around them?} This is just another waste of tax payer dollars. the city Boondoggle created on Nordman St. is an eyesore, and I object in the strongest possible terms to designating Creek Dr. as a so-called "Green Street"</p>
14	<p>I kayak and tube down the Huron at Argo, Gallup and in between. i notice the weeds are getting overgrown at both ponds, I hear it is invasive. Is there a way to clear that out without damaging the fish, turtle and frogs? Lastly- I am still very unhappy with the cascades, I find them unsafe and now that section is unusable for me. There should have been an alternative route. Not everyone wants to get beat up on the rocks.</p>
15	<p>Our tap water sucks bad. We have to have a water softnerer and a water filter to drink it and it keeps burning out water heaters {3 in 10 years} and we have Ann Arbor City Water</p>

16	I wish youd included a no fertilizer- no pesticide ooption;_ it makes me sad that treating lawns with chemical is a given even in a "pro-environment" community like ours. Also, Id love to see some focus on reducing the water that gets waster on watering lawns;_ even if we are spared the crisis experienced in places California, we should still be conscious of how precious water is {and not waste it on keeping a completely useless crop green throughout the summer...}
17	The location of the property is in AA. They are apartment buildings. The water I am charged for entering the storm drain at Packard Rd and Charing Cross LLC
18	Already pay high water bills and high taxes
19	Not educated on need for rain gardens generally;_ I thought rain gardens applied to property-homes with large run off areas where water collects, no the "average home" with a fairly flat landscape. Perhaps more education on why "all of us" need to install a rain garden would help me know how this applies to me-my property.
20	I would really like to put in rain barrels and a rain garden and-or other runoff management features. But I need help! I have read books and looked at websites on how to do it, but i need a professional familiar with unusual landscapes and soil {clay} conditions to look at my property and advise.
21	I did google quality of Ann Arbor water, 2014 was the most recent.
22	I do not live in Michigan but own property there. I answered the questions off of my personal knowledge of the area and what I do with my rental property in Ann Arbor.
23	I believe it is important for all to a} be aware of their environment b} not use pesticides unless absolutely necessary c} be aware that lawn fertilizer increase plant growth in our lakes and streams d} Enjoy our natures beauty and assist in keeping it that way e} pass that information along to our children and neighbors
24	We are a place of business
25	Never used lawn fertilizer, not decision maker about this property {swift run area} lawn care. Would be willing to learn about rain gardening and make recommendations-work with landlord

26	Again the runoff from Charing Cross down my driveway--_ What can be done?
27	We love the marybeth doyle wetlands conservation area- we love the bird watching and informative plaques informing us of what-why- would not mind knowing more about swift run creek, where it feeds etc.
28	It is my understanding that the city of A2 wants to put rain gardens in La Salle Dr, not its extensions. There is not enough space for such a project unless the street is made one way or no parking is allowed on either side of the street. The extensions have many trees in them which is a rain garden.
29	Almost every large truck with hydraulic attachments is leaking oil on the roads. The city is the biggest culprit. You can always tell that the refuse trucks have been down the road by the oil residue left on the street.
30	I just finished the rain garden class and I am very excited about Swift Run Creek project. Hope that my neighbors will get on board- have been blabbing to everyone I see. With regards to "Trash and Debris in water" - When I moved in I pulled 21 car tires from the creek. Since then, Ive removed a childs plastic slide, several plastic slot-together shelves, a rusty bicycle frame and a ton {only a slight exaggeration} of other junk. One of my neighbors throws his yard debris in the creek. He has a "perfect" lawn and I wonder about pesticides and fertilizer.
31	No lawn
32	Water in your area? Live in A2- include Huron River as water in your area? Did!
33	I would like to know more about how this could work on my property.
34	Note - Returned \$2 There is little that those who reside at this address can do to make changes because - 1} Lack of understanding offers via mail to make changes 2} Residents are physically unable to do anything requiring work because of advanced age
35	Thank you



36 I lived in Ann Arbor for over 40 years. Subjectively I see a huge difference in the water quality of local rivers and lakes between now {age 50} and my youth-adolescence. The biggest identifiable difference is the prevalence of slimy algae nearly everywhere, but I also remember taking a dip in a lake to get "cleaned up" and how I feel that i must shower or clean up after swimming locally. Sad.

37 It was difficult to answer some of the questions because we are very new to the area. I did install a rain garden this spring after participating in Washtenaw County course. Very Good! Good for all to do but not for those who do not enjoy gardening.

38 We need {and would love} two possibly four rain gardens on our property, but I do not know how to design properly for slope and closeness to house I would love to increase the beauty and habitat quality of our creek and have greater recreational access {ie parks}. However, this is difficult as it cuts through so many private properties and under roads.

39 I am very interested in info, resources, other help available in creating a rain garden. As a family with 2 young boys, time and cost are major factors for us. We appreciate the survey and look forward to more information from the council! Thank you!

40 Less gardening as I age, Charing Cross gravel road needs to have slower rate of water drain off with excessive rain.

41 I would love more information about creating a rain garden and in monitoring Swift Run creek or other ecosystem survey days. I am also involved in the "Lets ban fracking" petition initiative. - } I think my yard would be an ideal location for a rain garden, my neighbors kitty corner would also be supportive. their property shares about 100 feet of Swift Run river banks. Email -

In the 80+ years I have never seen the Huron River in such a mess. it is fast becoming a swamp except for the heavy center current areas. When my uncle was president of DTE, he lowered the water for two or three weeks during the coldest part of winter. This simple thing froze and bust the weed seeds when wet but exposed. Look at the weeds in Bartow Pond. Awful, no longer good for sailing on anything. There used to be 20 sail boats out on Sunday.

We already have way too much governmental oversight in our lives. I presume you received monies in some way from taxpayers to do this survey. As always the questions are worded in a way to get the results you are looking for! Obviously, your goal is to increase our taxes and remove more of our precious liberties.