



Stormwater Management

Research to understand awareness, attitudes
and perceptions of Twin Ports area residents

The Summary Report

Prepared For:

Regional Stormwater Protection Team

October 2010

Zenith Research Group – Duluth, Minnesota

Introduction

The attached report summarizes our research, analysis and findings concerning stormwater management in the greater metropolitan area of Duluth, Minnesota and Superior, Wisconsin. The goal of the research project was to determine the awareness, attitudes and perceptions among the urban and suburban population of the region regarding stormwater, including its sources, its environmental, social and economic impacts, and techniques for reducing runoff and preventing pollutants from entering local streams and rivers.

The findings of this study are based on the results of 997 telephone interviews completed with residents of 10 communities in Saint Louis County and Carlton County in Minnesota and Douglas County in Wisconsin. An additional 123 partial surveys were also analyzed with findings presented separately within the study report.

The report analysis and findings are based on survey results using a questionnaire and methodology developed by Zenith Research Group, Inc., with the assistance and approval of representatives of the Regional Stormwater Protection Team (RSPT), a coalition of government, government agencies, educational institutions and environmental groups. This project was made possible through a RSPT contract awarded to Zenith Research Group, Inc.

RSPT expects to use the findings of the research to lead efforts to increase the adult awareness about the study issues, educating the public about stormwater impacts and stormwater pollution prevention techniques in accordance with Minnesota and Wisconsin regulations and best practices. Among specific objectives, it is hoped the research will lead to measurable improvements in resource availability to K-12 schools by 2012, business community engagement by 2015, and an increase in adult awareness and behavior by 2020.

Zenith Research Group, Inc., shall have no liability for any representations (expressed or implied) contained in, nor for any omissions from, the report.

The information, analysis and findings provided within this report are intended solely to assist the governmental units, institutions and agencies in determining the extent to which stormwater management techniques are being practiced in the study region, and evaluating the awareness, attitudes and perceptions of residents in Minnesota and Wisconsin to concerns about contributors to stormwater and pollution prevention.

As such, the information within should not be relied upon for any purpose nor distributed to nor relied upon by any third parties who are not negotiating directly with the Regional Stormwater Protection Team.

Methodology

Zenith Research Group, Inc., (ZRG) was contacted by a representative of the Regional Stormwater Protection Team (RSPT) in mid May of 2010, requesting an initial meeting which took place on May 24. The research goals and objectives were outlined and ZRG was asked to submit a formal research proposal.

ZRG presented its research proposal and proposed study methodology on June 2.

On July 7, ZRG and RSPT representatives met to review the study proposal and to discuss possible survey questions.

A first draft of a survey instrument was presented to the study group on July 12. During the next several weeks, comments and suggested changes from the study group were incorporated into new instrument designs, culminating in a final design which was approved on September 17, 2010.

During the instrument design phase, ZRG prepared a listing of area residents who would be eligible for survey participation. The contact data was organized and segmented to aggregate those residents living within urban and suburban areas. All persons without a listed telephone number were eliminated from the contact data, resulting in a finalized listing of 42,853 records.

The interview process was completed at the ZRG call center facility in Duluth, Minnesota. The automated call center selected potential respondents using a systematic sampling method, whereby a definite pattern was applied in choosing the potential respondent. Interviewing began on October 6, 2010 and was completed on October 21.

All completed and partial surveys were tabulated and analyzed using the statistical tools and applications of SPSS Analytical Software.

Overall, the margin of sampling error is +/-3.09 percent at the 95 percent confidence level.

The summary analysis was completed by Dushan Skorich, President of Zenith Research Group, Inc.

Methodology



CALL CENTER DATA

➤ Completed Surveys	997
➤ Partial Surveys	123
➤ Not Interested	300
➤ Does Not Do Surveys	71
➤ No Reason/Other	229
➤ Not Qualified	35
➤ Incomplete Contacts	20106
➤ Busy Signal	783
➤ No Answer	6703
➤ Answering Machine	10421
➤ Phone Problem Redial	424
➤ Decision Maker Unavailable/Other	1775
➤ Unusable Records	4884
➤ Language Barrier	19
➤ Call Blocker	174
➤ Refused / Hung Up	1992
➤ Wrong Number	496
➤ Disconnected Number	2020
➤ Take Off List	183

Of Interest

All interviews were conducted between 5:00pm and 9:00pm during the period October 6-21, 2010.

Only persons speaking from their residence were interviewed. Only one person was interviewed in each household.

COMPLETED INTERVIEWS BY LOCATION		
LOCATION	FREQUENCY	PERCENT
CLOQUET, MN	108	10.8
DULUTH, MN	590	59.2
DULUTH TOWNSHIP, MN	15	1.5
HERMANTOWN, MN	63	6.3
MIDWAY TOWNSHIP, MN	11	1.1
OLIVER, WI	5	0.5
PROCTOR, MN	19	1.9
RICE LAKE TOWNSHIP, MN	30	3.0
SUPERIOR, WI	150	15.0
VILLAGE OF SUPERIOR, WI	6	0.6
DULUTH (Proctor, Hermantown) COMPLETES BY ZIP CODE		
ZIP CODE	FREQUENCY	PERCENT
55802	16	1.6
55803	95	9.5
55804	94	9.4
55805	63	6.3
55806	69	6.9
55807	71	7.1
55808	47	4.7
55810	67	6.7
55811	154	15.4
55812	47	4.7

Methodology



Of Interest

Unless otherwise noted, all results within the study will reflect the opinions of the 997 persons who completed the entire survey.

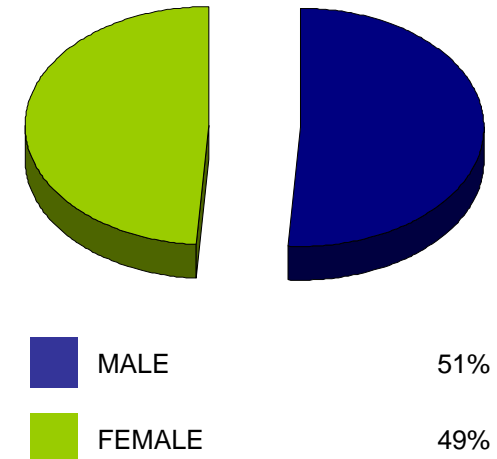
Results for those who partially completed the survey will be presented where a meaningful response exists. These results will be presented separately.

In the analysis, "N" will be used to identify the number of cases represented. For example, N = 997 will indicate the analysis is based on 997 responses.

PARTIAL COMPLETES BY LOCATION		
LOCATION	FREQUENCY	PERCENT
CLOQUET, MN	6	4.9
DULUTH, MN	77	62.6
DULUTH TOWNSHIP, MN	3	2.4
HERMANTOWN, MN	9	7.3
RICE LAKE TOWNSHIP, MN	3	2.4
SUPERIOR, WI	25	20.3

Demographics

RESPONDENT AGE – COMPLETED INTERVIEWS			AGE - SEX	
AGE	PERCENT	CUMULATIVE	MALE	FEMALE
UNDER 18	0.5	0.5	1.0	0
18 TO 24	10.3	10.8	11.8	8.8
25 TO 34	31.2	42.0	31.1	31.3
35 TO 44	14.7	56.7	15.4	14.1
45 TO 54	16.3	73.1	14.6	18.2
55 TO 64	15.0	88.1	14.2	16.0
65 TO 74	8.6	96.7	9.6	7.6
75 OR OLDER	1.9	98.6	1.4	2.5
REFUSED	1.3	100.0	1.0	1.6



Of Interest

Area residents between 25 and 34 years of age comprised the largest single group of respondents; almost 57 percent of all respondents were 44 years of age or younger.

51 percent of all respondents were men.

Demographics



RESPONDENT RESIDENCE – COMPLETED INTERVIEWS	
TYPE OF RESIDENCE	PERCENT
APARTMENT	12.1
CONDOMINIUM/TOWNHOUSE	2.3
DUPLEX-TWO FAMILY HOME	6.0
MOBILE HOME	2.5
SINGLE FAMILY HOME	76.2
REFUSED	0.8

Of Interest

More than 76 percent of respondents completing the interview process live in a single family home.

RESPONDENT EDUCATION – COMPLETED INTERVIEWS	
HIGHEST EDUCATION LEVEL	PERCENT
HIGH SCHOOL	16.6
SOME COLLEGE	24.6
COLLEGE	42.9
GRADUATE SCHOOL	14.6
REFUSED	1.2

Of Interest

A combined 57 percent of the respondents indicated they had completed at least a 4-year college education.

Demographics



RESPONDENT HH INCOME – COMPLETED INTERVIEWS	
HOUSEHOLD INCOME	PERCENT
LESS THAN \$35,000	25.9
\$35,000 TO \$50,000	19.8
\$50,001 TO \$75,000	18.2
MORE THAN \$75,000	21.7
REFUSED	14.5

Of Interest

The largest group of respondents had combined annual household incomes of less than \$35,000.

A combined 40 percent of the respondents completing interviews listed incomes of more than \$50,000.

General Awareness



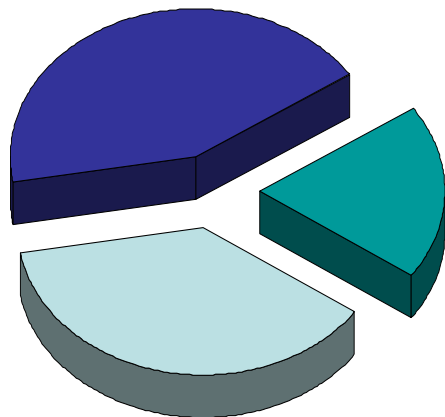
Q1: Which of the following do you think is the leading cause of polluted water in the United States?

Q1	COMPLETED	PARTIAL
RESPONSE	N = 997	N = 123
DISCHARGE FROM INDUSTRIAL PLANTS AND OTHER FACILITIES	26.6	23.6
DISCHARGE FROM SEWAGE TREATMENT PLANTS	10.4	8.9
ILLEGAL DUMPING	9.7	13.0
LEAKING SEPTIC SYSTEMS	5.4	6.5
POLLUTED STORMWATER RUN-OFF	31.2	22.8
UNCERTAIN	16.6	25.2

Of Interest

Among respondents with an opinion, those who completed the entire survey were more likely to believe polluted stormwater is the leading cause of polluted water; those who completed a portion of the survey were slightly more likely to blame discharge from industrial plants and other facilities.

Q2: To the best of your knowledge, does stormwater flow to a wastewater treatment plant?



RESPONSE	COMPLETE	PARTIAL
YES	37.5%	34.7%
NO	43.2%	32.2%
UNCERTAIN	19.3%	33.1%
	N = 997	N = 121

Of Interest

About one third of the respondents within the two groups believe stormwater ends up at a wastewater treatment plant. 43 percent of those completing the entire survey did not believe the water flowed to a treatment plant.

General Awareness



Q3: Which of the following is responsible for managing the stormwater that flows from your property?

Q3	COMPLETED	PARTIAL
RESPONSE	N = 997	N = 112
YOUR CITY OR TOWNSHIP	48.2	42.9
STATE AGENCIES	3.4	4.5
THE PROPERTY OWNER	14.9	17.0
GOVERNMENT AGENCIES AND THE PROPERTY OWNER	19.8	15.2
UNCERTAIN	13.6	20.5

Of Interest

A plurality within each group believe their city or township is directly responsible for managing the stormwater once it flowed from their property.

Q4: Which of the following areas produces the most stormwater run-off?

Q4	COMPLETED	PARTIAL
RESPONSE	N = 997	N = 109
A WETLAND AREA	6.8	11.9
A FOREST AREA	1.1	1.8
A GRASSY PARK	2.7	5.5
A LARGE PAVED PARKING LOT	77.4	64.2
UNCERTAIN	11.9	16.5

Of Interest

Both groups are fairly well convinced that a large paved parking lot is the area that produces the most run-off.

Pollution Contributor



Q5: Stormwater can cause problems. Tell me whether you think it is a major, moderate, minor or not a contributor to the following problems?

Q5	MAJOR	MODERATE	MINOR	NONE	N/A
FLOODING	44.3	30.0	19.1	4.2	2.4
WEED AND ALGAE GROWTH	23.4	32.3	30.1	7.5	6.7
NEGATIVE IMPACTS ON FISH HABITAT	49.7	30.4	13.4	3.3	3.1
NEGATIVE IMPACTS ON SWIMMING AND BEACHES	36.8	34.8	22.4	4.5	1.5
SEDIMENT IN LOCAL STREAMS AND RIVERS	44.8	31.4	16.9	3.3	3.6
INCREASED TEMPERATURE IN STREAMS AND RIVERS	33.8	29.1	23.8	6.6	6.7

Of Interest

Just under half of the respondents who completed the entire survey rated the negative impact on fish habitat as the major problem associated with stormwater run-off.

The level of those respondents who partially completed the survey fell below 100 and results are not presented for the remainder of this report. A summary of complete results for this group will be presented separately.

Pollution Contributor



Q6: Other items contribute to pollution. Using a scale of 1 to 4 where 1 = Major Contributor and 4 = Does Not Contribute, please rate each of the following.

Q6	N =	MEAN	MAJOR	MODERATE	MINOR	NONE
LAWN CHEMICALS	981	1.60	58.3	25.1	10.7	4.3
IMPROPER DISPOSAL OF HOUSEHOLD HAZARDOUS WASTE	981	1.68	52.2	29.1	13.2	3.9
AGRICULTURAL FERTILIZERS AND PESTICIDES	979	1.70	51.7	28.6	13.3	4.6
IMPROPER DISPOSAL OF USED MOTOR OIL/ANTI-FREEZE	984	1.74	53.6	23.4	16.6	5.1
ROAD SALT	986	1.75	46.7	34.4	14.0	3.7
STREET SAND	982	2.13	27.1	38.2	26.8	6.4
MANURE FROM FARM ANIMALS	971	2.23	26.5	30.8	31.0	9.1
PET WASTE	981	2.36	18.9	35.0	35.2	9.3
GRASS CLIPPINGS, SAND AND LEAVES	981	2.71	8.2	31.1	40.0	19.1

Of Interest

Lawn chemicals were rated the major contributor to pollution among those items presented to respondents.

The Mean Score is the central tendency or sum of all rankings divided by the number of eligible cases.

Pollution Information



Q7: I'm going to read a list of ways you might receive information about stormwater pollution. For each one tell me if you recall seeing, hearing or reading about stormwater from them.

Q7	YES	NO	UNCERTAIN
PUBLIC SERVICE ANNOUNCEMENT OR ADS ON TELEVISION	51.4	43.3	5.3
PUBLIC SERVICE ANNOUNCEMENT OR ADS ON RADIO	34.6	59.7	5.7
NEWSPAPER ADS OR ARTICLES	58.7	38.2	3.1
TELEVISION NEWS OR WEATHERCASTS	63.9	32.7	3.4
INTERNET	30.7	65.4	3.9
MATERIALS DISTRIBUTED THROUGH SCHOOLS	22.9	69.1	8.0
A FLIER IN A UTILITY BILL	49.5	44.6	5.8
A SIGN OR BILLBOARD	32.4	63.0	4.6
A MAGAZINE ARTICLE	39.1	57.9	3.0
DIRECT MAIL	23.4	73.0	3.6
FACEBOOK OR OTHER SOCIAL NETWORK SITE	10.2	86.8	3.0
REGION FESTIVALS OR EXPOS	30.3	66.0	3.7
WORKSHOPS OR SEMINARS	18.8	77.2	4.0

Of Interest

Almost 64 percent of the respondents said they had received information about stormwater pollution from television news or television weather reports.

Among those respondents who mentioned other sources, word-of-mouth was most often mentioned.

A complete listing of verbatim responses will be presented in a separate document.

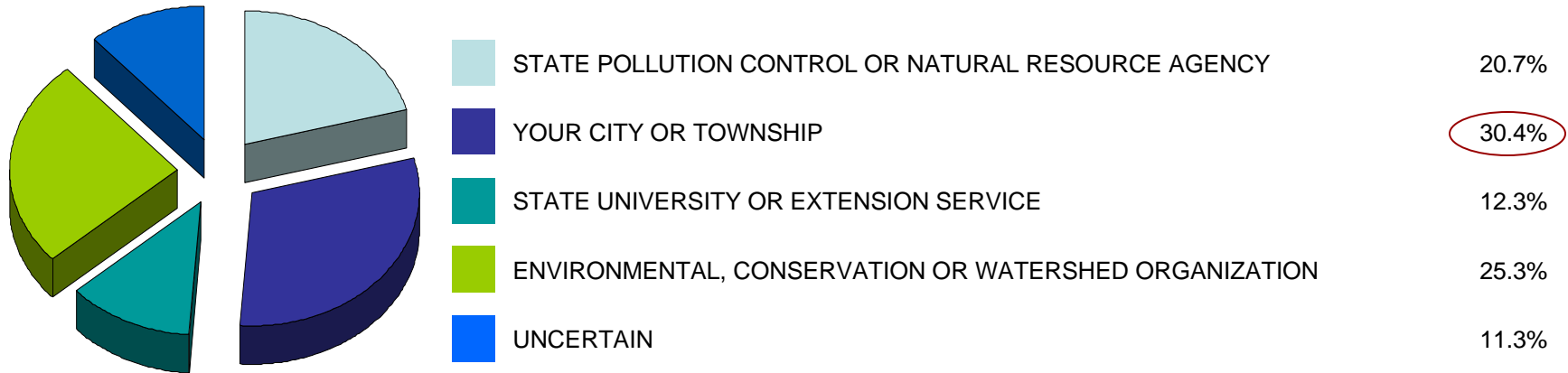
Q8: What would be the most effective way to reach you about water quality issues, including stormwater?

Various mail options, including normal mail, direct mail and email were listed by respondents as effective information sources in addition to traditional media outlets such as newspaper, television and radio.

A complete listing of verbatim responses will be presented in a separate document.

Pollution Information

Q9: Which of the following four sources would you most likely turn to for information about stormwater pollution and pollution prevention practices?

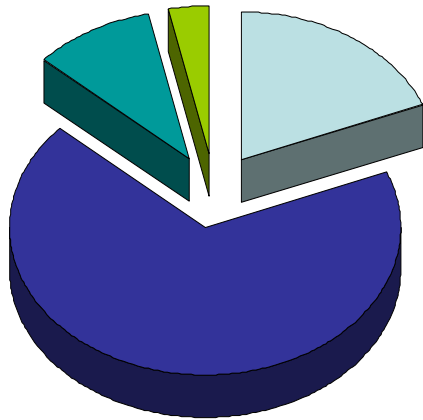


Of Interest

Respondents indicated they would most likely turn to their city or township for information, although there was also interest expressed in each of the other sources.

Oil Change

Q10: Do you change your own oil or go to a service center?



CHANGE OWN OIL	19.0%
SERVICE CENTER	67.8%
VARIES	10.0%
REFUSED	3.2%

Of Interest

More than two-thirds of all respondents indicated they generally use a service center when they change oil on their vehicle(s).

Lawn Care Issues



Q11: Some lawn care practices can or might impact pollution. For each of the following, list whether you are already doing so, would be willing to do so, or not willing to do this.

Q11	ALREADY	WILLING	UNWILLING	N/A
CONDUCT SOIL TEST TO DETERMINE FERTILIZER APPLICATION RATES	4.8	23.0	25.3	46.9
APPLY CHEMICAL FERTILIZERS & WEED KILLERS ONCE/TWICE YEARLY	24.7	13.2	19.1	43.0
SWEEP DRY FERTILIZERS & CHEMICALS OFF YOUR PAVEMENT(S)	13.9	18.1	14.4	53.8
STOP USING CHEMICAL FERTILIZERS & WEED KILLERS COMPLETELY	32.2	23.5	16.9	27.5
CLEAR GRASS CLIPPINGS OFF SIDEWALK OR DRIVEWAY AFTER MOWING	52.8	17.2	6.25	23.9
STOP USING SALT TO MELT ICE AT YOUR RESIDENCE	25.2	23.7	32.2	19.0
COMPOST LEAVES & GRASS CLIPPINGS IN YOUR YARD	43.5	21.3	11.8	23.4
COMPOST LEAVES & GRASS CLIPPINGS THROUGH COMMUNITY PROGRAM	16.3	36.1	20.0	27.6

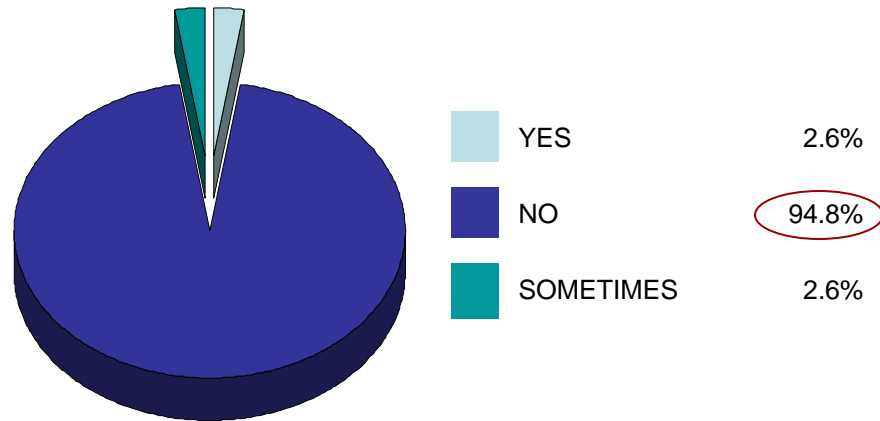
Of Interest

More than half of all respondents indicated they were already clearing grass clippings after lawn mowing.

Respondents expressed their greatest reluctance to discontinuing efforts to remove snow or ice through salt use.

Lawn Care Issues

Q12: Do you sweep your grass clippings and other yard waste into the gutter or street?

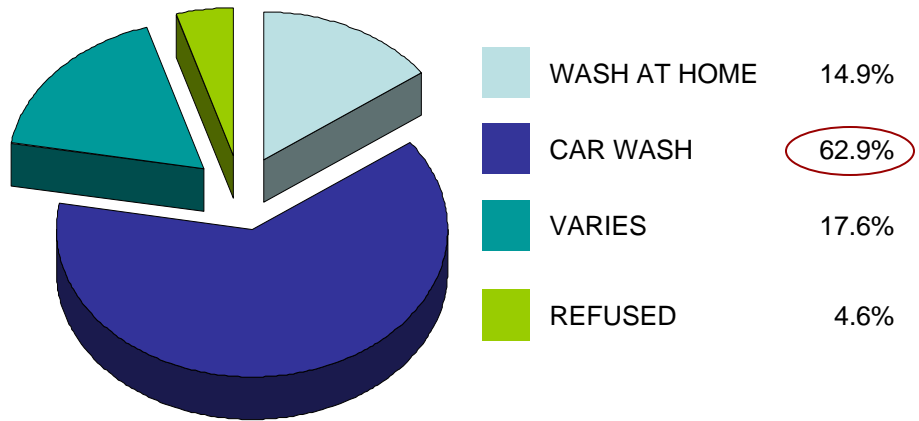


Of Interest

Few respondents admitted to sweeping materials into the gutter or street.

Car Wash

Q13: Do you usually wash your car at home or take it to a car wash?

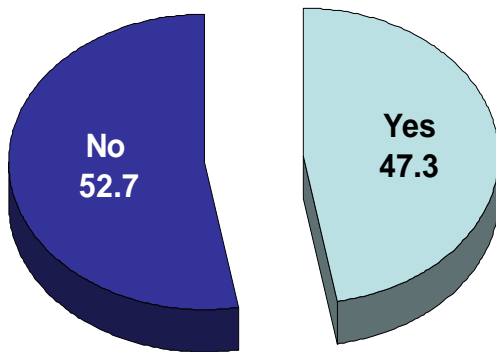


Of Interest

Almost two-thirds of all respondents indicated they are most likely to use a car wash.

Dog Owners

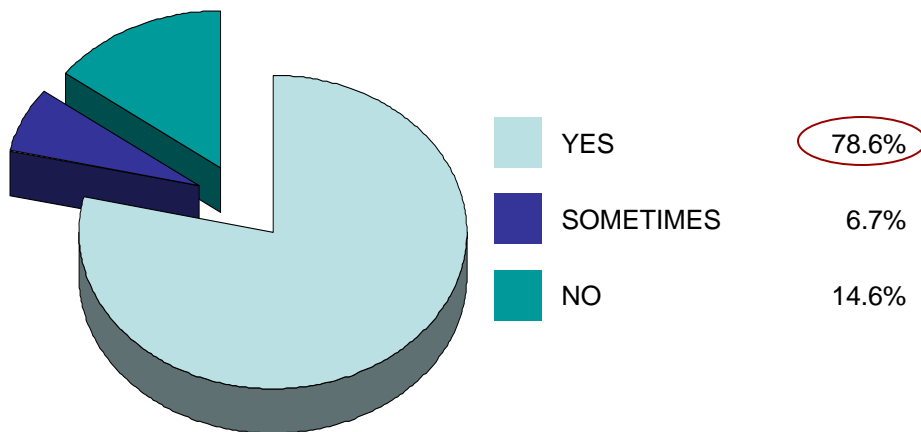
Q14: Do you have a dog?



Of Interest

Just under half of all respondents indicated there was at least one dog in their household.

Q15: (If "Yes") Do you usually pick up after your dog?



Of Interest

Of those respondents who said they own at least one dog, almost 8 out of every ten said they usually pick up after the animal.

Run-Off Control



Q16: Please identify which of the following you have done in the last 5 years to reduce the amount of water that runs off your property.

Q6	YES	NO
INSTALLED A RAIN BARREL	15.7	84.3
INSTALLED A RAIN GARDEN	10.0	90.0
INSTALLED PERVIOUS PAVERS	61.9	38.1
DIRECTED DOWNSPOUTS ONTO LAWN OR AREAS WHERE WATER SOAKS IN RATHER THAN RUNS OFF	62.6	37.4
PLANTED TREES OR NATIVE PLANTS	62.2	37.8

Of Interest

By a slight margin, more respondents had directed downspouts to avoid run-off.

Q17: (If “No” to all of above) What has prevented you from taking steps such as those listed to better manage stormwater run-off?

Most of the respondents that have not taken any steps were renters and not responsible for control of the run-off.

A complete listing of verbatim responses will be presented in a separate document.

Perception



Q18: For each of the following statements, identify your level of agreement or disagreement. 1 = Strongly Agree. 4 = Strongly Disagree

Q18	N =	MEAN
INDIVIDUAL ACTIONS OF AVERAGE CITIZENS HAVE A SIGNIFICANT EFFECT ON WATER QUALITY	991	1.60
I WOULD LIKE TO DO MORE TO PREVENT STORMWATER POLLUTION, BUT I'M NOT SURE WHAT I SHOULD BE DOING	946	2.23
IT IS THE JOB OF THE CITY OR TOWNSHIP TO KEEP STORMWATER OFF MY PROPERTY	931	2.54
IT'S IMPORTANT THAT MY NEIGHBORS THINK I HAVE A NICE LAWN OR GARDEN	939	2.62
IN THE SPRING, THE BEST WAY TO GET RID OF ROAD SAND IS TO SWEEP IT INTO THE STREET FOR THE STREET SWEEPER	903	2.68
STORMWATER ISN'T REALLY A PROBLEM IN THIS REGION, AND WE HAVE MANY HIGH QUALITY STREAMS AND LAKES TO PROVE THAT POINT	948	2.80
STORMWATER RUN-OFF IS ONLY A PROBLEM IN URBAN AREAS	960	3.02
PEOPLE LIVING IN SUBURBAN AREAS OR OUT IN THE COUNTRY DON'T HAVE TO WORRY ABOUT STORMWATER POLLUTION	969	3.06
IT'S OKAY TO DUMP WASTE OIL INTO A STORM DRAIN	993	3.72
IT'S OKAY TO DUMP WASTE OIL IN A GUTTER OR DITCH	993	3.72

Of Interest

The highest level of agreement among all respondents was about the impact average citizens have on water quality.

Respondents strongly disagreed that it's acceptable to dump waste oil.

Contact Information



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