

The City of Granite Falls

Stormwater Education Evaluation Report

May 2011

Prepared by:

Kenneth Klima, Senior Research Director

Brandon Megrath, Research Analyst



Hebert Research, Inc.
13629 NE Bel-Red Road
Bellevue, WA 98005
(425) 643-1337 Ext. 109
kklima@hebertresearch.com

The City of Granite Falls
***STORMWATER COMMUNITY EDUCATION
EVALUATION REPORT***

May 2011

Table of Contents

Goal.....	4
Methodology.....	5
Geographic Area Surveyed.....	8
Explanation of Multivariate Analysis.....	9
Respondent Profile.....	10
Assessment of Water Quality in the Environment	11
Areas of Greatest Educational Need.....	14
Priority 1 Issues: Less than 50% Correct Answers.....	15
Priority 2 Issues: From 50-80% Correct Answers.....	18
Priority 3 Issues: More than 80% Correct Answers	22
Reporting an Illicit Discharge.....	25
Baseline Stormwater Survey Results for 16 Cities.....	26
Baseline Stormwater Survey Results for 16 Cities: Priority 1 Issues.....	27
Baseline Stormwater Survey Results for 16 Cities: Priority 2 Issues.....	28
Baseline Stormwater Survey Results for 16 Cities: Priority 3 Issues.....	29
Key Findings and Recommendations	30
STORMWATER COMMUNITY SURVEY QUESTIONNAIRE	32

Thank You!

Hebert Research wishes to express its appreciation to Brent Kirk, City of Granite Falls, for the assistance given to us in carrying out this research study.

Hebert Research

Kenneth Klima, *Senior Research Director*

Cynthia Hebert, *Chief Operating Officer*

Brandon Megrath, *Research Analyst*

Goal

Research Goal:

The goal of this research is to compare the stormwater-related knowledge and practices of the public in Granite Falls in 2011 to baseline data collected in 2009 and 2010 for a group of reference cities. The City of Granite Falls did not collect baseline data prior to beginning public education. To assess differences, current Granite Falls data were compared with the baseline data from four other cities in Snohomish County who served as the defined reference group (Mill Creek, Mountlake Terrace, Edmonds and Mukilteo). The baseline results for these four cities gave a combined sample size of 500 and a margin of error of $\pm 4.4\%$. The results are useful for informing the planning process for future stormwater public education and social marketing programs.

Content Areas for the Survey of the General Public

The “general public” is defined as adults (18 years of age and older) who speak English and live in zip code 98252 (Granite Falls). The questions asked in the 2011 survey are identical to the questions asked in 2009. Subjects include:

- ❖ General impacts of stormwater flows into surface waters.
- ❖ Knowledge of the benefit of pervious surfaces.
- ❖ Source control BMPs and environmental stewardship actions and opportunities in the areas of pet waste, vehicle maintenance, and landscaping.
- ❖ BMPs for use and storage of automotive parts, hazardous cleaning supplies, carwash soaps and other hazardous materials.
- ❖ Knowledge of what constitutes an illicit discharge and how to report it.
- ❖ Yard care techniques relating to protecting stormwater quality and knowledge of what constitutes pollution in the yard.
- ❖ BMPs for use and storage of pesticides and fertilizers.
- ❖ BMPs for the disposal of carpet cleaning fluids.
- ❖ BMPs for auto maintenance.

Methodology

The survey consisted of 30 questions of which 27 related directly to the public's knowledge about stormwater issues and the practices they engage in which protect stormwater quality. The remaining three questions dealt with an overall assessment of surface water quality, to whom illicit discharges should be reported and the age of the respondent.

Sample

A list containing over 1,000 telephone numbers appearing in the telephone directory for Granite Falls was purchased from a reputable commercial list company. The list company maintains a record of all telephone numbers appearing in all phone books in the United States cross-referenced by zip code. Using the zip code covering the city, a random sample of phone numbers was drawn. A list of the phone numbers of public utility customers was also provided by the city. Both of these sources were used to create the final call list. The call list was loaded into Hebert Research's CATI (Computer-Aided Telephone Interviewing) system which randomly selects phone numbers as required during the interviewing process. Phone numbers were called up to five times at different times during the day and evening. This helped assure that the survey was administered to both those who were easy to reach and those who were more difficult to contact.

Research Controls

Hebert Research applied a variety of controls to help ensure that the research and analysis reached the highest quality that can be provided. The primary research controls that were employed in this study included the following:

Interviewer Training

All interviewers participated in a special training session for this study. During this training session, the questionnaire was read and a discussion was held regarding the objectives of the study, screening questions, skip patterns, and techniques for handling potential problems. During this training, interviewers can raise questions and provide their professional feedback regarding potential interviewing issues. No issues were raised since the questionnaire was fully validated in its first administration.

Pre-test the Survey

After the questionnaire was programmed in our CATI system, it was rigorously tested to assure all questions were asked and that data was accurately recorded. Ten surveys were conducted during the pretest. The programming was deemed to be valid.

Conduct Interviews

Following a successful pretest of the questionnaire, telephone interviews were conducted using Ci3 CATI software from Sawtooth Software, a recognized leader in computer-aided interviewing. Potential respondents were called on weekdays at various times throughout the afternoon and evening until 9:00 pm. An appointment and callback procedure was used when

necessary to minimize refusals and allow respondents to complete the survey at a convenient time. Interviews were conducted in English.

Monitoring

Telephone interviews were regularly monitored by the data collection supervisor and were found to be properly conducted.

Internal Peer Review

Hebert Research uses an internal review process called “CERA” (create, edit, review, approve), which is similar to academic peer review, to ensure that each study meets or exceeds rigorous quality control standards. Through this process, several research staff review the statistical findings and offer critical feedback designed to increase the utility of the research and produce a clear and insightful report.

Incidence and Response Rates, Margin of Error

A total of 100 surveys were completed with adults living in zip code 98252 (Granite Falls). At the 95% confidence level, the maximum margin of error for a sample size of 100 respondents is $\pm 9.8\%$. This margin of error means that if the survey was repeated 100 times, the resulting percents for each response would be within $\pm 9.8\%$ (the margin of error) in 95 out of 100 cases for each question.

Over 938 phone numbers of residences in the city were called. Many of these calls went unanswered or went to voicemail. When a resident answered the phone, the individual was screened for being an adult and asked to participate in the survey. The *incidence rate* represents the percent of individuals we spoke to who were qualified to take the survey, meaning they were adults who spoke English. The *response rate* represents the percent of qualified individuals we spoke to who agreed to participate and who completed an interview. The incidence rate for the 2011 administration of the questionnaire in Granite Falls was 72.1% and the response rate was 56.4%. Response rates above 50.0% are higher compared to other community-wide surveys and serve to increase confidence in the survey’s validity and reliability.

Statistical Weighting

Statistical weighting is a technique that is commonly used in survey research to correct for sampling bias. During the process of data collection, demographic data from the U.S. Census was obtained to identify population parameters for the zip codes involved in the survey. Sample demographics—specifically, age and gender—were compared with distributions in the population within the city. To compensate for potential sampling bias (e.g., interviewing a disproportionately high number of females), weights were calculated and applied to the survey sample data for the city in order to ensure that gender and age distributions were represented in the proper proportion according to census statistics. After weighting, it was concluded that the obtained sample for Granite Falls was representative of the population living in the city within the critical parameters of gender and age.

Use of Findings

Hebert Research has made every effort to produce the highest quality research product within the agreed specifications, budget and schedule. The customer understands that Hebert Research uses

those statistical techniques, which, in its opinion, are the most accurate possible. However, inherent in any statistical process is a possibility of error, which must be taken into account in evaluating the results. Statistical research can reveal information regarding community perceptions only as of the time of the sampling, within the parameters of the project, and within the margin of error inherent in the techniques used.

Evaluations and interpretations of statistical research findings and decisions based on them are solely the responsibility of the customer and not Hebert Research. The conclusions, summaries and interpretations provided by Hebert Research are based strictly on the analysis of the data gathered, and are not to be construed as recommendations; therefore, Hebert Research neither warrants their viability nor assumes responsibility for the success or failure of any customer actions subsequently taken.

Geographic Area Surveyed

The map below shows the geographic area covered in the survey for the City of Granite Falls.



Explanation of Multivariate Analysis

The data for the survey was analyzed using the chi-square statistic to examine differences between baseline reference data from four nearby cities and Granite Falls. Responses for the knowledge questions were first categorized as being a correct response or an incorrect response. The incorrect response category was made up of wrong answers plus responses classified as “need more information,” “don’t know/refused,” and “not applicable.” Following classification, the chi square test was executed to statistically compare the 2009 and 2011 data to identify statistically significant changes. For the questions dealing with the actions of the respondents, those who said the action did not apply to them were first eliminated from the data set. Following their removal, the categories were classified as being “correct” or “incorrect” with the “incorrect” classification consisting of the collapsed categories as described above. The statistical test was run using these two categories.

Hypotheses were tested using the *0.05 level of significance* as the criterion value for the chi square analysis. When differences between results for the two administrations of the questionnaire reached .05, the finding is reported along with the actual level of significance which is stated as a *p value* (e.g., $p = 0.04$). Chi square results that reach the 0.05 level of significance indicate there is at least a 19-out-of-20 likelihood that the finding is true. This is a generally accepted level of significance for public surveys. For this analysis, results are also reported for significance levels greater than .05 and less than or equal to .15 which we consider to be sufficiently low to indicate real change for this research.

Respondent Profile

The following tables describe the demographic profile of the sample for the baseline group of four cities and Granite Falls. As indicated in the methodology section, the Granite Falls sample was statistically weighted to match the population in the city by gender and age. The percentages listed in the table below are the weighted frequencies for both the baseline group and for Granite Falls.

Age	Baseline	Granite Falls
18 - 24	6.8%	11.3%
25 - 34	19.0%	28.8%
35 - 44	25.5%	26.3%
45 - 54	21.1%	16.1%
55 - 64	12.9%	7.2%
65 or Older	14.7%	10.3%

Gender	Baseline	Granite Falls
Male	48.4%	51.2%
Female	51.6%	48.8%

Assessment of Water Quality in the Environment

Respondents rated the quality of water in our rivers, wetlands and lakes, and in Puget Sound on a 0 to 10 scale where 0 meant “extremely polluted” and 10 meant “extremely clean.” Figure 1 shows that the average water quality rating given by Granite Falls respondents, 6.80, is very close to the average baseline rating of 6.62 from four nearby cities, varying by only .18 of a point. While respondents in Granite Falls appear to perceive the quality of surface waters and the marine waters in Puget Sound to be slightly higher than the baseline group, the ratings are statistically equivalent. The two groups perceive water quality to be at the same level.

Figure 1. Average Rating of Surface Water Quality

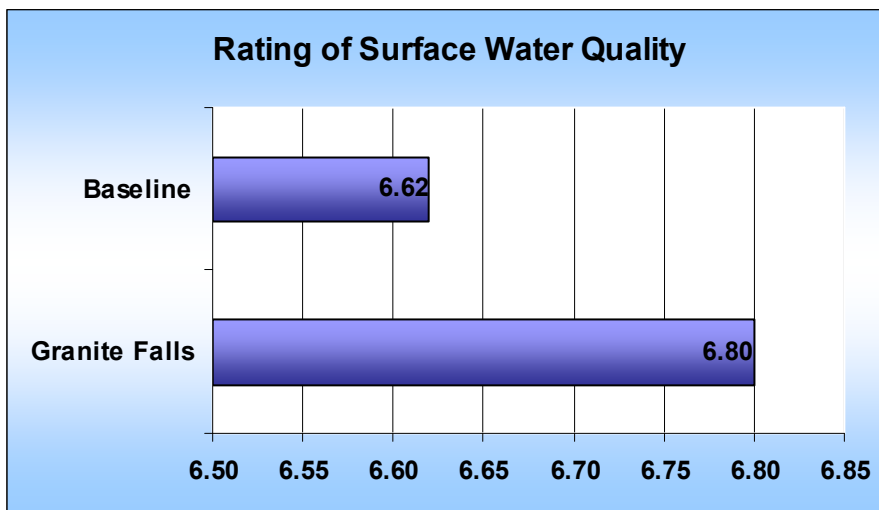
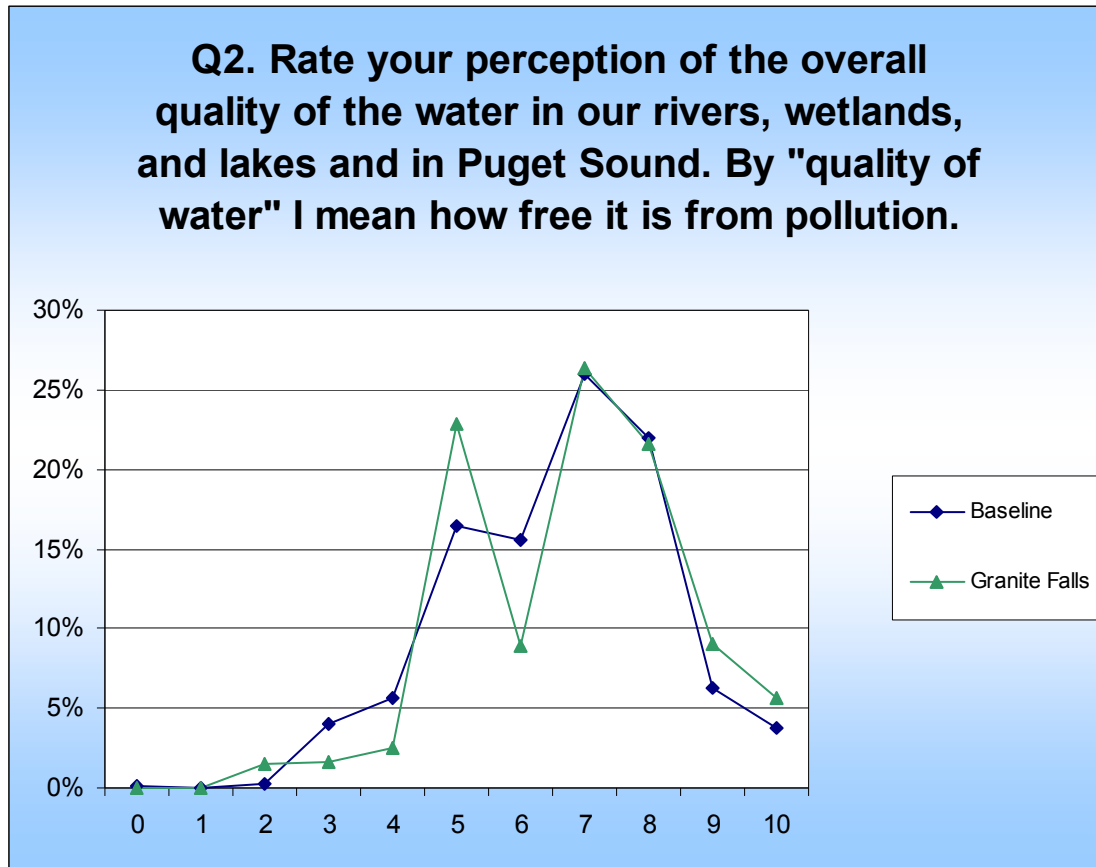


Figure 2 below shows the distribution of respondent ratings for Granite Falls and for the baseline at each point along the rating scale. The shape of the curve for each of the two datasets is very similar and suggests a normal curve that is shifted to the right or high end of the scale. The shift in average ratings toward the high end of the scale indicates that the public, on average, views water quality as being moderately clean, however, the range of ratings across the scale shows that a substantial difference of opinion exists. This finding implies that the information residents receive about the quality of surface waters is a confusion of positives and negatives. While very few respondents believe surface waters are “extremely clean,” the weight of opinion toward the “extremely clean” end of the scale implies that, on the whole, surface waters are not that much of an issue for the public. If the weight of the ratings were concentrated on the low end of the scale (the “extremely polluted” end), surface water quality would be perceived as being more of a problem to be addressed. As a result of the public seeing surface water quality as less of a problem, the city’s task of making the case for changing behavior to improve surface water quality is a more difficult road to travel.

Figure 2. Rating by General Public of the Quality of Water in the Environment (0 to 10 scale where “0” meant “extremely polluted” and “10” meant “extremely clean.”)



Public Needs a Better Awareness of the Problem

The results point to the idea that the public needs to be more deeply informed regarding the current levels of pollution in rivers, wetlands and lakes and in Puget Sound. Using educational and social marketing techniques, educational efforts should:

- 1) communicate the current nature, severity and negative outcomes of surface water pollution (e.g., the contamination in Puget Sound is concentrated in resident salmon which are the food base for the most contaminated wild animals on the planet, Puget Sound Orcas [see *Scientific American*, Jan. 20, 2009]),
- 2) create a vision of the quality of surface waters that we should be aspiring toward and the positive outcomes that would derive from its realization,
- 3) motivate the public to engage in the helpful practices that will serve to reduce new surface water pollution.

The first step in behavioral change is awareness of the problem. The more real the public perceives the problems of polluted surface water and their consequences and understands the benefits of clean water, the greater the impact and the response will be. If the city can go beyond simple education and offer social marketing programs that help the public overcome obstacles to change, the opportunity for success increases. For example, many people resist changing their behavior if it will cost them money. If the city can offer a program where citizens receive

money-saving coupons for using a commercial car wash, for example, instead of washing their car on the street, the likelihood of changing behavior in a desirable direction rises.

Areas of Greatest Educational Need

The two main purposes of this survey are 1) to evaluate what Granite Falls citizens know and do regarding key stormwater issues by comparing survey data to baseline information from reference communities, and 2) to develop priorities for future stormwater public education and outreach.

The survey results are organized by the percent of the respondents who provided a correct answer for the current survey—the lower the percent of correct answers given by the sample, the higher the priority for education:

- Priority 1: Less than 50% correct answers (Table 1)
- Priority 2: From 50 to 80% correct answers (Table 2)
- Priority 3: More than 80% correct answers (Table 3)

In administering the questionnaire, respondents were presented with statements that were either true or false and were asked if they agreed or disagreed with the statement. Each of the statements in the tables appearing below is followed by a letter indicating the correct answer for that statement, an **A** for “Agree” and a **D** for “Disagree.” When the word “**Adopt**” appears, it means the statement deals with whether respondents have “adopted” the desirable behavior mentioned in the statement. The combination of “**A Adopt**,” then, means the question deals with behavior and the desired response is **A** for “Agree”—this response equates to the respondent saying that he or she engages in the desired behavior mentioned in the statement.

The tables on the following pages show the percent correct answers for each question by the baseline group and for the current 2011 Granite Falls study. A statistical test (chi-square) was

Level of Significance
≤ 0.05
> 0.05 and ≤ 0.15
Significant Decline

carried out to compare the baseline data with the results from the current study to determine if the % change is statistically significant. When significant differences were found and these differences showed improvement, the table cell showing the level of significance is highlighted in a color. When the significance

level is less than or equal to .05, the cell is highlighted in green. When significance level is greater than .05 and less than or equal to .15, it is highlighted in tan. Significance levels at the .05 level indicate that there is a 95 out of 100 chance that the observed change is real. Significance levels at the .15 level indicate there is an 85 out of 100 chance that the observed change is real. In cases where significant differences represent a decline in the percent of correct responses, the cell showing the level of significance will be highlighted in red. (See table Level of Significance above on left for examples.) Cells remaining white indicate a non-significant difference in the percent of correct answers in comparing baseline data to the current 2011 evaluation data. Statistically, the data from the two groups is regarded as being equivalent. Also, below the % correct answers in each cell for each group is the rank of the issue for education within that group which helps in comparing the two groups.

Priority 1 Issues: Less than 50% Correct Answers

Priority 1 issues represent areas of knowledge and behavior where less than half of the respondents provided the correct or desired response. As shown in Table 1 below, the percent of correct answers for Priority 1 issues for Granite Falls compared to the baseline values varied from an increase of 8.9% in correct answers to a decrease of 13.2%. Taken as a whole, the list of Priority 1 issues for both Granite Falls and the baseline group is identical.

The issue where the Granite Falls public showed a significantly higher level of knowledge than the baseline reference group was:

- *To best protect the environment, soapy water from washing a motor vehicle is best handled by allowing it to be absorbed by the ground.*

The issues showing a significantly lower level of knowledge were:

- *Awareness that the stormwater drains on city streets are not connected to the sanitary sewer system used for treating human waste.*
- *Grass clippings and leaves in stormwater are regarded as pollution and should be kept out of the stormwater drainage system.*

The percent of correct responses for the remaining issues was statistically the same for Granite Falls and the baseline communities.

Table 1. Priority 1 Issues for Public Education and Social Marketing

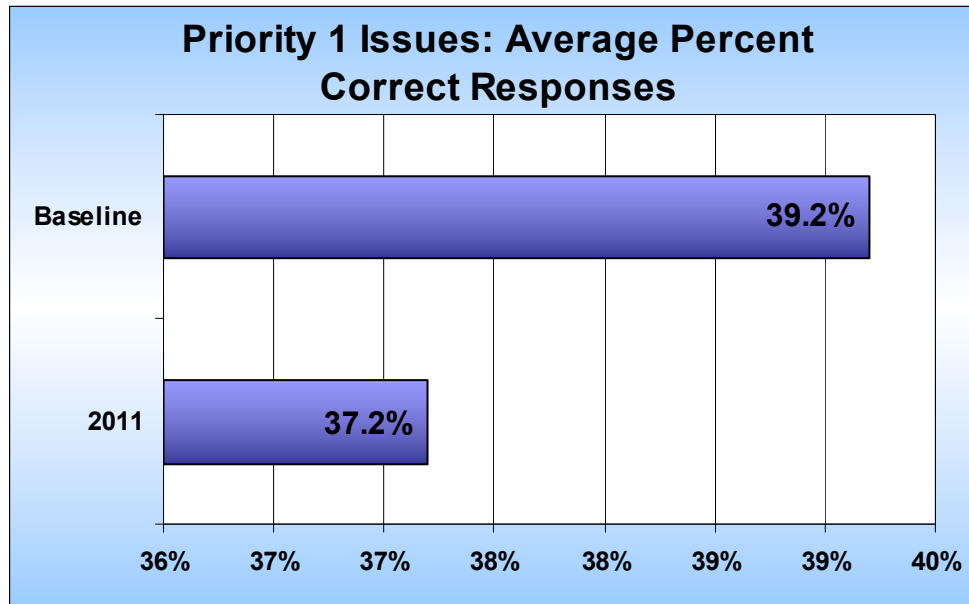
Rank for Education	Question	n		% Correct		% Change from Baseline	Level of Significance
		Baseline	2011	Baseline	2011		
1	15. The runoff from washing a car with biodegradable soap is safe in stormwater drains. D	491	100	28.8% 1	28.0% 1	-0.8%	0.862
2	3. Drains on city streets for stormwater are connected to the same sanitary sewer system used for treating human waste. D	491	100	46.7% 6	33.5% 2	-13.2%	0.019
3	16. When I wash a motor vehicle at home, the soapy water ends up in a ditch or on the street. D Adopt	412	89	29.5% 2	38.4% 3	8.9%	0.112
4	28. Bricks or pavers offer no advantage for reducing runoff over concrete or asphalt pavement. D	491	100	37.5% 3	38.4% 4	0.9%	0.921
5	5. Pollution in our rivers, wetlands and lakes and in Puget Sound is more the result of industrial dumping practices than individual human activity. D	491	100	42.6% 5	38.7% 5	-3.9%	0.496
6	19. Grass clippings and leaves are not regarded as harmful in stormwater. D	491	100	47.8% 7	39.3% 6	-8.5%	0.109
7	21. Sediment or dirt in stormwater is natural and not regarded as pollution. D	491	100	41.7% 4	44.0% 7	2.3%	0.667

*Blue indicates a question dealing with behavior, what the respondent does. Percents apply only to respondents who said the question applied to them.

Table Note: All “Does not apply” responses to knowledge questions were added to the “Incorrect” response category since all knowledge questions apply to all respondents. This rule applies to all the tables in the report.

Figure 3 shows that, for Priority 1 issues, the percent of correct responses for the baseline group is higher than for Granite Falls. The lower percent of correct responses is primarily due to the public's lack of understanding that stormwater drains are not connected to the sanitary sewer system (question 3) and the public's lack of knowledge that grass clippings and leaves are harmful in stormwater runoff (question 19).

Figure 3: Overall Percent Correct Responses to Priority 1 Issues



Future stormwater education should focus on the following educational messages:

- *Biodegradable soap is not a safe addition to stormwater drains and should be kept from entering the stormwater drainage system.*
- *The water in stormwater drains is not connected to the sanitary sewer system nor is it treated in any way to remove pollutants before being released into the environment. Therefore, the quality of stormwater going into the drainage system is what determines the level of pollution in surface water.*
- *To best protect the environment, soapy water from washing the car is best handled by allowing it to be absorbed by a lawn or the ground. It should not be allowed to flow into the street or into a drainage ditch.*
- *Bricks or pavers help to reduce the volume of stormwater runoff and, therefore, help to reduce stormwater pollution in the environment.*
- *The primary cause of pollution in stormwater runoff is individual human activity, not industrial dumping. Success in reducing environmental pollution depends upon everyone's participation in helping to make a difference.*
- *Grass clippings and leaves in stormwater are regarded as pollution and should be kept out of the stormwater drainage system.*
- *Sediment is pollution and should be prevented from entering the stormwater drainage system.*

Priority 2 Issues: From 50-80% Correct Answers

Priority 2 issues represent areas of knowledge and behavior where from 50% to 80% of the respondents provided the correct response. Eleven issues made this list in 2011 which constitutes 40.7% of the 27 issues tested which is the highest number of issues among the three priority divisions. Of the eleven issues on the Priority 2 list for Granite Falls, nine were common to Granite Falls and the baseline group.

Table 2 below shows the percent of correct answers for Priority 2 issues in Granite Falls in 2011 compared to the baseline group. Results show the a significantly lower percent of correct answers in Granite Falls for five of the eleven issues. No issues showed a statistically significant higher percent of correct responses in Granite Falls compared to the baseline group. The results for the remaining issues showed no statistical difference.

The issues where Granite Falls residents showed significantly less knowledge or engaged in the correct behavior less often compared to the baseline communities were:

- *Washing a vehicle at a commercial car wash causes less pollution than washing a vehicle at home with biodegradable soap.*
- *The best place to clean paint brushes is in a sink that drains into the sanitary sewer system, not outdoors.*
- *The residue from chemical treatments that kill moss is a source of pollution.*
- *Hard surfaces are significant contributors to pollution in stormwater runoff.*
- *All pet waste should be picked up when outside.*

Table 2. Priority 2 Issues for Public Education and Social Marketing

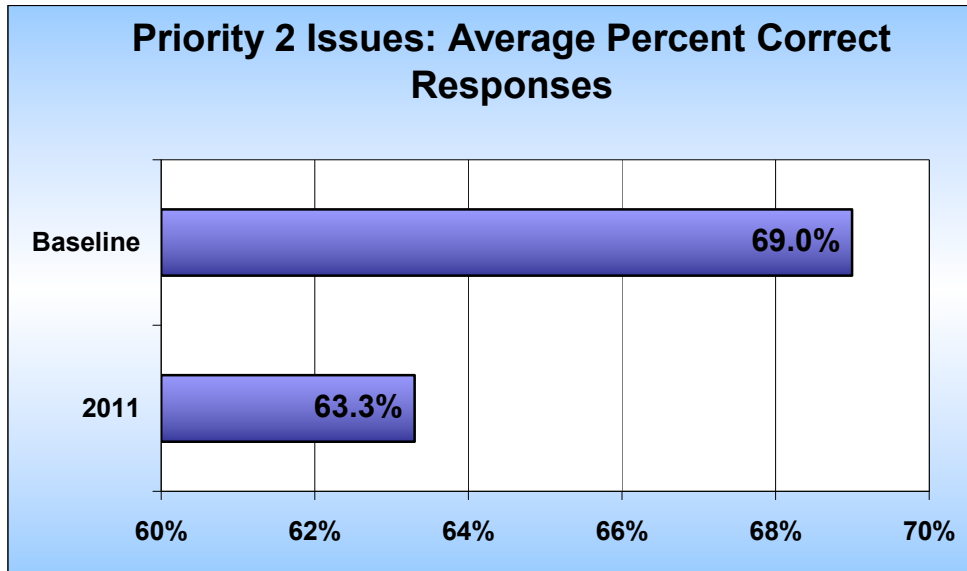
Rank for Education	Question	n		% Correct		% Change from Baseline	Level of Significance
		Baseline	2011	Baseline	2011		
8	17. Washing a vehicle at a commercial car wash causes less pollution than washing a vehicle	491	100	62.4% 11	50.8% 8	-11.6%	0.034
9	6. All water going into stormwater drains on the street is treated before being discharged into the environment. D	491	100	56.9% 9	52.1% 9	-4.8%	0.367
10	4. Stormwater runoff is the leading cause of pollution in rivers, wetlands and lakes. A	491	100	54.7% 8	52.4% 10	-2.3%	0.625
11	18. The best place to dispose of water from cleaning a Latex paint brush is in a sink inside, not outdoors. A	491	100	64.4% 12	54.6% 11	-9.8%	0.078
12	20. Chemical treatments to kill moss on roofs pose little risk for polluting stormwater. D	491	100	70.8% 14	61.2% 12	-9.6%	0.055
13	29. An <i>illicit</i> or <i>unlawful stormwater discharge</i> is primarily defined as anything that enters a storm drain system that is not made up entirely of stormwater. A	491	100	58.3% 10	61.8% 13	3.5%	0.487
14	7. Hard surfaces such as roads and driveways are not significant sources of pollution in stormwater. D	491	100	76.4% 19	68.2% 14	-8.2%	0.017
15	10. Scrubbing oil and grease spots on outdoor concrete or asphalt with soap and hosing it off is a good way to prevent polluting stormwater runoff. D	491	100	73.9% 15	69.7% 15	-4.2%	0.418
16	27. Carpet shampoo wastewater can be safely added to a stormwater drain. D	491	100	75.0% 17	73.6% 16	-1.4%	0.842
17	8. When I am outside with my pet, I always pick up my pet's waste. A Adopt	301	75	92.1% 23	74.7% 17	-17.4%	< 0.001
18	23. Using a mulching lawnmower reduces the need to fertilize a lawn. A	491	100	74.3% 16	76.7% 18	2.4%	0.576

*Blue indicates a question dealing with what the respondent does. Percents apply only to respondents who said the question applied to them.

While more than half the public knowing a correct answer to these issues represents a desirable level of public knowledge, the goal remains to achieve a fully informed public. Consequently, these areas continue to represent genuine opportunities for further public education.

Figure 4 shows that the percent of correct responses for Priority 2 issues in Granite Falls is substantially lower than for the baseline group. The decrease in the percent of correct responses is primarily due to the five questions showing significantly fewer correct answers compared to baseline (questions 17, 18, 20, 7 and 8). Particularly important is the lower number of correct responses in Granite Falls to the issue of picking up pet waste (question 8). While nine out of ten baseline respondents (92.1%) said they picked up their pet's waste when outside, only seven out of ten Granite Falls residents (74.7%) reported always picking up pet waste.

Figure 4: Percent Correct Responses to Priority 2 Issues



Ongoing education and social marketing that addresses Priority 2 issues continues to be needed. The following issues should be addressed in future programming:

- *Washing a vehicle at a commercial car wash causes less pollution than washing a vehicle at home with biodegradable soap.*
- *All water going into stormwater drains is **not** treated before being discharged into the environment.*
- *Stormwater runoff is the leading cause of pollution in rivers, wetlands and lakes. Therefore, to reduce environmental pollution, the challenge to the community is to help keep stormwater runoff pollution free.*
- *The best place to clean paint brushes is in a sink that drains into the sanitary sewer system, not outdoors.*
- *The residue from chemical treatments that kill moss is a source of pollution.*
- *An illicit or illegal discharge is anything that enters a storm drain system that is not made up entirely of stormwater.*
- *Hard surfaces are significant contributors to pollution in stormwater runoff. Hence, it is important to keep hard surfaces clean using acceptable cleaning techniques and, where possible, use pervious surfaces.*

- *Applying soap to oil and grease spots on outdoor concrete or asphalt and rinsing it off with a hose is not a good method for protecting stormwater runoff.*
- *Carpet shampoo waste water causes pollution to the environment and should not be disposed of in a stormwater drain.*
- *Pick up all pet waste when outside.*
- *A mulching lawn mower reduces the need for using fertilizer and, hence, represents a valuable method for eliminating fertilizer pollution in stormwater.*

One issue on the Priority 2 list should be included among the Priority 1 items as an issue that is fundamental to increasing responsible action in the public domain. About four out of ten respondents were not aware that all water going into stormwater drains on the street is not treated before being discharged into the environment. Correcting this lack of understanding can be a major step forward to expanded public recognition and alertness to actions that contribute to surface water pollution and to subsequent behavioral improvement. Awareness of the problem is the first necessary step on the road to behavioral change.

A second issue on the Priority 2 list that should be elevated to Priority 1 is knowledge of the definition of an illicit discharge. About a third of the respondents were not aware that anything in stormwater other than water is pollution. As a beginning point and a key precursor for positive action, knowing the definition of an illicit discharge will help individuals make better decisions regarding how to protect stormwater quality when facing new situations with a potential for creating pollution.

Priority 3 Issues: More than 80% Correct Answers

Priority 3 issues represent areas of knowledge or behavior where more than 80% of the respondents provided the correct response. Nine issues made this list in 2011, which constitutes 33.3% of the 27 issues tested. Eight of the nine issues involved behavior. Seven of the nine issues appearing on the Priority 3 list are common to Granite Falls and the baseline group.

Table 3 below shows the percent of correct answers for Priority 3 issues in 2011 compared to the baseline. Results showed significant differences between Granite Falls respondents and the baseline group in five of the nine issues. Three issues showed a statistically significant higher percent of correct responses and two issues showed a significantly lower percent. The results for the remaining issues showed no change. The issues where the Granite Falls public showed a significantly higher percent of correct responses were:

- *Directing downspouts to areas where rainwater can be absorbed by the soil.*
- *Cleaning up oil and grease spots on outdoor concrete or asphalt using soap and the residue being absorbed with kitty litter or paper towels which is then disposed of in the garbage can.*
- *Recycling all used motor oil produced by the household.*

The two issues where Granite Falls showed a significantly lower percent of correct responses were:

- *Applying insecticides or weed killer at recommended rates.*
- *Storing all yard fertilizers and pesticides inside a building or covered area out of the rain.*

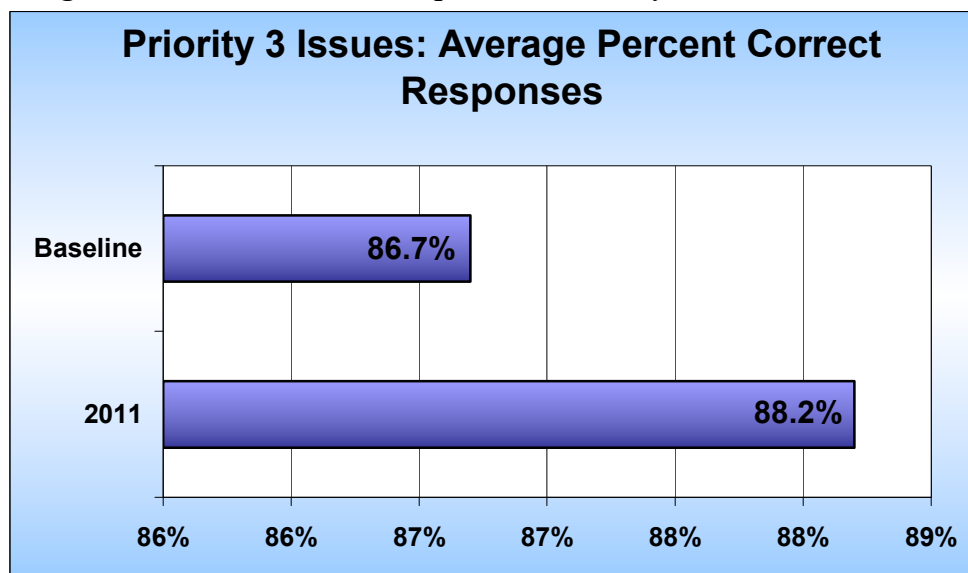
Table 3. Priority 3 Issues for Public Education and Social Marketing

Rank for Education	Question	n		% Correct		% Change from Baseline	Level of Significance
		Baseline	2011	Baseline	2011		
19	11. If my car or truck is dripping oil, I make sure the leak is fixed within three weeks. A Adopt	452	95	87.1% 22	82.2% 19	-4.9%	0.215
20	12. All of my family's auto or truck parts with oil or grease on them are stored under a roof or cover. A Adopt	399	90	86.1% 21	83.6% 20	-2.5%	0.522
21	25. In the past 12 months, I may have applied a higher dose of insecticide or weed killer around my house than the directions say to use. D Adopt	424	88	93.9% 24	85.6% 21	-8.3%	0.012
22	22. The downspouts at my house convey the water to an area where it is absorbed by the ground. A Adopt	484	99	70.7% 13	86.7% 22	16.0%	0.001
23	9. The best way to clean up spilled oil on the driveway is to fully absorb it using kitty litter or paper towels and deposit this waste in a garbage can. A	491	100	75.2% 18	88.0% 23	12.8%	0.005
24	13. My household recycles all used motor oil. A Adopt	399	87	79.0% 20	88.1% 24	9.1%	0.041
25	14. My family stores all containers holding oil or antifreeze under a roof or cover. A Adopt	426	92	95.1% 25	92.6% 25	-2.5%	0.291
26	26. In the past 12 months, I may have used more fertilizer or applied it more frequently than the label directions require. D Adopt	416	87	95.3% 26	93.2% 25	-2.1%	0.406
27	24. My household stores all yard fertilizers and pesticides inside a building or in a covered area out of the rain. A Adopt	425	89	97.5% 27	94.0% 27	-3.5%	0.129

*Blue indicates a question dealing with what the respondent does. Percents apply only to respondents who said the question applied to them.

Figure 5 shows that the percent of correct responses for Priority 3 Issues for Granite Falls was higher than for the baseline. The increase is due to the three issues where respondents gave significantly more correct responses. The more rural character of Granite Falls residents compared to baseline residents may account for the significantly higher number of respondents who reported directing their downspouts to areas where rain water can be absorbed by the ground rather than conveyed to the stormwater drainage system. Granite Falls residents appear to also be more knowledgeable about cleaning up spilled oil (question 9) and more careful to recycle used motor oil (question 13).

Figure 5: Percent Correct Responses to Priority 3 Issues



The relatively high percent of Granite Falls respondents giving the correct responses in this category suggests that high behavioral compliance continues to take place. At minimum, it can be said that respondents knew the right thing to do and answered accordingly. To maintain and increase positive behaviors, it remains advisable to continue educating the public on these issues. Because of the already high level of knowledge/compliance, the degree of emphasis on these issues may be lower compared to Priority 1 and Priority 2 issues.

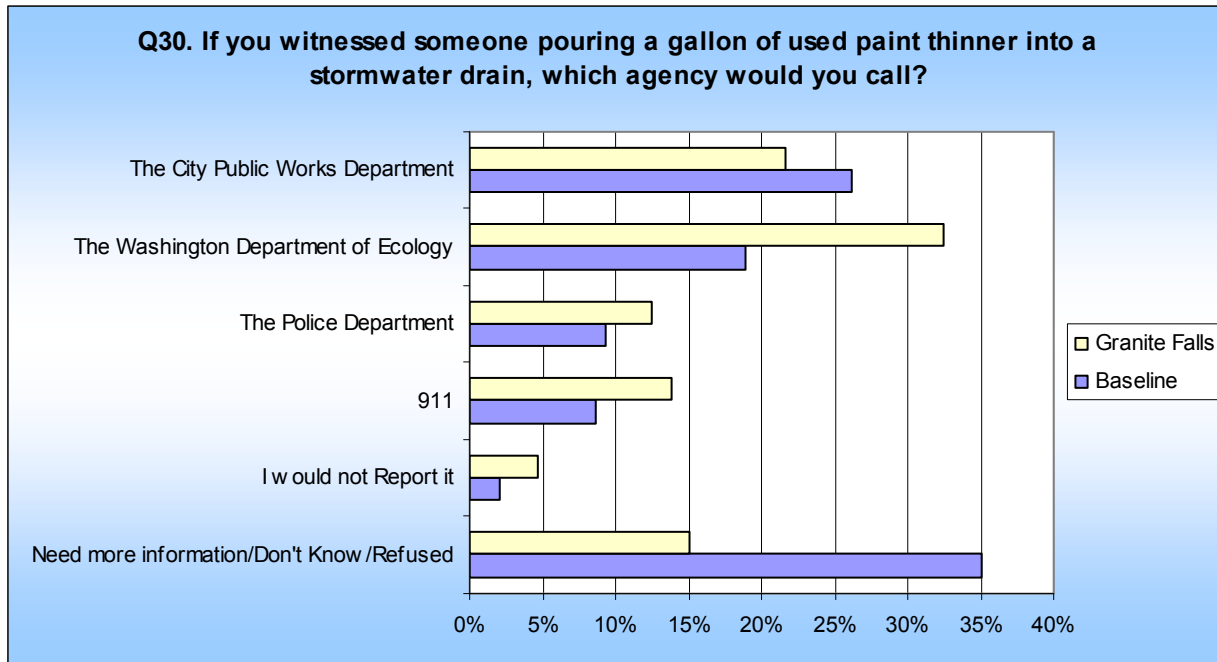
The following messages should be included in public education and social marketing programs:

- *Fix auto or truck oil leaks within three weeks.*
- *Store auto or truck parts with oil or grease on them under a roof or cover.*
- *Apply insecticides or weed killer at recommended rates.*
- *Direct downspouts to areas where rainwater can be absorbed by the soil.*
- *Oil and grease spots on outdoor concrete or asphalt should be cleaned up with soap and the residue absorbed using kitty litter or paper towels which should then be disposed of in the garbage can.*
- *Recycle all used motor oil.*
- *Store containers holding oil or antifreeze under a roof or cover.*
- *Apply fertilizer at recommended rates.*
- *Store all yard fertilizers and pesticides inside a building or in a covered area out of the rain.*

Reporting an Illicit Discharge

To report an illicit discharge, respondents would call a variety of agencies with only 21.6% of residents calling their City Public Works Department, the correct choice. Compared to the baseline communities where 26.1% would report it properly, Granite Falls residents appear less informed about where to report an illegal discharge. About eight out of ten Granite Falls adults remain unaware of the proper agency to call to report an illicit discharge.

Figure 7: Reporting an Illicit Discharge



The percent of responses given for each response category (agency) appears in Table 4 below.

Table 4. Percent Reporting an Illicit Discharge to an Agency

Agency	Baseline	2011
The City Public Works Department	26.1%	21.6%
The Washington Department of Ecology	18.9%	32.4%
The Police Department	9.3%	12.4%
911	8.6%	13.9%
I would not Report it	2.0%	4.6%
Need more information/Don't Know/Refused	35.1%	15.1%

Baseline Stormwater Survey Results for 16 Cities

The following three tables present the percent correct answers for each of sixteen cities that have administered a baseline survey beginning in the summer of 2009 through April of 2011. The priority ranking for education across all sixteen cities was determined by the average percent of correct responses across cities for each question (column labeled All Cities).

Rank for Education
1
2
3
4-9
10-18
19-23
24
25
26
27

The ranking of issues for each city is also presented with a color code as illustrated in the “Rank for Education” table on the left. The top rank item for education for a designated city is colored bright green. Also a “1” appears underneath the percentage in the cell. The least important issue is a magenta color with “27” appearing underneath the percentage in the cell. Color coding provides a quick overview of how municipalities compare.

Baseline Stormwater Survey Results for 16 Cities: Priority 1 Issues

Table 11. Priority 1 Issues (Under 50% Correct Responses) for Sixteen Northwest Washington Cities

Rank for Education	Question	% Correct Responses by Area																
		All Cities	Aberdeen	Centralia	Duvall	Edmonds	Enumclaw	Kenmore	Kent	Lakewood	Maple Valley	Mercer Island	Mill Creek	Mountlake Terrace	Mukilteo	Newcastle	Tukwila	Woodinville
1	15. The runoff from washing a car with biodegradable soap is safe in stormwater drains. D	29.8% 1	23.8% 1	18.3% 1	30.4% 1	31.8% 1	32.4% 1	36.6% 2	24.5% 1	31.7% 3	22.5% 2	26.5% 1	31.8% 2	23.3% 2	22.8% 1	31.4% 3	31.0% 1	30.7% 1
2	16. When I wash a motor vehicle at home, the soapy water ends up in a ditch or on the street. D Adopt	35.1% 2	47.4% 6	44.8% 7	36.8% 3	37.1% 2	42.4% 4	36.2% 1	32.3% 4	33.0% 4	19.5% 1	35.2% 2	24.9% 1	21.4% 1	38.9% 4	19.2% 1	45.8% 4	33.3% 2
3	28. Bricks or pavers offer no advantage for reducing runoff over concrete or asphalt pavement. D	38.2% 3	36.8% 3	30.9% 3	48.9% 7	40.8% 3	48.3% 8	46.3% 6	31.2% 2	30.0% 2	38.4% 4	49.1% 5	39.6% 3	30.3% 4	33.1% 2	29.9% 2	42.1% 2	34.4% 3
4	5. Pollution in our rivers, wetlands and lakes and in Puget Sound is more the result of industrial dumping practices than individual human activity. D	40.0% 4	34.4% 2	41.2% 6	40.4% 6	43.8% 5	39.4% 3	44.2% 4	31.6% 3	35.5% 5	44.2% 5	47.7% 4	44.1% 6	41.3% 6	39.2% 5	46.9% 7	43.6% 3	37.6% 5
5	21. Sediment or dirt in stormwater is natural and not regarded as pollution. D	42.7% 5	50.5% 8	38.0% 4	38.0% 4	52.6% 6	46.3% 6	43.8% 3	41.6% 6	50.7% 8	32.5% 3	49.2% 6	44.1% 5	29.0% 3	36.8% 3	33.6% 4	53.3% 7	36.0% 4
6	19. Grass clippings and leaves are not regarded as harmful in stormwater. D	46.6% 6	47.0% 5	40.2% 5	49.2% 8	43.3% 4	43.8% 5	50.7% 7	46.5% 8	53.4% 9	45.9% 6	40.7% 3	49.2% 7	47.0% 8	53.5% 6	46.7% 6	50.0% 6	41.5% 6
7	3. Drains on city streets for stormwater are connected to the same sanitary sewer system used for treating human waste. D	46.7% 7	56.4% 10	28.4% 2	36.7% 2	55.1% 7	36.6% 2	45.3% 5	40.6% 5	27.5% 1	49.0% 7	57.5% 9	40.5% 4	41.6% 7	53.9% 7	45.9% 5	46.5% 5	50.9% 7

Baseline Stormwater Survey Results for 16 Cities: Priority 2 Issues

Table 12. Priority 2 Issues (50% to 80% Correct Responses) for Sixteen Northwest Washington Cities

Rank for Education	Question	% Correct Responses by Area																
		All Cities	Aberdeen	Centralia	Duvall	Edmonds	Enumclaw	Kenmore	Kent	Lakewood	Maple Valley	Mercer Island	Mill Creek	Mountlake Terrace	Mukilteo	Newcastle	Tukwila	Woodinville
8	4. Stormwater runoff is the leading cause of pollution in rivers, wetlands and lakes. A	53.2% 8	49.2% 7	54.8% 10	39.8% 5	59.6% 9	52.3% 10	62.1% 10	56.1% 9	46.5% 6	57.1% 9	56.6% 8	50.6% 9	53.9% 9	59.5% 8	56.2% 8	60.7% 10	58.6% 9
9	17. Washing a vehicle at a commercial car wash causes less pollution than washing a vehicle on the street using a biodegradable soap. A	57.8% 9	44.4% 4	52.3% 9	52.3% 9	72.8% 14	51.7% 9	62.2% 11	58.9% 10	48.7% 7	55.9% 8	78.7% 20	57.1% 10	64.2% 11	64.6% 10	67.8% 12	62.5% 12	53.9% 8
10	6. All water going into stormwater drains on the street is treated before being discharged into the environment. D	58.2% 10	56.1% 9	46.8% 8	59.6% 11	61.0% 11	56.2% 11	58.3% 9	44.1% 7	58.1% 11	59.4% 10	67.7% 14	50.0% 8	56.3% 10	67.2% 12	57.7% 9	59.1% 9	59.6% 10
11	29. An illicit or unlawful stormwater discharge is primarily defined as anything that enters a storm drain system that is not made up entirely of stormwater. A	58.3% 11	66.9% 13	59.2% 12	66.4% 16	60.8% 10	48.2% 7	57.0% 8	67.2% 13	66.8% 12	62.6% 11	60.1% 11	67.6% 13	37.6% 5	63.5% 9	58.4% 10	58.5% 8	59.7% 11
12	18. The best place to dispose of water from cleaning a Latex paint brush is in a sink inside, not outdoors. A	63.2% 12	58.6% 11	63.2% 15	64.5% 14	59.0% 8	60.4% 12	63.8% 12	59.5% 11	57.1% 10	68.5% 14	66.3% 12	62.8% 11	67.8% 14	68.7% 15	70.6% 15	64.0% 13	64.9% 13
13	20. Chemical treatments to kill moss on roofs pose little risk for polluting stormwater. D	65.0% 13	66.5% 12	60.9% 13	62.4% 12	74.1% 15	60.5% 13	64.5% 13	66.6% 12	69.9% 14	63.6% 12	59.5% 10	70.4% 15	66.8% 13	68.2% 13	62.7% 11	61.5% 11	60.5% 12
14	27. Carpet shampoo wastewater can be safely added to a stormwater drain. D	70.5% 14	72.6% 15	60.9% 14	63.9% 13	76.2% 17	76.9% 18	66.0% 14	69.2% 14	73.1% 17	77.9% 17	56.2% 7	75.7% 19	70.6% 15	85.2% 21	70.0% 13	77.4% 16	69.8% 14
15	7. Hard surfaces such as roads and driveways are not significant sources of pollution in stormwater. D	70.7% 15	74.6% 17	58.8% 11	59.0% 10	80.3% 21	75.8% 16	69.5% 15	69.9% 15	70.4% 15	67.3% 13	76.4% 17	72.7% 17	83.7% 20	68.6% 14	70.4% 14	71.9% 15	71.9% 16
16	10. Scrubbing oil and grease spots on outdoor concrete or asphalt with soap and hosing it off is a good way to prevent polluting stormwater runoff. D	72.6% 16	74.9% 18	67.1% 16	65.4% 15	79.2% 19	77.2% 19	71.9% 16	73.3% 18	71.1% 16	78.2% 18	76.7% 18	70.8% 16	73.5% 16	74.2% 16	74.9% 18	67.2% 14	71.8% 15
17	22. The downspouts at my house convey the water to an area where it is absorbed by the ground. A Adopt	73.5% 17	75.3% 19	88.7% 22	69.2% 17	72.3% 13	71.1% 14	79.4% 18	71.1% 16	88.4% 24	77.6% 16	66.5% 13	65.4% 12	84.9% 21	66.1% 11	72.9% 16	85.6% 23	82.3% 20
18	23. Using a mulching lawnmower reduces the need to fertilize a lawn. A	75.1% 18	72.4% 14	76.7% 18	89.6% 23	79.3% 20	81.4% 20	75.7% 17	74.9% 19	69.8% 13	73.9% 15	73.9% 15	69.3% 14	81.9% 19	75.2% 17	73.6% 17	78% 17	75.9% 17
19	9. The best way to clean up spilled oil on the driveway is to fully absorb it using kitty litter or paper towels and deposit this waste in a garbage can. A	77.2% 19	78.5% 21	75.8% 17	70.1% 18	69.7% 12	83.7% 22	82.4% 19	75.4% 20	75.7% 18	83.5% 21	75.0% 16	75.6% 18	81.0% 18	77.1% 18	79.5% 19	81.8% 19	78.8% 18

Baseline Stormwater Survey Results for 16 Cities: Priority 3 Issues

Table 13. Priority 3 Issues (Over 80% Correct Responses) for Sixteen Northwest Washington Cities

Rank for Education	Question	% Correct Responses by Area																
		All Cities	Aberdeen	Centralia	Duvall	Edmonds	Enumclaw	Kenmore	Kent	Lakewood	Maple Valley	Mercer Island	Mill Creek	Mountlake Terrace	Mukilteo	Newcastle	Tukwila	Woodinville
20	13. My household recycles all used motor oil. A Adopt	81.1% 20	87.1% 23	87.3% 21	77.0% 19	76.1% 16	75.0% 15	91.2% 25	82.4% 21	83.7% 20	84.9% 22	86.5% 21	87.4% 20	66.7% 12	79.9% 19	83.9% 20	80.3% 18	82.0% 19
21	12. All of my family's auto or truck parts with oil or grease on them are stored under a roof or cover. A Adopt	82.0% 21	73.9% 16	81.8% 20	88.0% 21	77.0% 18	76.5% 17	85.6% 23	72.2% 17	86.9% 22	81.6% 19	78.6% 19	88.6% 21	93.3% 23	83.8% 20	85.8% 21	82.0% 20	84.2% 21
22	11. If my car or truck is dripping oil, I make sure the leak is fixed within three weeks. A Adopt	87.5% 22	86.2% 22	90.0% 25	89.5% 22	89.4% 22	84.1% 23	86.0% 24	87.4% 22	86.7% 21	82.8% 20	96.3% 24	90.5% 22	78.7% 17	91.8% 25	88.7% 23	85.5% 22	94.1% 25
23	8. When I am outside with my pet, I always pick up my pet's waste. A Adopt	87.7% 23	75.4% 20	76.8% 19	84.9% 20	89.6% 23	82.2% 21	84.9% 21	93.8% 26	88.3% 23	89.4% 24	95.3% 22	94.2% 23	93.1% 22	85.9% 22	95.8% 26	85.4% 21	86.5% 22
24	25. In the past 12 months, I may have applied a higher dose of insecticide or weed killer around my house than the directions say to use. D Adopt	91.1% 24	89.5% 24	93.8% 27	97.0% 25	91.1% 24	92.1% 24	83.3% 20	92.0% 25	89.7% 25	89.9% 25	95.8% 23	96.9% 25	98.7% 27	88.8% 23	88.4% 22	91.1% 24	89.4% 24
25	26. In the past 12 months, I may have used more fertilizer or applied it more frequently than the label directions require. D Adopt	91.6% 25	90.9% 25	89.1% 23	92.8% 24	91.8% 25	94.2% 26	85.2% 22	89.9% 23	83.5% 19	89.0% 23	96.3% 25	98.4% 26	98.1% 25	89.0% 24	91.3% 24	93.2% 25	89.0% 23
26	14. My family stores all containers holding oil or antifreeze under a roof or cover. A Adopt	94.1% 26	96.3% 27	89.8% 24	97.7% 27	93.1% 26	92.7% 25	93.7% 26	91.0% 24	90.0% 26	95.9% 26	97.2% 26	96.8% 24	98.5% 26	95.8% 26	93.1% 25	93.2% 26	98.6% 27
27	24. My household stores all yard fertilizers and pesticides inside a building or in a covered area out of the rain. A Adopt	95.0% 27	95.9% 26	93.0% 26	97.3% 26	93.8% 27	94.3% 27	95.0% 27	94.5% 27	91.1% 27	99.1% 27	98.3% 27	99.7% 27	97.2% 24	98.1% 27	96.5% 27	98.2% 27	97.7% 26

Key Findings and Recommendations

Key Findings

- The perception among Granite Falls residents of the overall quality of water in our rivers, wetlands and lakes and in Puget Sound is at the same level as the baseline reference group.
- Taken as a whole, the list of Priority 1 issues for Granite Falls and the baseline group is identical. Compared to the baseline group, the public's knowledge and behavior in Granite Falls regarding seven Priority 1 issues is significantly higher on one issue and significantly lower on two issues.
- The public's knowledge and behavior in Granite Falls regarding Priority 2 issues is significantly lower than the baseline group regarding five issues. Granite Falls respondents did not provide significantly more correct responses than the baseline group on any issue on the Priority 2 list. Of the eleven issues on the Priority 2 list, nine were common to Granite Falls and the baseline group.
- The public's knowledge and behavior in Granite Falls regarding Priority 3 issues is significantly lower than the baseline group on two issues and significantly higher on three issues. Of the nine issues on the Priority 3 list, seven were common to Granite Falls and the baseline group.
- A lower percent of Granite Falls residents would call the Public Works Department to report an illicit discharge compared to the baseline group. Only about one in five Granite Falls residents would call the proper agency, while about one in four of the baseline group would make the right contact.

The four issues where Granite Falls respondents gave a significantly higher percent of correct responses compared to the baseline group involved washing a motor vehicle in a location where the soap can be absorbed by the ground, cleaning up spilled oil in the right way, recycling used motor oil and directing downspout water to areas where it will be absorbed by the ground. While these issues are important, the areas where a *significantly lower percent* of correct answers were provided by Granite Falls residents cover a much wider range with potentially higher impact on water quality. These issues include: knowing that stormwater drains are not connected to the sanitary sewer system, keeping grass clippings out of storm drains, pouring wastewater from cleaning a Latex paint brush into a sink inside, picking up all pet waste when outside, applying insecticide and weed killer in proper amounts, and storing all pesticides and fertilizers in a covered area. Enhancing the public's knowledge and behaviors in these areas can lead to improvement in a range of diverse areas with wider overall impact.

Recommendations

The fact that seven issues remain on the Priority 1 list for public education and eleven issues on the Priority 2 list demonstrates that educational efforts and social marketing must continue. If the goal is a well-informed public that universally engages in practices that are highly protective of the quality of water entering the stormwater drainage system, additional and more powerful methods of raising the public's knowledge and motivating desired behavior must be implemented for the foreseeable future.

These survey results provide a valid assessment of differences between Granite Falls residents and four reference cities in the same county. It elucidates the degree to which the Granite Falls public is aware of and knowledgeable about key stormwater issues and is knowledgeable about desirable practices if not already engaging in them. The results serve well as a guide to prioritizing continuing educational programming and social marketing. These results also provide a measure of progress in educating the residents in Granite Falls in order to achieve high quality surface waters within the local community and throughout the Puget Sound region.

The City of Granite Falls

STORMWATER COMMUNITY SURVEY QUESTIONNAIRE

MARCH, 2010

V3.4

Hello, my name is _____ and I am calling on behalf of the City of Granite Falls.

[IF SPEAKING TO A CHILD] May I speak to someone who is at least 18 years of age? Thank you. **[RE-INTRODUCE YOURSELF]**

Hello, my name is _____ and I am calling on behalf of the City of Granite Falls. We are asking citizens about an important environmental issue and we would like to include your opinions. All your answers are strictly confidential and will not be connected to your name.

S1. [SCREENING QUESTION] Before we actually begin, I need to verify your city/county. What city/county do you live in?

1. Granite Falls
2. Other Municipality **[THANK AND POLITELY DICONINUE]**
3. Don't Know **[THANK AND POLITELY DICONINUE]**
4. Refused **[THANK AND POLITELY DICONINUE]**

1. What is your age? **[RECORD NUMBER]**

2. Great, thank you. My first question is about the water in our area. I'd like you to rate your perception of the overall quality of the water in our rivers, wetlands and lakes and in Puget Sound. By "quality of water" I mean how free it is from pollution. Rate it on a 0 to 10 scale where "0" means the water is "extremely polluted" and 10 means the water is "extremely clean." **[RECORD NUMBER]**

[READ]

Now, I'm going to read a number of statements to you regarding stormwater. Some of these statements may be true, they all may be true or they all may be false. If you believe that a statement is true, please say "Agree." If you believe the statement is false, say "Disagree." If you are not certain about the statement and need more information, you can answer with "need more information." If the question does not apply to you or your family, say "Doesn't Apply." Here is the first one. Do you Agree, Disagree or need more information about the following statement:

Responses for each:

1. Agree
2. Disagree
3. Need more information
4. Uncertain, Don't Know
5. Refused
6. Doesn't Apply

NOTE: Following each statement, you will see the correct answer indicated by an "A" for Agree or a "D" for Disagree. When the word "Adopt" appears, it means the statement addresses whether or not the respondent has "Adopted the correct behavior."

3. Drains on city streets for stormwater are connected to the same sanitary sewer system used for treating human waste. **D**
4. Stormwater runoff is the leading cause of pollution in rivers, wetlands and lakes. **A**
5. Pollution in our rivers, wetlands and lakes and in Puget Sound is more the result of industrial dumping practices than individual human activity. **D**
6. All water going into stormwater drains on the street is treated before being discharged into the environment. **D**

[ROTATE Q7-Q28] [NOTE: These questions will be asked in a random order to prevent sequencing bias.]

[AFTER ASKING THE NEXT NINE QUESTIONS, SAY: You are doing really well. We are halfway through and I'll try to get through this as quickly as I can. Here's the next one, do you Agree, Disagree or Need More Information about this statement.]

7. Hard surfaces such as roads and driveways are not significant sources of pollution in stormwater. **D**
8. When I am outside with my pet, I always pick up my pet's waste. **A Adopt**
9. The best way to clean up spilled oil on the driveway is to fully absorb it using kitty litter or paper towels and deposit this waste in a garbage can. **A**
10. Scrubbing oil and grease spots on outdoor concrete or asphalt with soap and hosing it off is a good way to prevent polluting stormwater runoff. **D**
11. If my car or truck is dripping oil, I make sure the leak is fixed within three weeks. **A Adopt**
12. All of my family's auto or truck parts with oil or grease on them are stored under a roof or cover. **A Adopt**

13. My household recycles all used motor oil. **A Adopt**
14. My family stores all containers holding oil or antifreeze under a roof or cover. **A Adopt**
15. The runoff from washing a car with biodegradable soap is safe in stormwater drains. **D**
16. When I wash a motor vehicle at home, the soapy water ends up in a ditch or on the street. **D Adopt**
17. Washing a vehicle at a commercial car wash causes less pollution than washing a vehicle on the street using a biodegradable soap. **A**
18. The best place to dispose of water from cleaning a Latex paint brush is in a sink inside, not outdoors. **A**
19. Grass clippings and leaves are not regarded as harmful in stormwater. **D**
20. Chemical treatments to kill moss on roofs pose little risk for polluting stormwater. **D**
21. Sediment or dirt in stormwater is natural and not regarded as pollution. **D**
22. The downspouts at my house convey the water to an area where it is absorbed by the ground. **A Adopt**
23. Using a mulching lawnmower reduces the need to fertilize a lawn. **A**
24. My household stores all yard fertilizers and pesticides inside a building or in a covered area out of the rain. **A Adopt**
25. In the past 12 months, I may have applied a higher dose of insecticide or weed killer around my house than the directions say to use. **D Adopt**
26. In the past 12 months, I may have used more fertilizer or applied it more frequently than the label directions require. **D Adopt**
27. Carpet shampoo wastewater can be safely added to a stormwater drain. **D**
28. Bricks or pavers offer no advantage for reducing runoff over concrete or asphalt pavement. **D**
29. An *illicit or unlawful stormwater discharge* is primarily defined as anything that enters a storm drain system that is not composed entirely of stormwater. **A**
30. If you witnessed someone pouring a gallon of used paint thinner into a stormwater drain, which agency would you call first to report it: **[READ 1-5]**

1. The Washington Department of Ecology

2. The police department
3. The city Public Works Department A
4. 911
5. Need more information
6. I would not report it
7. Don't Know/Refused
8. Other [SPECIFY]

That concludes our survey. I want to thank you very much for your time and cooperation. You have been very helpful. Have a good day!

POSTCODE GENDER:

1. MALE

2. FEMALE

DATE: _____ INTERVIEWER: _____