

# Pre-Campaign Results for the Clean Water Education Partnership

## **Methodology**

This zip code specific sub-sample of 234 was pulled from data collected in 2005 for a Storm Water Awareness Survey sponsored by NC DENR. The sample for the original research was comprised of 1,000 responses spanning the entire state of North Carolina (95% confidence level with a  $\pm 3.1$  confidence interval). This sub-sample of 234 (95% confidence level with a  $\pm 6.4$  confidence interval), represents the Triangle J CoG region and will serve as comparison data for a post-campaign awareness survey regarding storm water.

## **Demographics**

The sub-sample consisted of 58 percent women and 42 percent men, with the majority being white (52 percent), 18 percent being African American, and 11 percent being Hispanic. Most participants were not retired (69 percent) and were between the ages of 35 and 54 (54 percent). One quarter of the participants were high school graduates, while 21 percent reported having some college or being a 2-year graduate. Approximately 34 percent had annual household income levels between \$35,000 and \$75,000. Eighteen percent reported not knowing their income or refused to answer the question. The majority of participants lived in suburban areas (47 percent), with the rest being from urban (31 percent) and rural areas (22 percent).

A chi-square goodness of fit test showed a significant difference between the number of males and females in the pre-campaign sample compared to the expected number in 2007 Census data for the region. A significant difference was also noted between the pre-campaign sample and the population with regard to the race categories of African-American, Asian, White, Hispanic and Other. Data on age, household income, education levels and household income could not be evaluated using this measure due to overwhelming differences in the categorization of the data in the survey instrument compared to census data categories.

All demographic information can be found in Appendix A. The county breakdown can be seen in the following table:

**Table 1. County Distribution**

	Frequency	Percent
Alamance	11	4.7
Caswell	1	.4
Chatham	8	3.4
Cleveland	1	.4
Craven	11	4.7
Cumberland	6	2.6
Duplin	1	.4
<b>Durham</b>	<b>18</b>	<b>7.7</b>
Edgecombe	7	3.0
Franklin	5	2.1
Granville	7	3.0
Greene	1	.4
Guilford	1	.4

	Frequency	Percent
Harnett	5	2.1
<b>Johnston</b>	<b>12</b>	<b>5.1</b>
Lee	3	1.3
Lenoir	8	3.4
Nash	10	4.3
Orange	3	1.3
Person	3	1.3
Randolph	1	.4
Sampson	2	.9
<b>Wake</b>	<b>82</b>	<b>35.0</b>
<b>Wayne</b>	<b>16</b>	<b>6.8</b>
Wilson	11	4.7

## Survey Findings

### *Section 1: Overall Water Quality*

Participants were asked to rate the overall water quality of rivers, streams, and lakes in their area. Only 14 percent thought the overall water quality in their area was poor. Most perceived it as being fair or good. However, only four percent of participants thought that it was excellent (See Table 2). All data regarding water quality and demographic cross tabulations can be found in Appendix B.

**Table 2. Overall Water Quality**

	Frequency	Percent
Poor	33	14%
<b>Fair</b>	<b>95</b>	<b>41%</b>
<b>Good</b>	<b>91</b>	<b>39%</b>
Excellent	10	4%
Don't know/Refuse to answer	5	2%

## Section 2: Sources of Water Pollution

Respondents were given different types of water pollutants and asked to rate how important each one was in contributing to water pollution (See Table 3). They were given the option to rate each factor as very important, important, not important, or don't know/refuse to answer. The majority of participants thought the most important water pollutants came from litter and wastewater. Conversely, they thought the least important water pollutant was runoff from yards, parking lots, and streets.

**Table 3. Overall Important and Very Important Sources of Water Pollution**

	Very Important	Important	Not Important	Don't know/ Refuse
Litter (i.e., Trash dumped into rivers and lakes)	<b>65%</b> (N = 151)	27% (N = 63)	8% (N = 20)	---
Wastewater from industrial plants	<b>57%</b> (N = 134)	36% (N = 84)	5% (N = 12)	2% (N = 4)
Wastewater from sewage treatment plants	<b>62%</b> (N = 145)	30% (N = 71)	7% (N = 16)	1% (N = 2)
Runoff from yards, parking lots, and streets	23% (N = 53)	45% (N = 106)	<b>32%</b> (N = 75)	---
Runoff from farms and agricultural operations	40% (N = 94)	43% (N = 100)	14% (N = 33)	3% (N = 7)

\*Note: For this table, percentages in each row will add up to 100%.

Participants were then asked to identify the *most important* source of water pollution. Most people thought that wastewater from industrial plants and wastewater from sewage treatment plants were the biggest contributors to water pollution, each receiving 33 percent (See Table 4). All data regarding the most important source of water pollution and demographic cross tabulations can be found in Appendix C.

**Table 4. Overall Most Important Water Pollution Source**

	Frequency	Percent
Litter (i.e., Trash dumped into rivers and lakes)	53	6%
<b>Wastewater from industrial plants</b>	<b>58</b>	<b>33%</b>
<b>Wastewater from sewage treatment plants</b>	<b>58</b>	<b>33%</b>
Runoff from yards, parking lots, and streets	15	9%
Runoff from farms and agricultural operations	30	17%
Don't know/Refuse to answer	4	2%

### Section 3: Lawn Care

Over 90 percent of respondents reported having a lawn that they mow. The majority of participants leave their grass clippings in their yard (54 percent). Twenty-seven percent cited that they will collect grass clippings and put them in the garbage. Only two percent of respondents said that they blow grass clippings into a gutter or ditch (See Table 5).

**Table 5. Grass Clipping Disposal**

	Frequency	Percent
Collect them and put them with the garbage	54	27%
<b>Leave them in the yard</b>	<b>110</b>	<b>54%</b>
Blow them into a gutter or ditch	4	2%
Mulch or compost them	25	12%
Other	9	4%
Refuse to Answer	2	1%

The next questions were about fertilizer usage. Approximately half of the respondents reported using fertilizer, while the other half did not. When asked the frequency of fertilizer use, the majority responded three times a year or less. Only six percent said that they fertilized their lawn monthly or every other month (See Table 6). All data regarding lawn care and demographic cross tabulations can be found in Appendix D.

**Table 6. Fertilizer Use**

	Frequency	Percent
Monthly or every other month	6	7%
<b>Two or three times a year</b>	<b>39</b>	<b>47%</b>
<b>Once a year or less</b>	<b>38</b>	<b>46%</b>
Don't know/Refuse to answer	---	---

Participants were then asked if they ever had anyone test the soil to determine how much fertilizer was needed. The majority admitted to not having their soil tested (57 percent), while 41 percent said that they do test their soil. Two percent refused to answer this question (see table 7).

**Table 7. Soil Testing**

	Frequency	Percent
Yes	34	41%
<b>No</b>	<b>48</b>	<b>57%</b>
Refuse to Answer	2	2%

**Section 4: Vehicle Maintenance**

The following questions dealt with vehicle maintenance. Participants were asked if they owned a car, truck, or other vehicle. Almost 90 percent said that they did. The next question addressed how they get their vehicle cleaned. The majority of participants (34 percent) take it to a car wash, while 27 percent report washing their vehicle at home. Those who wash their vehicle at home were asked where their soapy water flows during cleaning (See Table 8). As shown, 59 percent allow the soapy water to flow into the grass, dirt, or gravel, while 40 percent allow the soapy water to flow into the street or driveway.

**Table 8. Soapy Wash Water Flow**

	<b>Frequency</b>	<b>Percent</b>
<b>Into the grass, dirt, or gravel</b>	<b>43</b>	<b>59%</b>
Into the street or driveway	29	40%
Varies, sometimes one, sometimes another	1	1%

Participants who said they owned a vehicle were also asked about oil changing. Only 28 percent of respondents reported changing their own oil at home. These 49 people were asked what they do with the used oil (See Table 9). Half said that they take the used oil to be recycled. Other answers included putting it with other garbage (16 percent), placing it in a designated lawn area (14 percent), and pouring it down a storm drain (14 percent). All data regarding vehicle maintenance and demographic cross tabulations can be found in Appendix E.

**Table 9. Used Oil Disposal**

	<b>Frequency</b>	<b>Percent</b>
Put it with other garbage	8	16%
Pour it into a storm drain, the yard, or a ditch	14	29%
<b>Take it somewhere to be recycled</b>	<b>25</b>	<b>51%</b>
Other	2	4%

**Section 5: Pet Waste**

The next set of questions addressed pet waste. The majority ( $N = 203$ ) of participants reported owning a pet. Of these who had pets, 68 percent ( $N = 139$ ) said that they walk their pet. When asked how often they pick up their pet’s waste, the majority (30 percent) said they “always” pick up after their pet (See Table 10). Following closely were those who “never” pick up pet waste (27 percent). All data regarding pet waste and demographic cross tabulations can be found in Appendix F.

**Table 10. Pet Waste Pickup**

	<b>Frequency</b>	<b>Percent</b>
<b>Always</b>	<b>43</b>	<b>30%</b>
Often	9	6%
Sometimes	21	15%
Rarely	27	19%
<b>Never</b>	<b>38</b>	<b>27%</b>
Refuse to Answer	4	3%

**Section 6: Stormwater Runoff**

Finally, participants were asked where they think stormwater goes once it enters a storm drain. Forty-five percent of respondents thought that storm water runoff goes to the closest river, stream, or lake once it enters a storm drain; while 27 percent thought it went to the city’s regular sewer treatment plant (See Table 11). Only seven percent thought that it goes into nearby fields and yards. All data regarding storm water runoff and demographic cross tabulations can be found in Appendix G.

**Table 11. Overall Stormwater Runoff Destination**

	<b>Frequency</b>	<b>Percent</b>
A sewage/wastewater treatment plant	39	27%
A separate special sewer treatment plant	17	12%
Nearby fields and yards	10	7%
<b>The closest river, stream, or lake</b>	<b>64</b>	<b>45%</b>
Refuse to answer	13	9%

## Appendix A: Demographic Data

### A1. Gender

	Frequency	Percent
<b>Women</b>	<b>135</b>	<b>58%</b>
Men	99	42%

### A2. Are you retired?

	Frequency	Percent
Yes	51	31%
<b>No</b>	<b>112</b>	<b>69%</b>

### A3. Age

	Frequency	Percent
18-24	28	12%
25-34	24	11%
<b>35-44</b>	<b>83</b>	<b>36%</b>
45-54	41	18%
55-64	26	11%
Over 65	28	12%

### A4. Race/Ethnicity

	Frequency	Percent
Black or African-American	42	18%
Asian	10	4%
<b>White</b>	<b>119</b>	<b>52%</b>
Hispanic	26	11%
Other	15	7%
Don't know/Refuse to answer	17	8%

**A5. Education level**

	Frequency	Percent
Some high school or less	37	16%
<b>High school graduate</b>	<b>57</b>	<b>25%</b>
Some vocational or technical school	17	7%
Graduated from vocational or technical school	14	6%
Some college/2-yr college grad	48	21%
4-Year college graduate	34	15%
Post-graduate degree	24	10%

**A6. Annual household income**

	Frequency	Percent
Less than \$12,000	13	8%
\$12,000 to \$25,000	24	15%
\$25,000 to \$35,000	15	10%
\$35,000 to \$50,000	25	16%
<b>\$50,000 to \$75,000</b>	<b>29</b>	<b>18%</b>
\$75,000 to \$100,000	13	8%
Over \$100,000	11	7%
<b>Don't know/Refuse to answer</b>	<b>29</b>	<b>18%</b>

**A7. Area of Residence**

	Frequency	Percent
Urban	72	31%
<b>Suburban</b>	<b>109</b>	<b>47%</b>
Rural	53	22%

## Appendix B: Overall Water Quality Cross Tabulations

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

### B1. Opinions of Overall Water Quality by Respondent Age

	18-24	25-34	35-44	45-54	55-64	Over 65
Poor	4	4	13	17	31	18
Fair	39	42	41	41	38	36
Good	43	50	42	42	27	28
Excellent	7	4	3	---	4	11
Refuse to Answer	7	---	1	---	---	7

### B2. Opinions of Overall Water Quality by Respondent Education

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/2yr college grad	4-year college grad	Post graduate degree
Poor	5	12	6	7	17	21	29
Fair	41	35	59	15	48	44	34
Good	43	48	35	57	29	35	33
Excellent	3	5	---	14	4	---	4
Refuse to Answer	8	---	---	7	2	---	---

### B3. Opinions of Overall Water Quality by Income

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
Poor	15	4	7	24	14	46	28	18
Fair	39	50	46	44	48	31	36	52
Good	23	38	40	32	31	23	36	24
Excellent	15	4	7	---	7	---	---	3
Refuse to Answer	8	4	---	---	---	---	---	3

### B4. Opinions of Overall Water Quality by Race

	African-American	Asian	White	Hispanic	Other	Don't know/ Refuse to answer
Poor	14	---	19	4	20	6
Fair	41	30	42	35	20	53
Good	33	70	36	50	40	41
Excellent	5	---	2	11	13	---
Refuse to Answer	7	---	1	---	7	---

**B5. Opinions of Overall Water Quality by Retired**

	<b>Yes</b>	<b>No</b>
<b>Poor</b>	27	13
<b>Fair</b>	41	46
<b>Good</b>	22	36
<b>Excellent</b>	6	4
<b>Refuse to Answer</b>	4	1

**B6. Opinions of Overall Water Quality by Gender**

	<b>Women</b>	<b>Men</b>
<b>Poor</b>	13	15
<b>Fair</b>	45	36
<b>Good</b>	38	40
<b>Excellent</b>	2	7
<b>Refuse to Answer</b>	2	2

**B7. Opinions of Overall Water Quality by Area**

	<b>Urban</b>	<b>Suburban</b>	<b>Rural</b>
<b>Poor</b>	17	13	13
<b>Fair</b>	35	44	42
<b>Good</b>	42	36	42
<b>Excellent</b>	4	5	2
<b>Refuse to Answer</b>	2	2	1

## Appendix C: Biggest Source of Water Pollution Cross Tabulations

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

### C1. Biggest Source of Water Pollution by Age

	18-24	25-34	35-44	45-54	55-64	Over 65
Litter (i.e., Trash dumped into rivers and lakes)	---	7	6	3	8	15
Wastewater from industrial plants	32	22	41	24	39	25
Wastewater from sewage treatment plants	53	29	28	40	22	40
Runoff from yards, parking lots, and streets	5	21	3	15	9	5
Runoff from farms and agricultural operations	10	21	19	15	22	10
Don't know/Refuse to answer	---	---	3	3	---	5

### C2. Biggest Source of Water Pollution by Education

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/2-yr college grad	4 – yr college grad	Post graduate degree
Litter (i.e., Trash dumped into rivers and lakes)	5	5	7	---	5	7	10
Wastewater from industrial plants	28	41	29	46	32	38	14
Wastewater from sewage treatment plants	38	31	43	46	30	28	33
Runoff from yards, parking lots, and streets	5	5	---	---	16	7	14
Runoff from farms and agricultural operations	19	18	21	8	14	17	24
Don't know/Refuse to answer	5	---	---	---	3	3	5

### C3. Biggest Source of Water Pollution by Income

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/Refuse
Litter (i.e., Trash dumped into rivers and lakes)	---	7	---	5	4	23	14	12
Wastewater from industrial plants	11	43	---	20	27	8	14	46
Wastewater from sewage treatment plants	34	36	66	40	38	46	29	12
Runoff from yards, parking lots, and streets	22	7	17	15	4	8	29	17
Runoff from farms and agricultural operations	22	7	17	15	23	15	14	13
Don't know/Refuse to answer	11	---	---	5	4	---	---	---

**C4. Biggest Source of Water Pollution by Race**

	African-American	Asian	White	Hispanic	Other	Don't know/Refuse to Answer
Litter (i.e., Trash dumped into rivers and lakes)	17	---	4	6	---	---
Wastewater from industrial plants	17	67	30	53	43	50
Wastewater from sewage treatment plants	43	33	36	23	29	7
Runoff from yards, parking lots, and streets	10	---	8	6	14	14
Runoff from farms and agricultural operations	10	---	20	12	14	22
Don't know/Refuse to answer	3	---	2	---	---	7

**C5. Biggest Source of Water Pollution by Retired**

	Yes	No
Litter (i.e., Trash dumped into rivers and lakes)	10	7
Wastewater from industrial plants	27	26
Wastewater from sewage treatment plants	32	37
Runoff from yards, parking lots, and streets	10	12
Runoff from farms and agricultural operations	19	15
Don't know/Refuse to answer	2	3

**C6. Biggest Source of Water Pollution by Gender**

	Women	Men
Litter (i.e., Trash dumped into rivers and lakes)	6	7
Wastewater from industrial plants	38	26
Wastewater from sewage treatment plants	34	31
Runoff from yards, parking lots, and streets	3	16
Runoff from farms and agricultural operations	16	19
Don't know/Refuse to answer	3	1

**C7. Biggest Source of Water Pollution by Area**

	Urban	Suburban	Rural
Litter (i.e., Trash dumped into rivers and lakes)	8	4	8
Wastewater from industrial plants	36	34	25
Wastewater from sewage treatment plants	26	37	36
Runoff from yards, parking lots, and streets	12	4	14
Runoff from farms and agricultural operations	16	18	17
Don't know/Refuse to answer	2	3	---

## Appendix D: Lawn Care Cross Tabulations

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

### D1. Grass Clipping Disposal by Age

	18-24	25-34	35-44	45-54	55-64	Over 65
Leave them in the yard	60	59	53	47	50	55
Collect them and throw in garbage	40	17	35	21	19	15
Dump them into a gutter or ditch	---	---	3	---	4	4
Mulch or compost them	---	6	8	23	23	15
Other	---	12	---	9	4	11
Refuse to answer	---	6	1	---	---	---

### D2. Grass Clipping Disposal by Education

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
Leave them in the yard	37	61	63	57	55	59	45
Collect them and throw in garbage	47	26	31	36	23	26	---
Dump them into a gutter or ditch	3	2	---	---	2	3	---
Mulch or compost them	10	9	6	7	11	9	35
Other	3	2	---	---	7	3	15
Refuse to answer	---	---	---	---	2	---	5

### D3. Grass Clipping Disposal by Income

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
Leave them in the yard	78	62	58	59	52	55	46	11
Collect them and throw in garbage	11	10	42	8	15	9	27	59
Dump them into a gutter or ditch	---	---	---	8	3	---	---	3
Mulch or compost them	---	19	---	21	15	18	27	24
Other	---	9	---	4	15	9	---	3
Refuse to answer	11	---	---	---	---	9	---	---

**D4. Grass Clipping Disposal by Race**

	African-American	Asian	White	Hispanic	Other	Don't Know/ Refuse to answer
Leave them in the yard	34	14	60	57	69	43
Collect them and throw in garbage	45	86	14	29	23	50
Dump them into a gutter or ditch	---	---	4	---	---	---
Mulch or compost them	16	---	16	---	8	7
Other	5	---	6	5	---	---
Refuse to answer	---	---	---	9	---	---

**D5. Grass Clipping Disposal by Retired**

	Yes	No
Leave them in the yard	50	59
Collect them and throw in garbage	15	18
Dump them into a gutter or ditch	4	2
Mulch or compost them	21	15
Other	8	5
Refuse to answer	2	1

**D6. Grass Clipping Disposal by Gender**

	Women	Men
Leave them in the yard	50	60
Collect them and throw in garbage	28	24
Dump them into a gutter or ditch	2	2
Mulch or compost them	14	10
Other	5	3
Refuse to answer	1	1

**D7. Grass Clipping Disposal by Area**

	Urban	Suburban	Rural
Leave them in the yard	48	54	60
Collect them and throw in garbage	29	32	13
Dump them into a gutter or ditch	---	3	2
Mulch or compost them	18	8	15
Other	3	2	10
Refuse to answer	2	1	---

**D8. Use Fertilizer on Lawn by Age**

	18-24	25-34	35-44	45-54	55-64	Over 65
Yes	23	23	47	53	56	59
No	77	71	51	47	44	41
Refuse to Answer	---	6	2	---	---	---

**D9. Use Fertilizer on Lawn by Education**

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
<b>Yes</b>	42	44	33	55	41	56	60
<b>No</b>	58	56	67	45	56	44	35
<b>Refuse to Answer</b>	---	---	---	---	3	---	5

**D10. Use Fertilizer on Lawn by Income**

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
<b>Yes</b>	22	33	17	46	63	73	55	55
<b>No</b>	67	67	83	54	37	18	45	45
<b>Refuse to Answer</b>	11	---	---	---	---	9	---	---

**D11. Use Fertilizer on Lawn by Race**

	African-American	Asian	White	Hispanic	Other	Don't know/ Refuse to answer
<b>Yes</b>	42	100	52	50	30	63
<b>No</b>	58	---	48	37	70	38
<b>Refuse to Answer</b>	---	---	---	13	---	---

**D12. Use Fertilizer on Lawn by Retired**

	Yes	No
<b>Yes</b>	58	43
<b>No</b>	40	56
<b>Refuse to Answer</b>	2	1

**D13. Use Fertilizer on Lawn by Gender**

	Female	Male
<b>Yes</b>	51	46
<b>No</b>	48	53
<b>Refuse to Answer</b>	1	1

**D14. Use Fertilizer on Lawn by Area**

	Urban	Suburban	Rural
<b>Yes</b>	55	42	54
<b>No</b>	43	57	46
<b>Refuse to Answer</b>	2	1	---

**D15. Frequency of Fertilizer Use by Age**

	18-24	25-34	35-44	45-54	55-64	Over 65
<b>Monthly</b>	---	---	11	---	7	6
<b>2 or 3 times/year</b>	100	75	62	44	36	25
<b>Once a Year or Less</b>	---	25	27	56	57	69

**D16. Frequency of Fertilizer Use by Education**

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
Monthly	25	6	---	---	---	5	8
2 or 3 times/year	12	50	75	67	67	37	42
Once a Year or Less	63	44	25	33	33	58	50

**D17. Frequency of Fertilizer Use by Income**

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
Monthly	---	14	50	---	---	---	50	6
2 or 3 times/year	---	14	---	46	41	50	17	44
Once a Year or Less	100	72	50	54	59	50	33	50

**D18. Frequency of Fertilizer Use by Race**

	African-American	Asian	White	Hispanic	Other	Don't know/ Refuse to answer
Monthly	8	---	8	---	---	20
2 or 3 times/year	46	100	36	87	33	80
Once a Year or Less	46	---	56	13	67	---

**D19. Frequency of Fertilizer Use by Retired**

	Yes	No
Monthly	4	10
2 or 3 times/year	26	44
Once a Year or Less	70	46

**D20. Frequency of Fertilizer Use by Gender**

	Women	Men
Monthly	6	9
2 or 3 times/year	45	50
Once a Year or Less	49	41

**D21. Frequency of Fertilizer Use by Area**

	Urban	Suburban	Rural
Monthly	12	9	---
2 or 3 times/year	42	47	52
Once a Year or Less	46	44	48

**D22. Soil Testing by Age**

	18-24	25-34	35-44	45-54	55-64	Over 65
Yes	100	25	50	41	14	31
No	---	75	50	59	86	63
Refuse to Answer	---	---	---	---	---	6

**D23. Soil Testing by Education**

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
Yes	22	44	75	67	40	37	17
No	67	56	25	33	60	58	83
Refuse to Answer	11	---	---	---	---	5	---

**D24. Soil Testing by Income**

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
Yes	---	29	---	18	18	12	83	38
No	100	71	100	82	82	88	17	50
Refuse to Answer	---	---	---	---	---	---	---	12

**D25. Soil Testing by Race**

	African-American	Asian	White	Hispanic	Other	Don't know/ Refuse to answer
Yes	15	100	31	87	67	80
No	85	---	65	13	33	20
Refuse to Answer	---	---	4	---	---	---

**D26. Soil Testing by Retired**

	Yes	No
Yes	26	27
No	70	70
Refuse to Answer	4	3

**D27. Soil Testing by Gender**

	Women	Men
Yes	36	47
No	60	53
Refuse to Answer	4	---

**D28. Soil Testing by Area**

	Urban	Suburban	Rural
Yes	39	46	35
No	57	51	65
Refuse to Answer	4	3	---

## Appendix E: Vehicle Maintenance Cross Tabulations

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

### E1. How Do You Get Your Car Washed by Age

	18-24	25-34	35-44	45-54	55-64	Over 65
At home	50	28	38	32	44	35
Other	8	5	26	13	16	4
Take to car wash	42	67	36	52	40	61
Refuse to answer	---	---	---	3	---	---

### E2. How Do You Get Your Car Washed by Education

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
At home	59	36	37	25	33	38	35
Other	18	8	27	12	20	12	17
Take to car wash	23	56	36	63	47	50	44
Refuse to answer	---	---	---	---	---	---	4

### E3. How Do You Get Your Car Washed by Income

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
At home	29	32	39	32	35	15	46	44
Other	14	9	15	16	10	15	---	12
Take to car wash	57	59	46	52	52	70	54	44
Refuse to answer	---	---	---	---	3	---	---	---

### E4. How Do You Get Your Car Washed by Race

	African-American	Asian	White	Hispanic	Other	Don't know/ Refuse to answer
At home	32	50	40	---	33	67
Other	10	50	14	15	17	33
Take to car wash	58	---	45	85	50	---
Refuse to answer	---	---	1	---	---	---

### E5. How Do You Get Your Car Washed by Retired

	Yes	No
At home	40	32
Other	12	12
Take to car wash	48	55
Refuse to answer	---	1

**E6. How Do You Get Your Car Washed by Gender**

	Women	Men
At home	34	42
Other	13	18
Take to car wash	52	40
Refuse to answer	1	---

**E7. How Do You Get Your Car Washed by Area**

	Urban	Suburban	Rural
At home	28	38	49
Other	15	16	12
Take to car wash	57	45	39
Refuse to answer	---	1	---

**E8. Soapy Wash Water Flow by Age**

	18 – 24	25 – 34	35 – 44	45 – 54	55 – 64	Over 65
Into the grass, dirt, or gravel	43	50	52	90	64	75
Into the street or driveway	57	50	45	10	36	25
Varies, sometimes one, sometimes another	---	---	3	---	---	---

**E9. Soapy Wash Water Flow by Education**

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
Into the grass, dirt, or gravel	55	67	71	100	44	69	50
Into the street or driveway	36	33	29	---	56	31	50
Varies, sometimes one, sometimes another	9	---	---	---	---	---	---

**E10. Soapy Wash Water Flow by Income**

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
Into the grass, dirt, or gravel	100	72	80	50	50	50	100	67
Into the street or driveway	---	14	20	50	50	50	---	33
It varies	---	14	---	---	---	---	---	---

**E11. Soapy Wash Water Flow by Race**

	African-American	Asian	White	Hispanic	Other	Don't know/ Refuse to answer
Into grass, dirt, or gravel	55	50	67	50	67	33
Into the street or driveway	45	50	30	50	33	67
Varies	---	---	3	---	---	---

**E12. Soapy Wash Water Flow by Retired**

	Yes	No
Into the grass, dirt, or gravel	77	64
Into the street or driveway	23	33
Varies	---	3

**E13. Soapy Wash Water Flow by Gender**

	Women	Men
Into the grass, dirt, or gravel	56	62
Into the street or driveway	41	38
Varies	3	---

**E14. Soapy Wash Water Flow by Area**

	Urban	Suburban	Rural
Into the grass, dirt, or gravel	35	61	75
Into the street or driveway	65	39	20
Varies	---	---	5

**E15. Oil Changing at Home by Age**

	18 – 24	25 – 34	35 – 44	45 – 54	55 – 64	Over 65
Yes	33	18	34	31	23	21
No	60	82	66	69	77	79
Refuse to Answer	7	---	---	---	---	---

**E16. Oil Changing at Home by Education**

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
Yes	31	29	56	37	33	21	12
No	65	71	44	63	67	79	88
Refuse to Answer	4	---	---	---	---	---	---

**E17. Oil Changing at Home by Income**

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
Yes	15	33	33	32	17	8	9	21
No	85	67	67	68	83	92	91	79

**E18. Oil Changing at Home by Race**

	African-American	Asian	White	Hispanic	Other	Don't know/ Refuse to answer
Yes	17	100	27	24	33	75
No	81	---	73	76	67	25
Refuse to Answer	2	---	---	---	---	---

**E19. Oil Changing at Home by Retired**

	Yes	No
Yes	22	22
No	78	78
Refuse to Answer	---	---

**E20. Oil Changing at Home by Gender**

	Women	Men
Yes	28	28
No	71	72
Refuse to Answer	1	---

**E21. Oil Changing at Home by Area**

	Urban	Suburban	Rural
Yes	18	33	28
No	82	66	72
Refuse to Answer	---	1	---

**E22. Oil Disposal by Age\*\***

	18 – 24	25 – 34	35 – 44	45 – 54	55 -64	Over 65
Put with garbage	40	---	19	9	33	---
Pour down drain, into yard, or ditch	20	25	44	27	17	17
Take it somewhere to be recycled	20	75	37	64	50	66
Other	20	---	---	---	---	17

**E23. Oil Disposal by Education\*\***

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
Put with garbage	14	25	40	---	9	14	---
Pour down drain, into yard, or ditch	43	33	20	33	36	14	---
Take it somewhere to be recycled	43	42	40	33	54	72	---
Other	---	---	---	34	9	---	---

**E24. Oil Disposal by Income\*\***

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
Put with garbage	50	12	20	---	---	---	---	25
Pour down drain, into yard, or ditch	---	25	60	---	---	---	---	---
Take it somewhere to be recycled	50	50	20	100	80	100	100	75
Other	---	13	---	---	20	---	---	---

**E25. Oil Disposal by Race\*\***

	African-American	Asian	White	Hispanic	Other	Don't Know/ Refuse
Put with garbage	50	33	10	---	---	---
Pour down drain, into yard, or ditch	33	67	14	50	67	67
Take it somewhere to be recycled	17	---	69	50	33	33
Other	---	---	7	---	---	---

**E26. Oil Disposal by Retired**

	Yes	No
Put with garbage	9	12
Pour down drain, into yard, or ditch	9	17
Take it somewhere to be recycled	73	67
Other	9	4

**E27. Oil Disposal by Gender**

	Women	Men
Put with garbage	4	33
Pour down drain, into yard, or ditch	39	14
Take it somewhere to be recycled	50	53
Other	7	---

**E28. Oil Disposal by Area**

	Urban	Suburban	Rural
Put with garbage	10	15	22
Pour down drain, into yard, or ditch	20	27	39
Take it somewhere to be recycled	70	50	39
Other	---	8	---

**\*\*Note: Due to the low frequencies within each cell, these crosstabs may not be generalizable to the larger population.**

## Appendix F: Pet Waste Cross Tabulations

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

**F1. Pet Waste Pickup by Age**

	18-24	25-34	35-44	45-54	55-64	Over 65
<b>Always</b>	40	33	34	27	38	46
<b>Sometimes</b>	20	11	8	23	23	15
<b>Rarely</b>	15	11	30	14	8	8
<b>Never</b>	20	45	25	32	31	31
<b>Refuse to answer</b>	5	---	3	4	---	---

**F2. Pet Waste Pickup by Education**

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
<b>Always</b>	52	41	39	20	24	42	18
<b>Sometimes</b>	26	6	7	10	14	21	18
<b>Rarely</b>	9	27	39	20	28	5	---
<b>Never</b>	13	23	15	30	31	32	64
<b>Refuse to answer</b>	---	3	---	20	3	---	---

**F3. Pet Waste Pickup by Income**

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/ Refuse
<b>Always</b>	25	40	50	40	33	13	33	55
<b>Sometimes</b>	---	20	17	40	---	12	17	9
<b>Rarely</b>	---	---	---	---	17	---	---	9
<b>Never</b>	75	40	33	20	42	75	50	27
<b>Refuse to answer</b>	---	---	---	---	8	---	---	---

**F4. Pet Waste Pickup by Race**

	African-American	Asian	White	Hispanic	Other	Don't Know/ Refuse to answer
<b>Always</b>	21	30	43	31	36	50
<b>Sometimes</b>	37	10	14	6	9	13
<b>Rarely</b>	11	50	8	25	36	31
<b>Never</b>	26	10	32	38	9	6
<b>Refuse to answer</b>	5	---	3	---	10	---

**F5. Pet Waste Pickup by Retired**

	<b>Yes</b>	<b>No</b>
<b>Always</b>	29	36
<b>Sometimes</b>	21	17
<b>Rarely</b>	8	6
<b>Never</b>	38	41
<b>Refuse to answer</b>	4	--

**F6. Pet Waste Pickup by Gender**

	<b>Women</b>	<b>Men</b>
<b>Always</b>	38	34
<b>Sometimes</b>	15	14
<b>Rarely</b>	20	18
<b>Never</b>	23	32
<b>Refuse to answer</b>	4	2

**F7. Pet Waste Pickup by Area**

	<b>Urban</b>	<b>Suburban</b>	<b>Rural</b>
<b>Always</b>	42	37	29
<b>Sometimes</b>	16	18	7
<b>Rarely</b>	23	16	19
<b>Never</b>	19	25	42
<b>Refuse to answer</b>	---	4	3

## Appendix G: Where Storm Water Runoff Goes Cross Tabulations

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

### G1. Where Storm Water Runoff Goes by Age

	18-24	25-34	35-44	45-54	55-64	Over 65
Sewage or wastewater treatment plant	45	25	23	28	40	11
A separate special treatment plant	---	10	11	18	20	8
Nearby fields and yards	10	20	---	11	---	8
The closest river, stream, or lake	45	40	57	32	40	50
Don't know/Refuse to answer	---	5	9	11	---	23

### G2. Where Storm Water Runoff Goes by Education

	Some high school or less	High school grad	Some voc/tech school	Voc/tech school grad	Some college/ 2-yr college grad	4-year college grad	Post graduate degree
Sewage or wastewater treatment plant	19	33	20	---	29	36	19
A separate special treatment plant	6	9	---	50	7	16	14
Nearby fields and yards	19	9	---	---	11	3	---
The closest river, stream, or lake	31	42	60	50	43	42	57
Don't know/Refuse to answer	25	7	20	---	10	3	10

### G3. Where Storm Water Runoff Goes by Income

	Less than \$12K	\$12K to \$25K	\$25K to \$35K	\$35K to \$50K	\$50K to \$75K	\$75K to \$100K	Over \$100K	Don't Know/Refuse
Sewage or wastewater treatment plant	30	22	21	27	15	27	36	42
A separate special treatment plant	---	13	14	5	19	27	18	4
Nearby fields and yards	10	9	29	5	4	---	9	---
The closest river, stream, or lake	30	39	36	59	54	37	36	46
Don't know/Refuse to answer	30	17	---	4	8	9	---	8

**G4. Where Storm Water Runoff Goes by Race**

	<b>African-American</b>	<b>White</b>	<b>Hispanic</b>	<b>Other</b>	<b>Don't Know/Refuse to answer</b>
<b>Sewage or wastewater treatment plant</b>	36	25	17	60	---
<b>A separate special treatment plant</b>	6	15	8	---	---
<b>Nearby fields and yards</b>	6	6	17	---	---
<b>The closest river, stream, or lake</b>	39	47	50	20	100
<b>Don't know/Refuse to answer</b>	13	7	8	20	---

**G5. Where Storm Water Runoff Goes by Retired**

	<b>Yes</b>	<b>No</b>
<b>Sewage or wastewater treatment plant</b>	27	28
<b>A separate special treatment plant</b>	16	10
<b>Nearby fields and yards</b>	5	8
<b>The closest river, stream, or lake</b>	32	50
<b>Don't know/Refuse to answer</b>	20	4

**G6. Where Storm Water Runoff Goes by Gender**

	<b>Women</b>	<b>Men</b>
<b>Sewage or wastewater treatment plant</b>	30	24
<b>A separate special treatment plant</b>	16	8
<b>Nearby fields and yards</b>	7	8
<b>The closest river, stream, or lake</b>	35	56
<b>Don't know/Refuse to answer</b>	13	4

**G7. Where Storm Water Runoff Goes by Area**

	<b>Urban</b>	<b>Suburban</b>	<b>Rural</b>
<b>Sewage or wastewater treatment plant</b>	20	32	27
<b>A separate special treatment plant</b>	14	10	14
<b>Nearby fields and yards</b>	4	5	14
<b>The closest river, stream, or lake</b>	48	45	40
<b>Don't know/Refuse to answer</b>	14	8	5

## Appendix H: Cross Tabulations between Biggest Source of Water Pollution and Participant Behaviors

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

### H1. Biggest Source of Water Pollution by Grass Clipping Disposal

	Leave them in the yard	Dump them into a gutter or ditch	Mulch or compost them	Other
Litter (i.e., Trash dumped into rivers and lakes)	4	---	28	---
Wastewater from industrial plants	33	---	17	57
Wastewater from sewage treatment plants	32	50	39	29
Runoff from yards, parking lots, and streets	10	---	5	---
Runoff from farms and agricultural operations	19	---	11	14
Don't know/Refuse to answer	2	50	---	---

### H2. Biggest Source of Water Pollution by Frequency of Fertilizing

	Monthly or every other month	Two or three times per year	Once a year or less
Litter (i.e., Trash dumped into rivers and lakes)	33	9	11
Wastewater from industrial plants	---	38	39
Wastewater from sewage treatment plants	33	28	25
Runoff from yards, parking lots, and streets	34	6	---
Runoff from farms and agricultural operations	---	16	21
Don't know/Refuse to answer	---	3	4

### H3. Biggest Source of Water Pollution by Soil Testing

	Yes	No
Litter (i.e., Trash dumped into rivers and lakes)	8	14
Wastewater from industrial plants	38	33
Wastewater from sewage treatment plants	31	27
Runoff from yards, parking lots, and streets	4	5
Runoff from farms and agricultural operations	19	16
Don't know/Refuse to answer	---	5

### H4. Biggest Source of Water Pollution by Grass Clipping Disposal

	At home	Other	Take it to a car wash
Litter (i.e., Trash dumped into rivers and lakes)	7	---	11
Wastewater from industrial plants	27	25	35
Wastewater from sewage treatment plants	29	50	31
Runoff from yards, parking lots, and streets	10	15	11
Runoff from farms and agricultural operations	27	10	11
Don't know/Refuse to answer	---	---	1

**H5. Biggest Source of Water Pollution by Soapy Wash Water Flow**

	Into the grass, dirt, or gravel	Into the street or driveway	It varies
Litter (i.e., Trash dumped into rivers and lakes)	3	10	---
Wastewater from industrial plants	32	26	100
Wastewater from sewage treatment plants	29	32	---
Runoff from yards, parking lots, and streets	7	11	---
Runoff from farms and agricultural operations	29	21	---

**H6. Biggest Source of Water Pollution by Disposal of Used Oil**

	Put with garbage	Pour down drain, into yard, or ditch	Take it to be recycled	Other
Litter (i.e., Trash dumped into rivers and lakes)	---	---	---	---
Wastewater from industrial plants	60	75	16	---
Wastewater from sewage treatment plants	20	13	47	100
Runoff from yards, parking lots, and streets	20	---	16	---
Runoff from farms and agricultural operations	---	12	21	---

**H7. Biggest Source of Water Pollution by Pet Waste Pickup**

	Always	Sometimes	Rarely	Never
Litter (i.e., Trash dumped into rivers and lakes)	5	---	9	3
Wastewater from industrial plants	46	35	52	18
Wastewater from sewage treatment plants	31	29	13	43
Runoff from yards, parking lots, and streets	5	7	---	14
Runoff from farms and agricultural operations	10	29	22	18
Don't know/Refuse to answer	3	---	4	4

## Appendix I: Cross Tabulations between Where Storm Water Goes and Participant Behaviors

*Note: All numbers within the tables are percentages and each column will sum to 100%.*

### 11. Where Stormwater Goes by Grass Clipping Disposal

	Leave them in the yard	Dump them into a gutter or ditch	Mulch or compost them	Other
Sewage/wastewater treatment plant	28	25	32	---
A separate special treatment plant	10	25	18	14
Nearby fields and yards	8	---	---	14
Into the nearest stream	48	25	41	43
Don't know/Refuse to answer	6	25	9	29

### 12. Where Stormwater Goes by Frequency of Fertilizing

	Monthly or every other month	Two or three times per year	Once a year or less
Sewage/wastewater treatment plant	50	14	28
A separate special treatment plant	17	23	11
Nearby fields and yards	---	---	6
Into the nearest stream	33	63	36
Don't know/Refuse to answer	---	---	19

### 13. Where Stormwater Goes by Soil Testing

	Yes	No
Sewage/wastewater treatment plant	26	24
A separate special treatment plant	16	16
Nearby fields and yards	5	2
Into the nearest stream	53	44
Don't know/Refuse to answer	---	14

### 14. Where Stormwater Goes by Grass Clipping Disposal

	At home	Other	Take it to a car wash
Sewage/wastewater treatment plant	22	40	28
A separate special treatment plant	18	---	10
Nearby fields and yards	4	---	7
Into the nearest stream	49	40	50
Don't know/Refuse to answer	7	20	5

**15. Where Stormwater Goes by Soapy Wash Water Flow**

	<b>Into the grass, dirt, or gravel</b>	<b>Into the street or driveway</b>	<b>It varies</b>
<b>Sewage/wastewater treatment plant</b>	24	20	---
<b>A separate special treatment plant</b>	28	---	---
<b>Nearby fields and yards</b>	7	---	---
<b>Into the nearest stream</b>	31	80	100
<b>Don't know/Refuse to answer</b>	10	---	---

**16. Where Stormwater Goes by Disposal of Used Oil**

	<b>Put with garbage</b>	<b>Pour down drain, into yard, or ditch</b>	<b>Take it to be recycled</b>	<b>Other</b>
<b>Sewage/wastewater treatment plant</b>	50	---	30	50
<b>A separate special treatment plant</b>	---	20	13	50
<b>Nearby fields and yards</b>	---	40	4	---
<b>Into the nearest stream</b>	25	40	44	---
<b>Don't know/Refuse to answer</b>	25	---	9	---

**17. Where Stormwater Goes by Pet Waste Pickup**

	<b>Always</b>	<b>Sometimes</b>	<b>Rarely</b>	<b>Never</b>
<b>Sewage/wastewater treatment plant</b>	31	37	---	26
<b>A separate special treatment plant</b>	4	25	34	19
<b>Nearby fields and yards</b>	4	---	33	7
<b>Into the nearest stream</b>	48	38	33	33
<b>Don't know/Refuse to answer</b>	13	---	---	15