



2019 HOUSEHOLD SOLID WASTE SURVEY REPORT

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CHITTENDEN SOLID WASTE DISTRICT 2019 HOUSEHOLD SOLID WASTE SURVEY REPORT

EXECUTIVE SUMMARY

Shapard Research, an independent market research company in Oklahoma City, Oklahoma, executed a telephone survey of 408 CSWD households in May and June 2019. The objectives of the survey were to quantify waste management and waste reduction activities, obtain a measure of the public's perception of the waste management system in Chittenden County, provide information about current public opinion on solid waste issues and potential program changes, and fulfill a performance standard in the Vermont Materials Management Plan. Information from the survey will help guide future facility, program, and policy decisions.

Response frequencies and percentages were calculated for each survey question. Selected cross tabulations were created, and Pearson's Chi-Square tests were conducted to identify statistically significant relationships between variables. The results of the 2019 survey were compared to results of previous surveys where applicable.

The general findings of the survey are as follows:

- Residents' perception of CSWD continues to be very positive (84% of respondents have a positive impression). The percentage of respondents with a negative impression of CSWD remained low (2%). Respondents rated CSWD fairly high on a number of traits.
- Support for consolidated curbside collection of trash and recyclables increased but within the margin of error (47% versus 42% in 2017). Opposition to consolidated collection decreased significantly (27% versus 40% in 2017), but those in need of additional information increased significantly (14% versus 6% in 2017). A majority of respondents support this type of system for just household food scraps (54% support, 20% oppose).
- Suggested improvements to trash disposal and recycling in Chittenden County include provide better/more Drop-Off Center hours (11%), more public awareness/participation (11%), curbside collection of organics (10%), lower costs (8%), and provide consolidated collection (7%).
- There is considerable support for taxes on disposable plastic and paper bags (64%). There is additional support if the revenues are used to fund environmental protection programs.
- Almost a quarter of respondents use drop-off centers for their regular trash and recyclables, and 71% use curbside service.
- Drop-off centers are well used by residents for regular or special wastes (85% of respondents).
- Respondents rate their trash and recycling service highly. On a scale of 1-10, the average rating is 8.5.

- Over a third of respondents say they pay the same for trash no matter how much they dispose. Almost half say they pay by volume or frequency.
- Most of the respondents' employers have a recycling program (91%) and less than half (41%) have a compost program.
- Participation by households in recycling remains high (88%).
- Almost half of households manage yard trimmings at home.
- Over half of households currently divert their food scraps from disposal by composting them at home, setting them out separately for collection, dropping them off for composting, and/or using them for animal feed.
- Given a choice on how to manage food scraps under Act 148, more respondents chose backyard composting than they did curbside or drop-off service.
- Over half of respondents indicated they are already in compliance with Act 148.
- A majority of residents know that clean wood can be recycled, but less than a quarter are aware of the recycling programs for drywall scrap and asphalt shingles.
- The vast majority of respondents take actions to reduce the waste they generate (87%).
- Most residents do not know where their trash is put in a landfill.
- Most residents properly dispose of household hazardous waste.
- The top preferred methods for receiving solid waste information are flyer in the mail (41%), e-mail (29%), CSWD e-mail newsletter (10%), and newspaper (9%).
- Almost all respondents had heard of CSWD or Chittenden Solid Waste (96%), but a majority believe the District provides collection of trash and/or recyclables.
- Almost a third of respondents said they do not know how CSWD is funded, almost 30% believe CSWD is funded by the fees it charges, and 27% said by taxes or property taxes.

While CSWD facilities and programs enjoy high participation and residents appear satisfied with solid waste management in Chittenden County, there is room for improvement in District programs and increased participation in waste reduction programs by residents and businesses. The survey report provides recommendations for staff for operations and educational programs.

CHITTENDEN SOLID WASTE DISTRICT 2019 HOUSEHOLD SOLID WASTE SURVEY REPORT

I. INTRODUCTION

A telephone survey of Chittenden Solid Waste District (CSWD) residents was conducted in May and June of 2019. This report describes the objectives, methodology, and results of the survey and provides some recommendations for staff.

II. OBJECTIVES

Four main objectives were defined for the survey. They are:

A. Quantify waste management and waste reduction activities.

Measuring CSWD residents' use of District programs and their waste reduction efforts helps to answer questions about how well the District is serving the public, how well the public is reducing the amount and toxicity of waste generated over time, and where more consumer education is needed.

B. Obtain a measure of the public's perception of the waste management system in Chittenden County.

The staff is interested in learning how the public views CSWD and its facilities and programs as well as curbside collection service in Chittenden County. This information will help guide future facility, program, and policy decisions.

C. Provide information about current public opinion on potential new solid waste programs and/or changes in existing programs.

This information will also help guide future facility, program, and policy decisions.

D. Fulfill one of the performance standards in the Vermont Materials Management Plan.

Some questions were added to comply with the survey template provided by the Vermont Agency of Natural Resources.

III. METHODOLOGY

A. Questionnaire Design

The survey consists of thirty-seven questions including seven demographic questions. The questions were developed by CSWD staff and reviewed by the market research company hired to conduct the survey.

B. Sample Selection and Data Collection

The survey was conducted by Shapard Research, an independent market research company in Oklahoma City, Oklahoma. Shapard Research conducted the survey using a dual frame of Random Digit Dialed landlines and cell phones of adults (18 and older) in Chittenden County. Four hundred and eight surveys were completed, which provides a 95% confidence level with an estimated +/- 5% margin of error.

While a random sample of landline and cell-only households was selected for the survey, it does not appear to be representative of the general population in Chittenden County on certain demographic characteristics according to US Census and Vermont data. While fairly representative distributions by municipality and gender were obtained, 18-34-year olds and renters are underrepresented in the survey. Distribution by education included underrepresentation of high school graduates and those with a bachelor's degree and overrepresentation of those with an associate degree and graduate and professional degrees. Low-income households may have been underrepresented, but 25% of respondents refused to answer the income question; therefore, we do not know. Cross tabulations between these demographic characteristics and the responses to the opinion questions in the survey were run. The only significant differences found were between housing status and opposition to consolidated trash and food scraps collection. This finding improves our level of confidence in the survey results. Regarding questions on waste management activities, we assume the person who answered the phone answered for the household as a whole (e.g., different ages with varying levels of education).

C. Data Analysis

Response frequencies and percentages were calculated for each question. Graphs were created for certain questions to display trends over time. Cross tabulations were created, and Pearson's Chi-Square tests were conducted to identify statistically significant relationships between variables (0.01 level). Due to the small numbers of respondents in many of the communities, municipalities were grouped regionally for cross tabulations. Municipalities were grouped by region as follows:

Region 1 = Burlington, South Burlington, Winooski

Region 2 = Colchester, Milton

Region 3 = Essex, Essex Junction, Williston

Region 4 = Charlotte, Hinesburg, Huntington, St. George, Richmond, Shelburne

Region 5 = Bolton, Jericho, Underhill, Westford

In most of the cross tabulations where significant relationships were identified, more than 20% of expected values were less than 5. This outcome reduces our confidence in the results of the Chi-Square tests.

Because some people do not want to admit that they engage in wasteful behavior, even to a stranger, the results for questions regarding waste management activities may have been affected. This is referred to as a response or social desirability bias.

D. Comparisons to Previous Surveys

The last nine household surveys were conducted in 1998 by RVS Enterprises; in 2000 by Action Research; in 2002 by R. J. Peters Associates; in 2004 by RKM Research and Communications; in 2006, 2011, and 2013 by Opinion Access Research; and in 2015 and 2017 by the Center for Research and Public Policy. Some similar or identical questions were asked in the different surveys. Where applicable, the responses for these questions are included below. When comparing responses between years, please keep the +/- 5% margin of error in mind.

Some questions regarding waste management behavior used in previous surveys were reworded beginning with the 2015 survey to meet one of the performance standards in the Vermont Materials Management Plan. For example, instead of asking respondents if they recycled or composted, they were asked what they did with recyclables, yard trimmings, and food scraps. These changes may affect how respondents answer these questions compared to surveys conducted prior to 2015. A social responsibil-

ity bias may have been higher when the previous wording was used. Please keep this in mind when reviewing comparisons to surveys prior to 2015 on these questions.

IV. RESULTS

A. Data Summaries

Response frequencies and percentages for the survey questions may be found in Appendix A. Graphs for certain questions are located in Appendix B.

B. Public Perception and Opinions

Residents' perception of CSWD continues to be very positive. The percentage of respondents with a negative impression of CSWD remained low.

Support for consolidated curbside collection of trash and recyclables increased but within the margin of error. Opposition to consolidated collection decreased significantly. A majority of respondents support this type of system for just household food scraps.

Suggested improvements to trash disposal and recycling in Chittenden County include better/more Drop-Off Center hours, more public awareness/participation, curbside collection of organics, lower prices, and provide consolidated trash and recycling collection.

There is considerable support for taxes on disposable plastic and paper bags. There is additional support if the revenues are used to fund environmental protection programs.

- 84.3% of residents surveyed said their overall impression of CSWD was positive, a decrease from the last survey but within the margin of error. Only 2.2% had a negative impression. 4.4% did not have enough information, and 9.1% had no opinion or no response.

Survey Comparison:

IMPRESSION	<u>2000</u>	<u>2002</u>	<u>2004</u>	<u>2006</u>	<u>2011</u>	<u>2013</u>	<u>2015</u>	<u>2017</u>	<u>2019</u>
Positive	78.6%	85.8%	74.3%	61.3%	70.4%	81.1%	81.1%	87.3%	84.3%
Negative	0.5%	1.5%	1.3%	1.5%	0.7%	1.7%	1.5%	1.5%	2.2%
Not enough information	9.0%	3.6%	10.8%	17.0%	9.0%	3.7%	5.7%	4.5%	4.4%
Don't know/No opinion	11.7%	9.2%	13.8%	20.3%	19.7%	13.4%	11.7%	6.8%	9.1%

Graph 1 in Appendix B displays these data in a bar chart.

- 46.6% of survey respondents would support consolidated collection of trash and recyclables. 26.7% oppose this type of system. The results show an increase in supporters within the margin of error, a significant decrease in those opposed, and a significant increase in those without enough information.

Survey Comparison:**SUPPORT CONSOLIDATION**

Trash & Recycling	<u>2000</u>	<u>2002</u>	<u>2004</u>	<u>2006</u>	<u>2011</u>	<u>2013</u>	<u>2015</u>	<u>2017</u>	<u>2019</u>
Support	58.9%	44.4%	44.3%	41.5%	41.3%	43.4%	44.3%	42.3%	46.6%
Oppose	21.2%	17.4%	29.8%	31.0%	37.6%	32.8%	38.1%	40.3%	26.7%
Not enough information	5.0%	9.2%	9.3%	9.8%	6.2%	6.2%	8.5%	5.8%	13.5%
No opinion/Don't know/No response	14.9%	29.0%	16.8%	17.8%	14.9%	17.6%	9.2%	11.8%	13.2%

Graph 2 in Appendix B displays these data in a bar chart. The question was amended in 2015 to add a consequence of consolidation that some of the current haulers might not win contracts.

- There appears to be a relationship between support for consolidated collection and housing status (probability of chi-square = 0.002; expected value cells < 5 were > 20%, which lowers confidence in result). Homeowners were more likely to oppose consolidation. Renters were more likely to respond that they did not know whether they supported such a system.
- 54.2% of respondents support and 20.3% oppose a consolidated collection system for just household food scraps. Support is similar to the results of the 2017 survey. Opposition has dropped and the percent of undecided has increased.

Survey Comparison:**SUPPORT CONSOLIDATION**

Food Scraps Only	<u>2017</u>	<u>2019</u>
Support	55.5%	54.2%
Oppose	31.3%	20.3%
Not enough information	5.3%	7.4%
No opinion/Don't know/No response	5.5%	18.1%

- There appears to be a relationship between support for consolidated collection for food scraps and housing status (probability of chi-square = 0.01; expected value cells < 5 were > 20%, which lowers confidence in result). Homeowners were more likely to oppose consolidation. Renters were more likely to respond that they did not know whether they supported such a system.
- There appears to be a relationship between support for consolidated collection for food scraps and geographic region (probability of chi-square = 0.00; expected value cells < 5 were > 20%, which lowers confidence in result). A majority of residents in Regions 1, 3, and 4 support consolidation. Less than 40% of households in Regions 2 and 5 support such a system.
- When asked how trash disposal and recycling services in Chittenden County could be improved, the top answers respondents gave were (multiple responses permitted):
 - 1) provide better/more drop-off center hours (11.3%)
 - 2) more public awareness/participation (10.5%)
 - 3) provide curbside collection of food/yard trimmings/compost (10.3%)
 - 4) make cheaper or free (7.8%)
 - 5) provide consolidated collection (7.1%)

Survey Comparison:**IMPROVEMENTS**

(includes multiple responses)

	<u>2002</u>	<u>2004*</u>	<u>2006</u>	<u>2011</u>	<u>2013</u>	<u>2015</u>	<u>2017</u>	<u>2019</u>
Recycle more items	9.9%	27.5%	9.7%	2.9%	2.7%	5.6%	7.0%	1.5%
More education/public awareness	7.7%	21.5%	3.9%	1.2%	1.0%	4.0%	14.5%	10.5%
Lower costs/free service	5.1%	15.3%	3.4%	5.3%	4.7%	6.5%	6.4%	7.8%
Better/different/consolid. coll. services	6.8%	14.3%	2.4%	1.9%	5.0%	5.3%	2.3%	7.1%
More hrs, sites, improvements at DOCs	2.9%	3.8%	6.5%	3.6%	4.2%	8.6%	8.4%	11.3%
Provide curbside collection of organics	NA	NA	NA	2.9%	3.5%	5.8%	11.4%	10.3%
Other	15.0%	7.3%	24.4%	24.1%	14.6%	15.8%	9.6%	6.6%
None needed/No response/Don't know	55.6%	32.8%	49.8%	61.1%	64.3%	44.9%	39.3%	56.1%

Values = the percent of total responses not respondents.

*A change in the survey instrument and interviewer instructions provided by the contractor may have affected the results in 2004. Rather than require interviewers, as for previous surveys, to input each response (which would be coded later), common responses from the previous survey were listed for the interviewer. If the respondent did not seem to have a response, the interviewer was instructed by the contractor to read the first four responses listed on that survey. Consequently, the comparability of these data is questionable. In 2006, the survey instrument was changed so that interviewers again inputted each response without reading a list of responses.

- 64.0% of respondents would support and 25.5% would oppose a program that has a high fee (such as \$0.10) on single-use plastic bags, a smaller fee (such as \$0.05) on paper bags, and no tax on reusable bags. Of those that do not support such a program, 43.4% would support it if the revenues were used to fund environmental protection programs.

C. Type of Trash Disposal and Recycling Service

As compared to the last survey, there was a decrease in the percentage of respondents who indicated they use drop-off centers and an increase in those who say they use curbside service for their regular trash and recyclables. Respondents rate their trash and recycling service highly.

To comply with one of the performance standards in the Vermont Materials Management Plan, respondents were asked as they were in 2015 how they currently pay for trash, e.g., by size of container, number of bags, how frequently collected.

- 23.0% of the respondents use drop-off centers, 70.8% use curbside pickup service, and 3.2% use both curbside and drop-off for their regular trash and recyclables.

Survey Comparison:

SERVICE	<u>1998</u>	<u>2000</u>	<u>2002</u>	<u>2004</u>	<u>2006</u>	<u>2011</u>	<u>2013</u>	<u>2015</u>	<u>2017</u>	<u>2019</u>
Curbside	69.0%	80.5%	72.7%	72.3%	70.8%	68.4%	65.8%	71.1%	66.0%	70.8%
Drop-Off	28.5%	18.5%	26.3%	26.3%	25.5%	30.3%	30.8%	25.9%	28.3%	23.0%
Other	1.0%	0.0%	0.7%	1.3%	3.3%	0.2%	1.9%	2.9%	5.6%	3.2%
Don't know/NR	1.5%	1.0%	0.2%	0.3%	0.5%	1.0%	1.5%	0.0%	0.3%	2.9%

- A relationship appears to exist between municipal region of residence and whether households use curbside or drop-off service (probability of chi-square = 0.00; expected value cells < 5 were > 20%, which lowers confidence in result). As one might expect, use of drop-off centers is more prevalent in the more rural municipal regions.

- On a scale of 1-10, with 10 being the highest, the average rating for trash and recycling services is 8.5. In surveys prior to 2011, respondents were asked to rate trash and recycling services separately. In 2017, this question was not asked. Curbside customers rated their service 8.5, and drop-off center customers, 8.4.

Survey Comparison:

	2002		2004		2006		2011	2013	2015	2019
RATING	<u>Rec</u>	<u>Trash</u>	<u>Rec</u>	<u>Trash</u>	<u>Rec</u>	<u>Trash</u>	<u>Both</u>	<u>Both</u>	<u>Both</u>	<u>Both</u>
Average rating	8.7	8.8	9.0	8.5	8.9	7.7	8.9	8.9	8.8	8.5

- 38.0% of the respondents say they pay the same for trash no matter how much they dispose. 20.1% pay for trash based on the number of bags disposed, 14.5% pay based on the size of the can they set out, and 13.7% pay based on how frequently trash is picked up. A total of 48.3% say they pay with rates based on volume or frequency compared to 51.3% in 2015. Rates for those that say they have set rates may have been based on volume and/or frequency when service was first established.

Survey Comparison:

HOW PAY FOR TRASH	<u>2015</u>	<u>2019</u>
Same no matter how much	34.3%	38.0%
Number of bags disposed	18.2%	20.1%
Size of the can set out	15.9%	14.5%
How frequently picked up	17.2%	13.7%
Weight of the trash	2.0%	0.0%
Volume & frequency	1.2%	0.0%
Other	2.0%	0.0%
Don't know/No response	9.2%	13.7%

- A relationship appears to exist between type of service and how households say they pay for trash (probability of chi-square = 0.00; expected value cells < 5 were > 20%, which lowers confidence in result). The majority of drop-off center users (61.7%) indicated they pay by the number of bags disposed versus 6.9% for curbside customers. This is not a surprise since drop-off centers charge per bag. Paying the same rate is the most common response of curbside customers (46.7%) whereas 9.6% of drop-off center users gave this response.
- A relationship appears to exist between municipal region of residence and how households say they pay for trash (probability of chi-square = 0.00; expected value cells < 5 were > 20%, which lowers confidence in result). Paying by number of bags is more prevalent in the more rural municipal regions. This may be because there is higher usage of drop-off centers in rural areas which charge by the bag. Paying the same rate is a more common response in the most urban region (45.0%) than other regions (21.4% - 35.4%).

D. Drop-Off Centers

Drop-off centers are well used by residents for regular and special wastes.

- 81.0% of curbside customers said they use drop-off centers for special wastes, such as leaves, wood, electronics, motor oil, used clothing, old furniture, scrap metal, batteries, or appliances. This is an increase (within the margin of error) compared to the results of the last survey. Of all CSWD respondents, 84.8% are using the drop-off centers for regular or special waste services, similar to

the previous survey, which was 85.8%. Graph 3 in Appendix B displays type of drop-off center use by survey year.

Survey Comparison:

USE FOR SPECIAL WASTE

Curbside customers only	<u>1998</u>	<u>2000</u>	<u>2002</u>	<u>2004</u>	<u>2006</u>	<u>2011</u>	<u>2013</u>	<u>2015</u>	<u>2017</u>	<u>2019</u>
Yes	50.7%	57.9%	56.2%	63.5%	72.2%	73.8%	68.3%	83.6%	78.8%	81.0%
No	46.0%	42.1%	42.2%	35.4%	27.1%	25.1%	30.6%	16.1%	21.2%	17.0%
Don't know/No response	3.3%	0.0%	1.2%	1.1%	0.8%	1.1%	1.1%	0.3%	0.0%	2.1%

- A relationship appears to exist between use of drop-off centers for special waste and housing status (probability of chi-square = 0.001; expected value cells < 5 were > 20%, which lowers confidence in result). Homeowners were more likely to use the drop-off centers for special wastes (85.0%) than renters (61.7%).

E. Waste Diversion at Work

Most of the respondents' employers have a recycling program and over 40% of them have a compost program.

- 90.6% of respondents who work in Chittenden County said they were able to recycle at work, a decrease compared to the results of the last survey but within the margin of error.

Survey Comparison:

RECYCLING AT WORK	<u>2004</u>	<u>2006</u>	<u>2011</u>	<u>2013</u>	<u>2015</u>	<u>2017</u>	<u>2019</u>
Yes	87.1%	92.2%	90.9%	94.9%	94.5%	92.3%	90.6%
No	7.7%	5.9%	4.8%	3.7%	4.3%	6.2%	6.1%
Don't know/No response	5.2%	1.8%	4.3%	1.4%	1.2%	1.5%	3.3%

Graph 4 in Appendix B displays these data in a bar chart.

- 41.3% of respondents who work in Chittenden County said their workplace collected food scraps for composting, a decrease over the last survey but within the margin of error.

Survey Comparison:

COMPOSTING AT WORK	<u>2011</u>	<u>2013</u>	<u>2015¹</u>	<u>2015²</u>	<u>2017</u>	<u>2019</u>
Yes	24.5%	38.4%	40.6%	38.3%	45.3%	41.3%
No	60.6%	57.4%	47.3%	50.2%	49.3%	47.4%
Don't know/No response	14.9%	4.2%	12.1%	11.5%	5.5%	11.3%

Graph 5 in Appendix B displays these data in a bar chart.

¹Of those who have access to a recycling program at work. In 2015, the question should have been asked of all who said they work in Chittenden County.

²If we assume that those without access to recycling at work also have no access to composting at work.

F. Waste Diversion at Home

Participation in recycling remains high. Almost half of households manage yard trimmings at home. Over half of households currently compost food scraps at home, set them out separately for collection, drop them off for composting, and/or use them for animal feed. Given a choice on how to manage food

scraps under Act 148, more respondents chose backyard composting than they did curbside or drop-off service.

In compliance with the MMP, three additional questions regarding waste diversion at home were asked as they were in 2015. Less than a fifth of respondents would need to start keeping food scraps out of the trash to comply with the Universal Recycling Law (Act 148). Over half said they are already in compliance. A majority of residents were aware that clean wood could be recycled locally. Less than a quarter knew that recycling programs for drywall scrap and asphalt shingles are available. A majority of residents knew that hazardous special wastes are banned from disposal, but only a quarter to almost half were aware that blue bin recyclables and other special wastes are also banned.

The vast majority of respondents take actions to reduce the waste they generate which include using reusable shopping bags, composting food scraps, buying products in recyclable/reduced packaging, and using refillable beverage containers.

- 85.3% of respondents said they recycle curbside or at drop-off centers, return/donate recyclables for deposit, or recycle them in another way. An additional 2.7% said they recycle some recyclables and put others in the trash. 9.1% said they put their recyclables in the trash.

Survey Comparison:

RECYCLABLES MGMT	<u>2015</u>	<u>2017</u>	<u>2019</u>
Curbside pickup	57.2%	53.7%	39.2%
Drop-off at designated recycling sites	25.4%	28.5%	38.5%
Drop-off and curbside	3.2%	0.0%	0.0%
Return/donate for deposit	0.0%	8.7%	2.9%
Combo of drop off, curbside &/or deposit	0.0%	0.0%	4.2%
Put in trash	11.7%	5.7%	9.1%
Some drop-off or curb & some trash	1.7%	2.2%	2.7%
Other	0.7%	1.1%	0.5%
Don't know/No response	0.0%	0.2%	2.9%

- 48.5% of the residents said they manage yard trimmings at home (compost or leave on lawn) and 15.9% deliver them to drop-off sites for composting. 10.6% have them removed by a landscaper or maintenance company, 7.6% use a combination of diversion methods, 7.4% do not generate any yard trimmings, 4.7% set them out for collection for composting, 3.9% burn yard trimmings or put them in the trash, and 1.0% use a combination of diversion methods and disposal. The results represent no major changes from 2017.
- A relationship appears to exist between geographic region and whether respondents compost yard trimmings at home (probability of chi-square = 0.006). As one would expect, home composting was more common in the more rural regions.
- 39.0% of the residents said they currently compost food scraps at home, 22.5% put food scraps in their trash, 10.0% put scraps down the garbage disposal, 6.4% drop them off for composting, 2.2% set them out for collection for composting, and 2.9% use them for animal feed. Others use a combination of management methods. 46.8% compost at least some of their food scraps at home. Over half are diverting all of their food scraps from disposal through one or more methods. The results represent no major changes from 2017.

- A relationship appears to exist between service type for trash and recycling and whether respondents compost food scraps at home (probability of chi-square = 0.002; expected value cells < 5 were > 20%, which lowers confidence in result). Drop-off center users were more likely to compost food scraps at home (63.8%) than curbside customers (40.8%).
- A relationship appears to exist between geographic region and whether respondents use a garbage disposal for at least some of their food scraps (probability of chi-square = 0.001). As one would expect, use of garbage disposals was least common in the most rural regions.
- A relationship appears to exist between service type for trash and recycling and whether respondents dispose of at least some of their food scraps in the trash (probability of chi-square = 0.002; expected value cells < 5 were > 20%, which lowers confidence in result). 35.6% of respondents who use curbside service for their regular trash and recycling dispose of some or all of their food scraps in the trash. 18.1% of drop-off center users manage their food scraps this way.

Survey Comparison:

ORGANICS MGMT METHOD	<u>2000</u>	<u>2002</u>	<u>2004</u>	<u>2006</u>	<u>2011</u>	<u>2013</u>	<u>2015</u>	<u>2017</u>	<u>2019</u>
Compost yard trimmings*	38.9%	34.3%	37.3%	45.8%	55.0%	58.8%	26.6%	34.8%	29.9%
Leave on lawn or property	NA	NA	NA	NA	NA	NA	24.4%	15.8%	18.6%
Drop off yard trimmings	NA	NA	NA	NA	NA	NA	22.4%	16.8%	15.9%
Yard trimmings curbside/landscaper	NA	NA	NA	NA	NA	NA	4.2%	6.5%	10.6%
Combo of diversion options	NA	NA	NA	NA	NA	NA	5.0%	9.5%	7.6%
Combo of diversion w/ disposal	NA	NA	NA	NA	NA	NA	1.5%	3.3%	1.0%
Don't generate	NA	NA	NA	NA	NA	NA	11.2%	7.5%	7.4%
Put in trash	NA	NA	NA	NA	NA	NA	1.0%	2.0%	1.7%
Burn	NA	NA	NA	NA	NA	NA	0.7%	1.5%	2.2%
Compost food scraps	25.9%	24.4%	23.8%	34.0%	43.8%	49.9%	30.8%	40.5%	39.0%
Drop off food scraps	NA	NA	5.8%	6.8%	9.7%	9.4%	5.7%	6.8%	6.4%
Put down garbage disposal	NA	NA	NA	NA	NA	NA	10.9%	7.3%	10.0%
Set out for collection for composting	NA	NA	NA	NA	NA	NA	1.2%	6.3%	2.2%
Use for animal feed	NA	NA	NA	NA	NA	NA	0.7%	1.8%	2.9%
Combo of diversion options	NA	NA	NA	NA	NA	NA	3.2%	7.0%	5.9%
Combo of diversion w/ disposal	NA	NA	NA	NA	NA	NA	9.7%	10.0%	7.8%
Put in trash	NA	NA	NA	NA	NA	NA	37.1%	19.8%	22.5%

*In surveys prior to 2015, which used different wording in the question, composting included leaving yard trimmings on lawn/property.

- Respondents were asked what their preference was for managing their food scraps in face of the coming Vermont ban on the disposal of food scraps. 27.9% chose backyard composting, 17.4% chose curbside pickup, 12.3% chose drop-off, 2.7% chose composting and curbside for non-backyard composting items, and 3.7% chose composting and drop-off for non-backyard composting items. If options that include curbside and drop-off were combined, 20.1% say they would use curbside service and 16.0% would use drop-off service for at least some of their food scraps.

Survey Comparison:

FOOD SCRAP MGMT CHOICE	<u>2013</u>	<u>2015</u>	<u>2017</u>	<u>2019</u>
Backyard compost	47.4%	48.8%	50.5%	27.9%
Curbside pickup	30.0%	27.4%	24.8%	17.4%
Take to drop-off	8.2%	9.5%	8.8%	12.5%
Curbside pickup & backyard	3.0%	5.0%	8.8%	2.5%
Drop-off and backyard	1.5%	1.7%	2.8%	3.7%
Garbage disposal	0.0%	0.0%	0.5%	6.6%
Other diversion combination	0.0%	0.0%	0.0%	13.5%
Diversion combination w/ disposal	0.0%	0.0%	0.0%	3.9%
Put in trash	0.0%	0.0%	0.5%	4.4%
Other	0.0%	0.0%	1.3%	1.5%
Not enough information	1.7%	2.7%	0.3%	0.0%
Don't know/No response	8.2%	5.0%	2.0%	6.1%

Note: In the first three surveys, respondents were given three choices: 1) composting food scraps in their backyard, 2) taking them to a drop-off center or compost facility for a fee, or 3) having them picked up at the curb by a hauler for a fee. In 2013, the question described the fee for curbside or drop-off composting as "small". The word "small" was removed for both options from the later surveys. In the 2019 survey, respondents were read nine options: 1) backyard compost, 2) take to a drop-off center, 3) curbside pickup, 4) curbside pickup of items I can't compost in my backyard, 5) take items I can't compost in my backyard to a drop-off center, 6) garbage disposal, 7) animal feed, and 8) keep putting in my trash.

- There appears to be a relationship between preference and type of service (probability of chi-square = 0.00; expected value cells < 5 were > 20%, which lowers confidence in result). Not surprisingly, curbside customers were more likely to select curbside service than drop-off users.
- There appears to be a relationship between preference and geographic region. Respondents in more rural regions were more likely to choose composting food scraps at home than those in more urban regions (probability of chi-square = 0.005). Respondents in more urban regions were more likely to choose garbage disposals to manage food scraps than those in more rural regions (probability of chi-square = 0.001).
- There appears to be a relationship between preference and housing status (probability of chi-square = 0.00; expected value cells < 5 were > 20%, which lowers confidence in result). Renters were more likely to select trash for managing at least some of their food scraps in 2020 (23.3%) than homeowners (6.2%).
- In compliance with the MMP survey requirements, respondents were asked what changes they would need to make to comply with the Universal Recycling Law (Act 148). 51.7% said nothing; they are already in compliance. This is an increase over 2015. 17.4% said they would need to keep food scraps out of the trash, a significant reduction from 2015. 2.2% would need to do a combination of things, 4.9% said they would need to start recycling, and 1.7% said they never heard of the law. There was a large increase in the percent of respondents that said they do not know what they need to do.

Survey Comparison:

CHANGES TO COMPLY W/ ACT 148	<u>2015</u>	<u>2019</u>
Nothing: Already in compliance	44.3%	51.7%
Keep food scraps out of trash	31.8%	17.4%
Start recycling	1.0%	4.9%
Keep yard trimmings out of trash	0.0%	0.2%
Keep wood out of trash	0.2%	1.5%
Combination of above	4.0%	2.2%
Other	8.0%	0.0%
Never heard of law	1.0%	1.7%
Don't know	7.7%	19.1%
No response	1.1%	1.2%

- There appears to be a relationship between compliance with Act 148 and type of service (probability of chi-square = 0.00; expected value cells < 5 were > 20%, which lowers confidence in result). Drop-off center users were more likely to be currently in compliance with Act 148 (67.0%) than curbside customers (46.7%). This difference may be due to the fact that an option for food scrap management is available at the same place drop-off center users manage their regular trash and recyclables. Curbside collection of food scraps is not yet widely available.
- In compliance with the MMP, residents were asked if certain construction and demolition project wastes could be recycled locally. There was a decrease in awareness of recycling programs for these materials. 60.8% knew that clean wood could be recycled compared to 63.9% in 2015. 24.3% knew that drywall scrap could be recycled compared to 29.4% in 2015, and 22.1% knew that asphalt shingles were recyclable locally compared to 28.6% in 2015. Promotion of recycling programs for clean wood, drywall, and asphalt shingles by CSWD has been targeted mainly at larger generators of these materials since the 2015 survey. This may help explain the results as compared to 2015.

Survey Comparison:

WHICH CAN BE RECYCLED	<u>2015</u>	<u>2019</u>
Clean wood	63.9%	60.8%
Drywall scrap	29.4%	24.3%
Asphalt shingles	28.6%	22.1%
None of the above	3.2%	4.4%
Don't know/No response	32.6%	32.6%

- In compliance with the MMP, respondents were asked which of the materials on a list were currently banned from disposal in landfills. Overall, awareness has dropped since the 2015 survey. A majority of respondents knew that electronics, paint, motor oil, and fluorescent bulbs are banned from disposal. Less than half of the respondents were aware that large appliances, tires, scrap metal, clean wood, yard trimmings, cardboard and other paper products, glass bottles and jars, metal cans, and plastic bottles and jugs were banned from disposal.

One explanation for the difference between the two groups of materials might be that the hazardous materials have received more attention in the local, state, and national media. A shifting local population needs continuing education on local requirements that are not universal. Another explanation might be that most of CSWD's media campaigns in the past have focused on positive reasons to recycle. Whether residents know what is banned from disposal is less important to CSWD

than what they do with these materials when they are ready to discard them, which we measure in other ways. Knowing it is the law likely provides motivation for a sector of the population, though, to keep these materials out of the trash.

Survey Comparison:

WHICH ARE BANNED	2015	2019
Motor oil	81.3%	69.6%
Paint	79.9%	67.9%
Electronics	78.4%	63.0%
Fluorescent lamps/bulbs	76.4%	59.1%
Large appliances	71.4%	46.8%
Tires	71.1%	46.8%
Glass bottles & jars	50.7%	40.2%
Metal cans	52.7%	39.5%
Scrap metal	50.2%	39.0%
Plastic bottles & jugs	57.2%	35.0%
Concrete	38.6%	32.1%
Yard trimmings	38.6%	30.6%
Cardboard & other paper	41.8%	26.7%
Untreated wood	34.6%	23.8%
Household food scraps	25.1%	20.3%
None of the above	2.0%	1.2%
Don't know/No response	11.9%	18.1%

- For the first time, residents were asked if they take any actions to reduce the waste they generate. 86.8% said they did. The top actions taken include use reusable shopping bags (27.3%), compost food scraps (13.4%), buy products in recyclable/reduced packaging (12.2%), use refillable beverage containers (10.0%), and reduce use of disposable dishes and utensils (8.7%).
- Also for the first time, respondents were asked in what town their trash was put in a landfill. 71.6% did not know where their trash went. 12.3% responded Williston, 10.3% said Coventry, and 5.9% specified other locations.

G. Hazardous Waste

Most residents properly dispose of household hazardous waste, similar to earlier surveys. Almost all households are complying with the Vermont law on electronics disposal.

- 71.6% of respondents use a CSWD facility to dispose of household hazardous waste. 13.9% use a combination of or other diversion programs. 2.7% put at least some of their hazardous waste in the trash.

Survey Comparison:**HHW DISPOSAL METHOD**

(includes multiple responses)

	<u>2004</u>	<u>2006</u>	<u>2011</u>	<u>2013</u>	<u>2015</u>	<u>2017</u>	<u>2019</u>
Drop-Off Center/CSWD	36.3%	41.8%	39.4%	39.6%	45.1%	29.6%	39.0%
Rover	27.1%	26.4%	20.9%	16.7%	7.9%	21.9%	10.5%
Environmental Depot	20.3%	23.1%	33.3%	30.3%	24.9%	24.0%	22.1%
Store/retailer	NA	NA	NA	NA	2.4%	0.3%	1.0%
Regular trash	4.2%	2.4%	0.9%	1.2%	3.1%	2.4%	2.5%
Down the drain	0.3%	0.6%	0.3%	0.0%	0.0%	0.0%	0.0%
Combination of above or Other	5.9%	2.7%	2.3%	7.7%	13.4%	16.2%	13.1%
Don't know/No response	5.9%	3.0%	2.9%	4.3%	3.1%	5.6%	11.8%

- In compliance with the MMP survey requirements, respondents were asked what they do with electronics, such as computers, monitors, computer peripherals, printers, and televisions. 85.6% said they drop them off at designated recycling sites and/or community collection events, use a combination of diversion methods, or use other diversion methods than those listed. This is similar to the results of the 2015 survey where 87.6% said they used these methods. 1.2% use a combination of diversion and disposal methods and 3.2% said they put electronics in their trash.

Survey Comparison:**ELECTRONICS DISPOSAL METHOD**

	<u>2015</u>	<u>2019</u>
Drop of at designated recycling sites	78.4%	55.9%
Combination of diversion methods	2.0%	13.5%
Take to community collection events	4.0%	12.0%
Use other diversion method	3.2%	4.2%
Combination of diversion w/ disposal	2.0%	1.2%
Put in trash	1.7%	3.2%
Don't have any to dispose	3.5%	0.2%
Don't know/No response	5.2%	9.8%

- There appears to be a relationship between electronics disposal method and housing status (probability of chi-square = 0.004; expected value cells < 5 were > 20%, which lowers confidence in result). Renters were more likely to dispose of at least some of their electronics in the trash (13.3%) than homeowners (2.8%).

H. Communications

The top preferred methods for receiving solid waste information are flyer in the mail, e-mail, and the CSWD e-mail newsletter. Most respondents have heard of CSWD, but a majority believe the District provides collection of trash and/or recyclables. Respondents rated CSWD fairly high on a number of traits.

- 40.7% of respondents prefer to receive information about trash, recycling, and composting via a flyer in the mail, which is a significant drop from 2017. The other top answers include e-mail (28.9%), CSWD e-mail newsletter (10.0%), newspaper (9.3%), and CSWD web site/internet (8.1%).

Survey Comparison:

BEST WAY TO REACH w/ INFO (Multiple responses possible; percent of respondents, not responses, shown)

	<u>2013</u>	<u>2015</u>	<u>2017</u>	<u>2019</u>
Flyer in the mail	43.9%	42.5%	55.8%	40.7%
E-mail	21.3%	27.4%	32.0%	28.9%
CSWD e-mail newsletter	0.0%	0.0%	0.0%	10.0%
Newspaper	14.6%	10.2%	11.5%	9.3%
Television	6.5%	4.0%	4.8%	6.9%
CSWD website/internet	13.6%	5.2%	3.5%	8.1%
Radio	4.7%	2.7%	3.0%	3.2%
Front Porch Forum	5.7%	4.2%	2.8%	5.9%
Drop-Off Center	7.9%	1.0%	2.0%	3.7%
Phone call	0.7%	17.2%	1.8%	0.0%
Hauler	4.5%	2.5%	1.5%	2.0%
Other	10.4%	5.5%	5.1%	8.3%
Don't know/No response	11.2%	4.0%	4.5%	5.6%

- There appears to be a relationship between preference and age (probability of chi-square = 0.001). Respondents aged 55-84 were more likely to select direct mail for receiving information than other age groups.
- 95.8% of respondents had heard of CSWD or Chittenden Solid Waste District.
- When asked what respondents believe CSWD does, 69.9% said collect trash and/or recyclables, 45.1% said recycling or recycling processing, 32.4% said drop-off/recycling facilities, 16.2% said compost, 12.0% said landfill, and 7.6% said education.
- For the first time, respondents were asked how they think CSWD is funded to pay for the services it provides: 29.7% said the fees it charges, 22.1% said taxes, 8.6% said by the State, 4.7% said property taxes, and 2.0% said from selling recyclables. 32.4% said they do not know how CSWD is funded.
- There appears to be a relationship between how respondents think CSWD is funded and type of service (probability of chi-square = 0.004; expected value cells < 5 were > 20%, which lowers confidence in result). Drop-off center users were more likely to say CSWD is funded by the fees it charges (40.2%) than curbside customers (28.8%).
- For the second time, CSWD was rated by survey respondents on four characteristics. On a scale of 1-5, with 1 being never and 5 being all the time, the average ratings for the characteristics in 2017 and 2019 were as follows:

	Average Rating	
CSWD Characteristic	2017	2019
Friendly & respectful	4.5	4.6
Efficient & effective	4.3	4.4
Innovative	3.9	3.8
Communicates clearly	4.2	4.1

V. CONCLUSIONS & RECOMMENDATIONS

- In general, CSWD facilities and programs continue to enjoy high participation. Residents appear satisfied with their trash and recycling service, are participating in recycling and organics diversion, are managing their hazardous waste properly, and have a positive impression of the District.
- There is a good base of support for residential consolidated collection of trash and recyclables. Support is stronger for this type of system for just household food scraps. CSWD should continue to support member municipalities interested in considering municipal collection contracts. The benefits of this type of system need to be communicated well to non-supporters before implementation.
- CSWD staff should consider educating households with curbside service about the mandated unit-based fee system for trash and recyclables. If residents know they will be charged less if they generate less trash, they may be incentivized to review the service they currently receive.
- It is recommended that CSWD staff consider reminding residents that it is the law to recycle and to divert yard trimmings from the landfill.
- While there is strong participation in food scraps diversion by households and businesses, additional promotion and outreach on all management options are recommended.
- It is recommended that CSWD staff focus future promotion of household food scraps diversion on residents with curbside collection service for regular trash and recyclables, particularly renters.
- Given the level of participation in source reduction activities by residents, it is recommended that CSWD staff continue to promote tips on how to reduce waste to this engaged population.
- Staff should consider promoting CSWD's drywall and shingle recycling programs to residents.
- It is recommended that CSWD staff review the hours at Drop-Off Centers again.
- Given that most households think that CSWD provides trash and recycling collection, staff may want to consider expanding promotion of its purpose and activities. The promotion could include information on how CSWD is funded.
- CSWD staff should consider educating the public on where their trash is landfilled.
- Direct mail and e-mail should continue to be used as major avenues for disseminating information on solid waste management in Chittenden County.

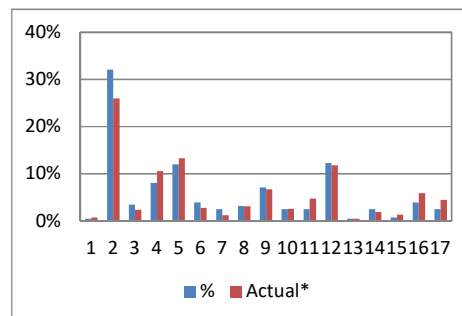
APPENDIX A

Chittenden Solid Waste District 2019 Household Solid Waste Survey RESPONSE FREQUENCIES & PERCENTAGES BY QUESTION

Q1 What town or city do you reside in?

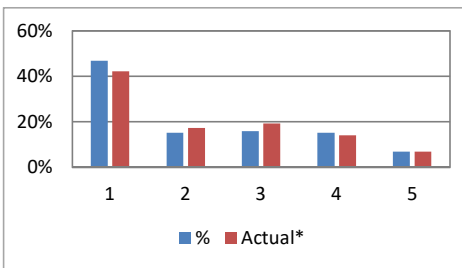
Response	#	%	VT Est. Actual*
Bolton	2	0.5%	0.7%
Burlington	131	32.1%	26.0%
Charlotte	14	3.4%	2.4%
Colchester	33	8.1%	10.6%
Essex Junction/Essex Town	49	12.0%	13.3%
Hinesburg	16	3.9%	2.8%
Huntington	10	2.5%	1.2%
Jericho	13	3.2%	3.1%
Milton	29	7.1%	6.7%
Richmond	10	2.5%	2.6%
Shelburne	10	2.5%	4.8%
South Burlington	50	12.3%	11.8%
St. George	2	0.5%	0.4%
Underhill	10	2.5%	1.9%
Westford	3	0.7%	1.3%
Williston	16	3.9%	5.9%
Winooski	10	2.5%	4.5%
TOTAL	408	100.0%	100.0%

*Vermont Department of Health, 2018



Q1A Regions

Response	#	%	VT Est. Actual*
Region 1 = Burl., S. Burl., Winooski	191	46.8%	42.2%
Region 2 = Colchester, Milton	62	15.2%	17.3%
Region 3 = Essex, Essex Jct., Williston	65	15.9%	19.2%
Region 4 = Char., Hines., Hunt., St. George, Richmond, Shelburne	62	15.2%	14.2%
Region 5 = Bolton, Jericho, Underhill, Westford	28	6.9%	7.0%
TOTAL	408	100.0%	100.0%



Q2 Have you ever heard of CSWD or the Chittenden Solid Waste District?

Response	#	%
Yes	391	95.8%
No	14	3.4%
Don't know/No response	3	0.7%
TOTAL	408	100.0%

Q3 What do you believe CSWD does?
Multiple responses permitted.

Response	#	% of Responses	% of Respondents
Collection/pickup of trash & recycling	238	30.6%	58.3%
Recycling/recycling processing	184	23.7%	45.1%
Drop-off/recycling facilities/operate "the dump"	132	17.0%	32.4%
Compost	66	8.5%	16.2%
Landfill	49	6.3%	12.0%
Education	31	4.0%	7.6%
Collection/pickup of trash	28	3.6%	6.9%
Collection/pickup of recycling	19	2.4%	4.7%
Dispose of hazardous materials	5	0.6%	1.2%
Other	2	0.3%	0.5%
Don't know/No response	24	3.1%	5.9%
TOTAL	778	100.0%	

Q4 How do you think the Chittenden Solid Waste District is funded to pay for the services it provides?

Response	#	%
The fees it charges	121	29.7%
Taxes	90	22.1%
By the State	35	8.6%
Property taxes	19	4.7%
From selling recyclables	8	2.0%
Other	3	0.7%
Don't know/No response	132	32.4%
TOTAL	408	100.0%

Q5 On a scale of 1-5, with 1 being the least and 5 being the most, how would you rate CSWD on the following traits based on your overall experience with them:

Friendly & respectful:

Response	#	%
5	231	56.6%
4	69	16.9%
3	11	2.7%
2	6	1.5%
1	6	1.5%
Don't know/No response	85	20.8%
TOTAL	408	100.0%
Average rating	4.6	

Efficient & effective:

Response	#	%
5	184	45.1%
4	92	22.5%
3	27	6.6%
2	3	0.7%
1	6	1.5%
Don't know/No response	96	23.5%
TOTAL	408	100.0%
Average rating	4.4	

Innovative:

Response	#	%
5	90	22.1%
4	91	22.3%
3	62	15.2%
2	18	4.4%
1	12	2.9%
Don't know/No response	135	33.1%
TOTAL	408	100.0%
Average rating	3.8	

Communicates clearly:

Response	#	%
5	156	38.2%
4	90	22.1%
3	53	13.0%
2	14	3.4%
1	9	2.2%
Don't know/No response	86	21.1%
TOTAL	408	100.0%
Average rating	4.1	

Q6 For your household trash and recycling, do you have a hauler who provides curbside pickup or do you use a drop-off center, known to some as "the dump"?

Response	#	%
Curbside/pick up/dumpster	289	70.8%
Drop-off/dump/landfill	94	23.0%
Both curbside & drop-off	13	3.2%
Don't know/No response	12	2.9%
TOTAL	408	100.0%

Q7 On a scale of 1 to 10, with 10 being the highest, how would you rate the trash and recycling service you receive?

Response	#	%
10-Highest rating	180	44.1%
9	59	14.5%
8	74	18.1%
7	20	4.9%
6	9	2.2%
5	31	7.6%
4	12	2.9%
3	4	1.0%
2	1	0.2%
1-Lowest rating	3	0.7%
Don't know/No response	15	3.7%
TOTAL	408	100.0%
Average rating	8.5	

Curbside Respondents		
Response	#	%
10-Highest rating	126	43.6%
9	44	15.2%
8	61	21.1%
7	11	3.8%
6	6	2.1%
5	22	7.6%
4	8	2.8%
3	3	1.0%
2	1	0.3%
1-Lowest rating	2	0.7%
Don't know/No response	5	1.7%
TOTAL	289	100.0%
Average rating	8.5	

Drop-Off Respondents		
Response	#	%
10-Highest rating	41	43.6%
9	12	12.8%
8	11	11.7%
7	6	6.4%
6	2	2.1%
5	7	7.4%
4	4	4.3%
3	1	1.1%
2	0	0.0%
1-Lowest rating	1	1.1%
Don't know/No response	9	9.6%
TOTAL	94	100.0%
Average rating	8.4	

Q8 Do you currently pay for your trash based on:

Response	#	%
Pay the same no matter how much trash	155	38.0%
Number of bags disposed	82	20.1%
Size of the can set out	59	14.5%
How frequently trash is picked up	56	13.7%
Don't know	56	13.7%
TOTAL	408	100.0%

Q9 Do you ever take items other than regular trash and recycling to a drop-off center, such as leaves, wood, electronics, motor oil, used clothing, old furniture, scrap metal, batteries, or appliances?

Response	#	%
Yes	330	80.9%
No	69	16.9%
Don't know	9	2.2%
TOTAL	408	100.0%

Q10 The next question is about curbside collection of trash and recyclables. In most cases in Chittenden County, if you want curbside service, you can choose which hauler comes to your home to pick up your trash and recyclables. Many other communities (including some in Vermont) have chosen to assign routes to specific haulers through a bidding process, so that only one hauler services a given neighborhood. This type of system can reduce fuel and other costs, air and noise pollution, the impact of trucks on the roads, and lower the overall cost to consumers; however, curbside customers would no longer have a choice of haulers, though all haulers in the system would be required to maintain specific service standards. In addition, some of the current haulers might not win contracts. Would you support or oppose this type of system?

Response	#	%
Support	190	46.6%
Oppose	109	26.7%
Not enough information	55	13.5%
Don't know	54	13.2%
TOTAL	408	100.0%

Q11 Would you support this type of system for just household food scraps?

Response	#	%
Support	221	54.2%
Oppose	83	20.3%
Not enough information	30	7.4%
Don't know	74	18.1%
TOTAL	408	100.0%

Q12 What do you do with household recyclables, for example, bottles, cans, cardboard, paper?
Multiple responses permitted (included in combined responses).

Response	#	%
Set out for collection for recycling	160	39.2%
Drop off at designated recycling sites	157	38.5%
Put in trash	37	9.1%
Some combo of drop off/curbside/deposit	17	4.2%
Return/donate for deposit	12	2.9%
Some drop off/curbside/deposit & some in trash	11	2.7%
Other	2	0.5%
Don't know/No response	12	2.9%
TOTAL	408	100.0%

Q13 What do you do with yard trimmings, such as leaves and grass clippings?
Multiple responses permitted (included in combined responses).

Response	#	%
Compost at home	122	29.9%
Leave on lawn or elsewhere on property	76	18.6%
Drop off at designated composting sites	65	15.9%
Combination of diversion with no disposal	31	7.6%
Removed by landscaper/maintenance co.	24	5.9%
Set out for collection for composting	19	4.7%
Burn	9	2.2%
Put in trash	7	1.7%
Combination of diversion with disposal	4	1.0%
Don't have any	30	7.4%
Don't know/No response	21	5.1%
TOTAL	408	100.0%

Q14 What do you do with food scraps?
Multiple responses permitted (included in combined responses).

Response	#	%
Compost at home	159	39.0%
Put in trash	92	22.5%
Put down garbage disposal	41	10.0%
Combination of diversion with disposal	32	7.8%
Drop off at designated composting sites	26	6.4%
Combination of diversion with no disposal	24	5.9%
Use for animal feed	12	2.9%
Set out for collection for composting	9	2.2%
Other	2	0.5%
Don't have any	2	0.5%
Don't know/No response	9	2.2%
TOTAL	408	100.0%

Q15 In 2012, the Vermont Legislature passed Act 148. This law includes a requirement that by 2020, everyone in Vermont must be managing food scraps in some way other than putting them in the trash. Which of the following food scrap management options do you expect to choose by this deadline?
Multiple responses permitted (included in combined responses).

Response	#	%
Backyard compost	114	27.9%
Curbside pickup	71	17.4%
Garbage disposal	27	6.6%
Take to a drop-off center	50	12.3%
Take items I can't compost to drop-off	15	3.7%
Curbside pickup of items can't compost	11	2.7%
Other combination of diversion options	71	17.4%
Put in trash	18	4.4%
Use for animal feed	6	1.5%
Don't know/No response	25	6.1%
TOTAL	408	100.0%

Q16 What do you do with electronics, such as computers, monitors, computer peripherals, printers, and televisions?
Multiple responses permitted (included in combined responses).

Response	#	%
Drop off at designated recycling sites	228	55.9%
Combination of diversion methods	55	13.5%
Take to community collection events	49	12.0%
Use other diversion method	17	4.2%
Combination of diversion w/ disposal	5	1.2%
Put in trash	13	3.2%
Don't have any to dispose	1	0.2%
Don't know/No response	40	9.8%
TOTAL	408	100.0%

Q17 What do you do with leftover hazardous products (e.g., chemicals, paint, automotive fluids, pesticides, batteries, fluorescent lamps, mercury-containing products)?
Multiple responses permitted (included in combined responses).

Response	#	%
Bring to Drop-Off Center	99	24.3%
Bring to Environmental Depot	90	22.1%
Bring to CSWD/District	60	14.7%
Bring to Rover	43	10.5%
Bring to a store/retailer	4	1.0%
Combination of above options	52	12.7%
Some proper management & some trash	1	0.2%
Put in trash	10	2.5%
Other	1	0.2%
Don't know/No response	48	11.8%
TOTAL	408	100.0%

Q18 Do you work outside the home in Chittenden County?

Response	#	%
Yes	213	52.2%
No	192	47.1%
Don't know/No response	3	0.7%
TOTAL	408	100.0%

Q19 Are you able to recycle at work?
Asked only of those who work in Chittenden County.

Response	#	%
Yes	193	90.6%
No	13	6.1%
Don't know/No response	7	3.3%
TOTAL	213	100.0%

Q20 Does your workplace collect food scraps for composting?
Asked only of those who work in Chittenden County.

Response	#	%
Yes	88	41.3%
No	101	47.4%
Don't know/No response	24	11.3%
TOTAL	213	100.0%

Q21 How would you prefer to receive new information about trash, recycling, and composting in Chittenden County?
Multiple responses permitted.

Response	#	% of Responses	% of Respondents
Flyer/brochure in the mail	166	30.7%	40.7%
E-mail	118	21.8%	28.9%
CSWD e-mail newsletter	41	7.6%	10.0%
Newspaper	38	7.0%	9.3%
CSWD web site/internet	33	6.1%	8.1%
Television	28	5.2%	6.9%
Front Porch Forum	24	4.4%	5.9%
Drop-off center	15	2.8%	3.7%
Radio	13	2.4%	3.2%
Friends/family/neighbors	9	1.7%	2.2%
Hauler	8	1.5%	2.0%
CSWD hotline	7	1.3%	1.7%
Facebook	7	1.3%	1.7%
Text message	7	1.3%	1.7%
Twitter	2	0.4%	0.5%
Do not want to receive information	2	0.4%	0.5%
Don't know/No response	23	4.3%	5.6%
TOTAL	541	100.0%	

Q22 After your hauler picks up your trash or you deliver your trash to a drop-off center, in what town is your trash put in a landfill?

Response	#	%
Williston	50	12.3%
Coventry	42	10.3%
Other	24	5.9%
Don't know/No response	292	71.6%
TOTAL	408	100.0%

Q23 What changes will you need to make to comply with the Universal Recycling Law, also known as Act 148, as it goes into effect?
Multiple responses permitted (included in combined responses).

Response	#	%
Nothing: Already in compliance	211	51.7%
Keep food scraps out of trash	71	17.4%
Start recycling	20	4.9%
Keep yard trimmings out of trash	1	0.2%
Keep wood out of trash	6	1.5%
Combination of above	9	2.2%
Never heard of Universal Recycling Law	7	1.7%
Don't know	78	19.1%
No response	5	1.2%
TOTAL	408	100.0%

Q24 Which of the following construction or demolition project waste can be recycled in your region?
Displayed as percent of total respondents, not responses.

Response	#	%
Clean wood	248	60.8%
Drywall scrap	99	24.3%
Asphalt shingles	90	22.1%
None of the above	18	4.4%
Don't know/No response	133	32.6%

Q25 Which of the following materials are currently banned from disposal in landfills?
Displayed as percent of total respondents, not responses.

Response	#	%
Motor oil	284	69.6%
Paint	277	67.9%
Electronics	257	63.0%
Fluorescent lamps/bulbs	241	59.1%
Large appliances	191	46.8%
Tires	191	46.8%
Glass bottles & jars	164	40.2%
Metal cans	161	39.5%
Scrap metal	159	39.0%
Plastic bottles & jugs	143	35.0%
Concrete	131	32.1%
Yard trimmings	125	30.6%
Cardboard & other paper products	109	26.7%
Untreated wood	97	23.8%
Household food scraps	83	20.3%
None of the above	5	1.2%
Don't know/No response	74	18.1%

Q26 Some communities ban single-use plastic bags or paper bags to reduce waste in the landfill, reduce litter, and to prevent impacts on wildlife. Instead of a ban on plastic bags or paper bags and to preserve consumer choice, some cities and towns have implemented a fee or a tax on the bags. Some programs place a high fee (such as \$0.10) on the harder to recycle plastic bags, a smaller fee (such as \$0.05) on easier to recycle paper bags, and no fee on reusable bags. Would you support this type of bag fee system?

Response	#	%
Support	261	64.0%
Oppose	104	25.5%
Not enough information	11	2.7%
No opinion	18	4.4%
Don't know/No response	14	3.4%
TOTAL	408	100.0%

Q27 Would you support this type of bag fee system if the revenues were used to fund environmental protection programs like Lake Champlain clean up, recycling programs, litter cleanup programs, or other environmental programs?
Asked only of those that opposed, had no opinion, didn't know, or didn't respond to that question.

Response	#	%
Support	59	43.4%
Oppose	56	41.2%
Not enough information	8	5.9%
No opinion	1	0.7%
Don't know/No response	12	8.8%
TOTAL	136	100.0%

Q28 Do you take any actions to reduce the waste you generate?

Response	#	%
Yes	354	86.8%
No	41	10.0%
Don't know/No response	13	3.2%
TOTAL	408	100.0%

Q29 What type of actions do you take?

Multiple responses permitted. List was not read to respondents.

Response	#	%
Use reusable shopping bags	227	27.3%
Compost food scraps	111	13.4%
Buy products in recyclable/reduced packaging	101	12.2%
Use refillable beverage containers	83	10.0%
Reduce use of disposable dishes & utensils	72	8.7%
Donate usable clothing	64	7.7%
Donate household goods	54	6.5%
Buy in bulk	54	6.5%
Buy used products	29	3.5%
Get off mailing lists	11	1.3%
Other	6	0.7%
Don't know/No response	19	2.3%
TOTAL	831	100.0%

Q30 What is your overall impression of the Chittenden Solid Waste District?

Response	#	%
Positive	344	84.3%
Negative	9	2.2%
Not enough information	18	4.4%
No opinion	37	9.1%
TOTAL	408	100.0%

Q31 How could trash and recycling services in Chittenden County be improved?

Response	#	%
Better/more drop-off center hours	46	11.3%
More public awareness/participation	43	10.5%
Curbside food/yard debris/compost	42	10.3%
Cheaper/free	32	7.8%
Municipal/consolidated collection	29	7.1%
They could not be improved/satisfied	27	6.6%
Accept more items for recycling	6	1.5%
Other	27	6.6%
Don't know/No response	202	49.5%
TOTAL	408	100.0%

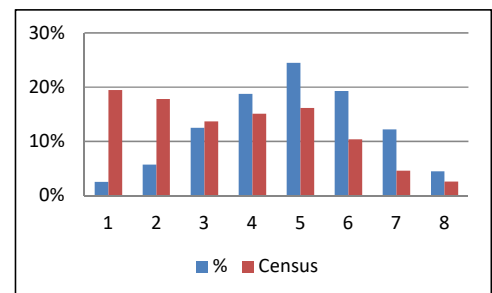
DEMOGRAPHIC QUESTIONS

For comparison purposes, estimates from the US Census are shown where available.

QA In which of the following age brackets do you fit?

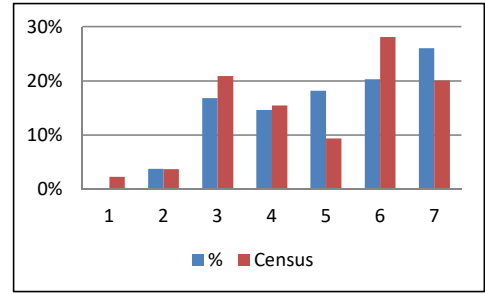
Census data are the percent of the population 18 years and over.

Response	#	%	Census
18 to 24	10	2.5%	19.5%
25 to 34	23	5.8%	17.8%
35 to 44	50	12.5%	13.7%
45 to 54	75	18.8%	15.1%
55 to 64	98	24.5%	16.2%
65 to 74	77	19.3%	10.4%
75 to 84	49	12.3%	4.6%
85 or older	18	4.5%	2.6%
TOTAL	400	100.0%	99.9%
No response	8		



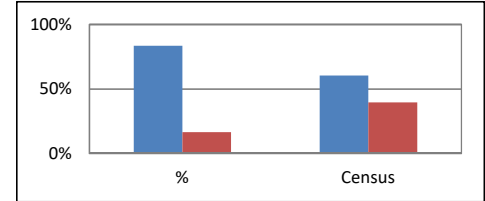
QB What is the highest level of education that you have completed?
Census data are the percent of the population 25 years and over.

Response	#	%	Census
Less than 9th grade	1	0.3%	2.3%
Some high school (9-11)	14	3.8%	3.7%
High school graduate/GED	62	16.8%	20.9%
Some college	54	14.6%	15.5%
Associate degree	67	18.2%	9.4%
Bachelor's degree	75	20.3%	28.1%
Graduate or professional degree	96	26.0%	20.1%
TOTAL	369	100.0%	100.0%
No response	39		



QC Do you own or rent your home?

Response	#	%	Census
Own	321	83.6%	60.4%
Rent	63	16.4%	39.6%
TOTAL	384	100.0%	100.0%
No response	24		

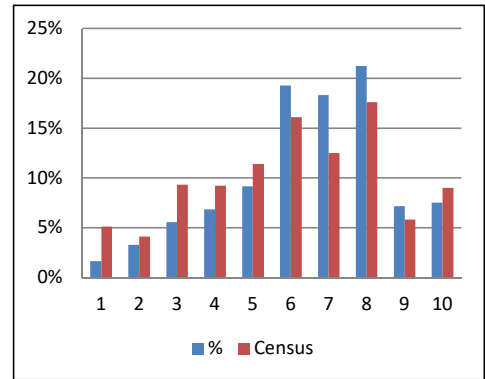


QD How long have you lived in Chittenden County?

Response	#	%
Less than 1 year	1	0.2%
1-2 years	1	0.2%
3-5 years	16	3.9%
Greater than 5 years	373	91.4%
Don't know/No response	17	4.2%
TOTAL	408	100.0%

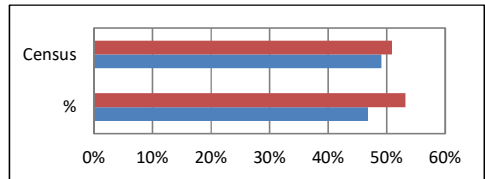
QE Which of the following ranges best describes your combined annual household income?

Response	#	%	Census
Less than \$10,000	5	1.6%	5.1%
\$10,000 to \$14,999	10	3.3%	4.1%
\$15,000 to \$24,999	17	5.6%	9.3%
\$25,000 to \$34,999	21	6.9%	9.2%
\$35,000 to \$49,999	28	9.2%	11.4%
\$50,000 to \$74,999	59	19.3%	16.1%
\$75,000 to \$99,999	56	18.3%	12.5%
\$100,000 to \$149,999	65	21.2%	17.6%
\$150,000 to \$199,999	22	7.2%	5.8%
\$200,000 or more	23	7.5%	9.0%
TOTAL	306	100.0%	100.1%
No response	102		



QF Respondent's sex (by observation)

Total Respondents	#	%	Census
Male	191	46.8%	49.1%
Female	217	53.2%	50.9%
TOTAL	408	100.0%	100.0%



Phone Status

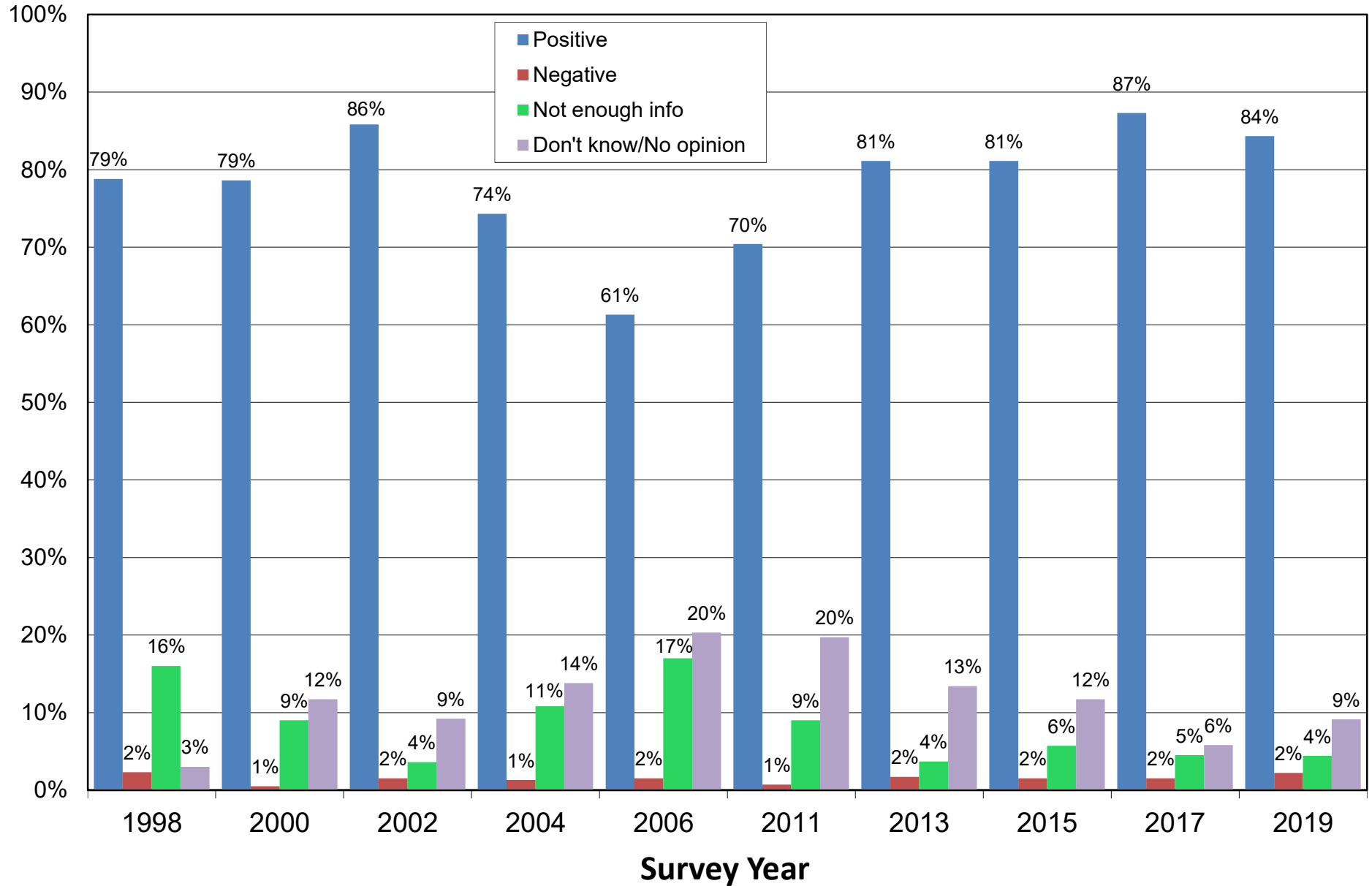
Respondent Type	#	%	VT Est. Actual*
Cell phone only households	95	23.3%	48.6%
Landline households	313	76.7%	
TOTAL	408	100.0%	

*National Center for Health Statistics, National Health Interview Survey Early Release Program – 2017 data published March 2019

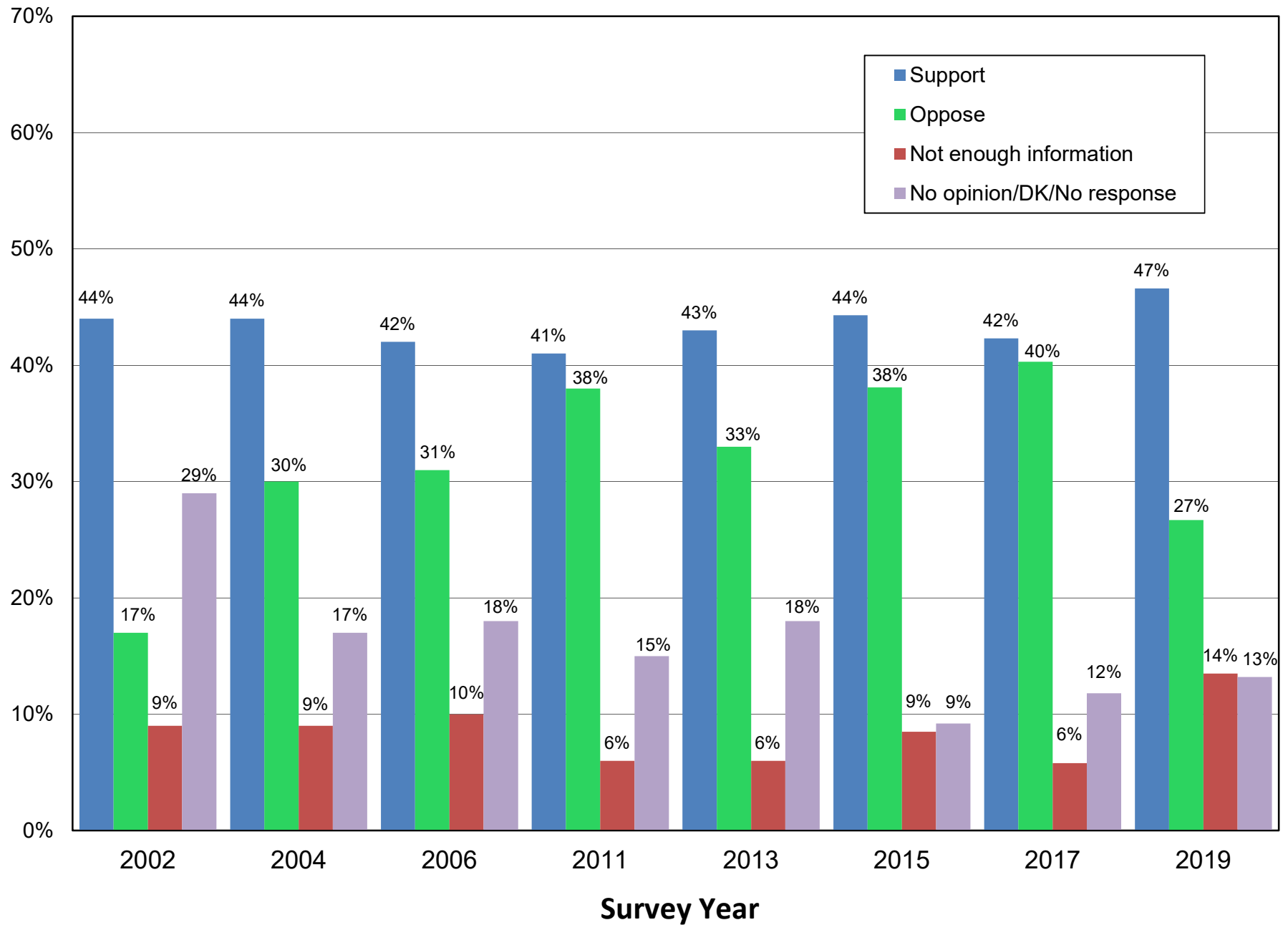
APPENDIX B

Chittenden Solid Waste District 2019 Household Solid Waste Survey

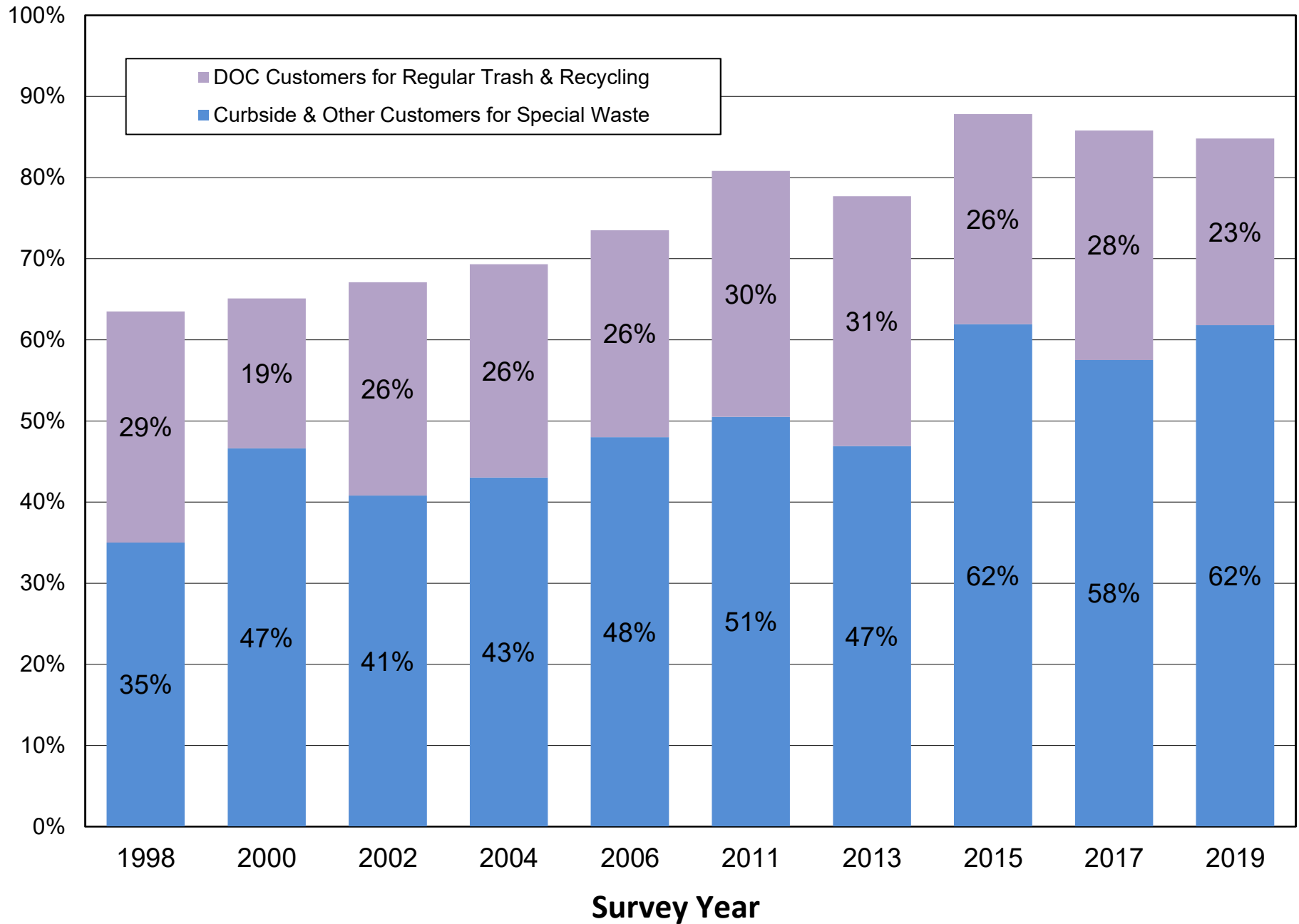
GRAPH 1: IMPRESSION OF CSWD



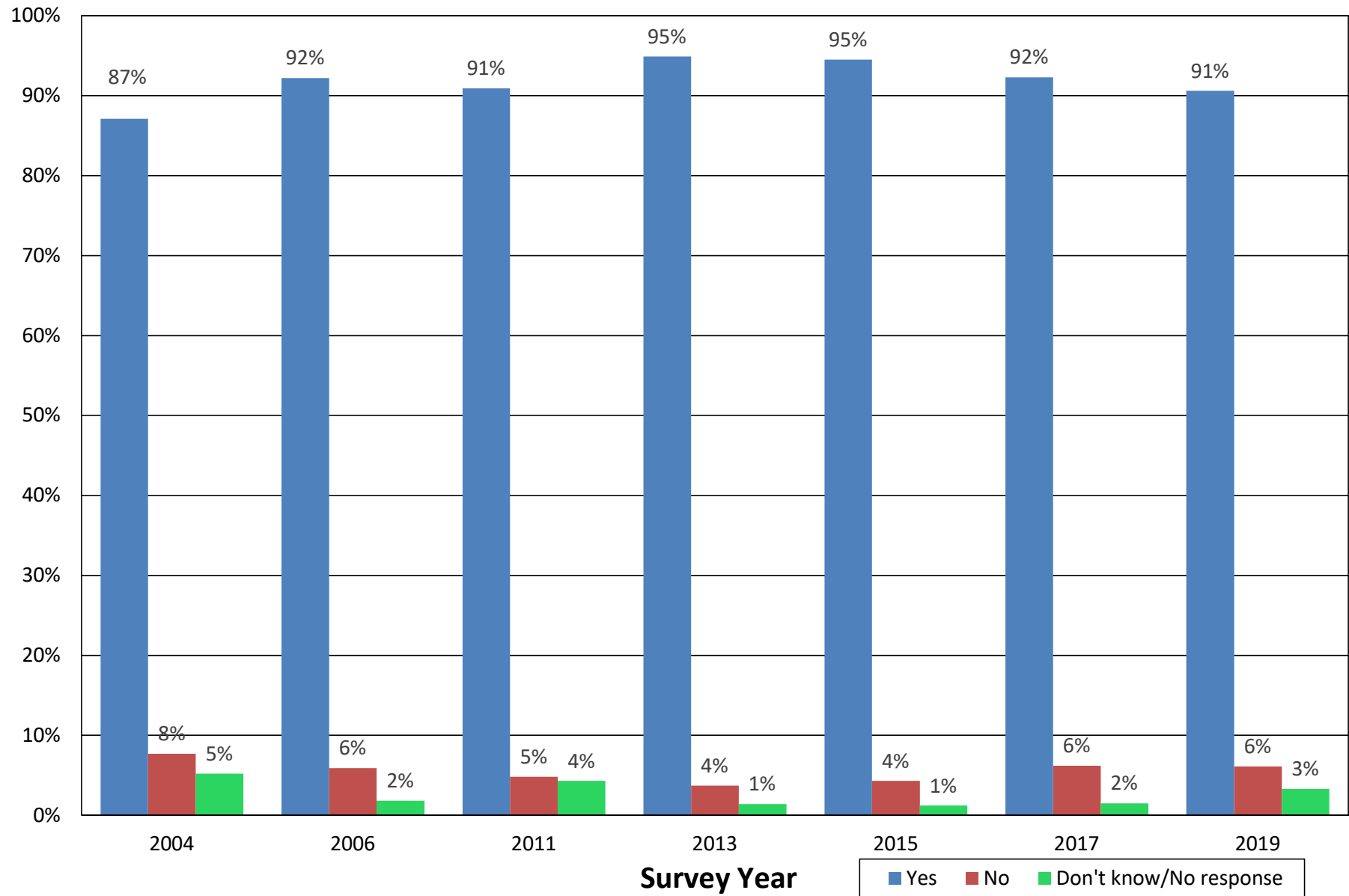
GRAPH 2: CONSOLIDATED COLLECTION OF TRASH & RECYCLABLES



GRAPH 3: DROP-OFF CENTER USERS



GRAPH 4: RECYCLING PROGRAM AT WORK



GRAPH 5: FOOD SCRAP DIVERSION PROGRAM AT WORK

